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Measurement of formal harmonization progress: The IASC experience

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Abstract

As a result of globalization, the accounting profession has become increasingly aware of the need to establish a single set of accounting standards that would be valid in the international arena. Recent events highlight the timeliness of this study, which provides an empirical measurement of International Accounting Standards Committee (IASC) progress throughout its harmonization history. The purpose of this article is twofold: first, a new measure of the advances achieved through formal harmonization and second, to use this methodology to evaluate the IASC achievements all through its standard-setting activity. Our results prove that the IASC has made great progress in regard to the level of harmony achieved through the accounting standards it has issued or revised. Nevertheless, we conclude that the IASC needs to continue working towards greater formal harmonization. Our study also indicates research directions that could advance the study of formal harmonization. This specific area of research has generally been disregarded in the existing literature, a trend we would like to see reversed, considering that its application can provide valuable insight for standard-setting processes, especially now that the accounting community is so conscious of the need to advance the harmonization process. © 2002 University of Illinois. All rights reserved.

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1. Introduction

As a result of the growing importance of financial globalization, the accounting profession has increasingly become aware of the need to establish a single set of accounting standards that would be valid in the international arena. In 1995, the International Accounting Standards Committee (IASC) and the International Organization of Securities Commissions (IOSCO) agreed to develop and promote a single set of accounting standards. This would allow large companies to obtain financial resources in the most developed capital markets without having to prepare reconciliations to other national accounting standards or disclose new information. Shortly after the abovementioned agreement was signed, the European Union (EU) issued a formal Communication stating its intent to align EU harmonization efforts with those of the IASC (see European Communities Commission, 1995).

In May 2000, the IOSCO completed the assessment of 30 IASC standards, including their related interpretations ("the IASC, 2000 standards"). In the subsequent resolution (see IOSCO, 2000), the IOSCO encouraged its members to permit incoming multinational issuers to use the IASC standards in the preparation of their financial statements for cross-border offerings and listings, supplemented[1] where necessary to address outstanding substantive issues at a national or regional level, or to use waivers of particular aspects of IASC standards without requiring further reconciliation under exceptional circumstances. Again, shortly after this IOSCO resolution was approved, the European Commission issued another Communication on 13 June 2000 (see European Community Commission, 2000), in which it outlines a strategy for future financial reporting in Europe. It states that, before the end of the year 2000, the Commission will present a legislative proposal to the Council of Ministers and the European Parliament to introduce the International Accounting Standards (IAS) requirement for the consolidated accounts of the EC companies listed on regulated markets. This requirement would come into force in 2005 at the latest.

Despite conflicting political interests, it seems we are now much closer to achieving the IASC's main objectives.[2] Fulfilling the IASC's ambitious aspirations — to become the international standard-setter — depends on the degree of success it has achieved, so far, in its harmonization efforts through the issuing of IAS.

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[1] Those supplemental treatments are as follows: (a) reconciliations of certain items, (b) additional disclosures, and (c) specifying particular interpretations in cases where the IASC is silent or unclear.

[2] The objectives of the IASC, as set out in its Constitution, revised in 1982 are (a) to promote worldwide acceptance and observance of the IAS it formulates, and (b) to work generally for the improvement and harmonization of regulations, accounting standards, and procedures relating to the presentation of financial statements. Nevertheless, in the context of the restructuring process undertaken by the IASC, its objectives have also been revised and set out as follows: (a) to develop, in the public interest, a single set of high-quality, understandable, and enforceable global accounting standards, which require high-quality, transparent, and comparable information in financial statements and other financial reporting, to help participants in the world's capital markets and other users make economic decisions; (b) to promote the use and rigorous application of those standards; and (c) to bring about the convergence of national accounting standards and IAS to effect high-quality solutions.

This study, which we believe is very timely, provides an empirical measurement of the progress made by the IASC to date. Since it was formed in 1973, the IASC has tried to improve its body of accounting standards with a view to promoting the use of the IAS internationally. Over the last few years, substantial efforts have been made to increase the comparability and transparency of financial statements. Valuation treatments have been reduced and disclosure requirements have been extended.

We should first make a distinction between what the existing literature refers to as "de jure" harmonization, or formal harmonization, and "de facto" harmonization, or material harmonization. The former term refers to harmonization between regulations and the latter to harmonization between practices applied by companies, regardless of whether such practices are affected by regulations. A differentiation should also be made between the concepts of harmonization and standardization. As is generally accepted, standardization is supposed to lead to a global uniformity, whereas harmonization refers to a process of increasing comparability and the avoidance of total diversity (see Tay & Parker, 1990).

Once this preliminary clarification has been made, this article provides a measurement of the advances achieved through formal harmonization. Next, we apply a methodology we created to evaluate the IASC achievements throughout the three stages of its standard-setting activity.

Prior studies on the assessment of accounting harmonization have focused on the investigation of material harmonization, disregarding the importance of formal harmonization. The indexes mostly used in the literature are the I and C indexes, put forward by Van der Tas (1988). Several authors introduce further improvements or developments to those indexes and make their own methodological contribution to the debate. For example, the index proposed by Archer and McLeay (1995), the global concentration index suggested by García Benau (1995), and the comparability index by Archer, Delvaille, and McLeay (1995). In more recent years, further contributions have been made to this area of research (see Archer, Delvaille, & McLeay, 1996; Krisement, 1997; McLeay, Neal, & Tollington, 1999; Morris & Parker, 1998).

The methodologies developed in the studies mentioned above use the accounting information prepared by companies to examine the level of harmonization among the practices and treatments applied, that is, material harmonization. Nevertheless, these methodologies are not valid for evaluating formal harmonization. The conceptual idea of those studies, that is, material vs. formal harmonization studies, is substantially different. Regarding the former, researchers analyze and operationalize the accounting choices made by companies and calculate the relative frequency for every valuation method from a certain accounting practice in order to obtain the concentration and dispersion indexes used in the literature cited above. With the latter, however, research sets out to evaluate how regulations change through time (i.e., time studies like the one we present here or transversal studies as published in Rahman, Perea, and; Ganeshanandam, 1996, in which several regulations from different countries are looked into). In this study, we develop a new methodological approach to measure advances in formal harmonization. Moreover, this methodology could also be applied to the analysis of the degree of

harmony or comparability between different regulations at different points in time or among different countries.

Nonetheless, previous research on material harmonization has partially evaluated, in one way or another, the effects of formal harmonization on practice. Indeed, we agree with Rahman et al. (1996) that one of the primary factors that lead to material harmonization is formal harmonization.[3] In fact, should the allowed accounting choices be minimized (if we concentrate on just one regulation, as we present in this study), or made more similar between different countries, the financial information provided by the many companies who comply with such accounting standards would certainly be more comparable. As a result, many more companies would tend to apply the same accounting system or, at least, there would be far fewer systems to choose from. Thus, material harmonization (i.e., the majority of companies applying a common accounting system) would increase as the result of a higher level of formal harmonization.

Although the literature on formal harmonization is scarce, important contributions have been made by Adhikari and Tondkar (1992), Laínez Gadea, Callao Gastón, and Jarne Jarne (1996), and Rahman et al. (1996). No methodological proposals, however, have so far been put forward to evaluate the formal harmonization of accounting regulations.

Adhikari and Tondkar (1992) examine 35 stock exchanges' listing requirements as the source for accounting regulation, and they identify some environmental factors that are determining factors for such listing requirements.

On the other hand, Laínez Gadea et al. (1996) concentrate on analyzing and quantifying the existing discrepancies among the information requirements imposed by the stock exchanges of 13 countries. Their study finds that there are more differences among periodical reporting requirements than with additional information to be disclosed in the case of private offerings.

Last, but not least, Rahman et al. (1996) measure the formal harmonization level that has been achieved between the two "neighboring" countries of Australia and New Zealand. As their source of "accounting regulation," they analyze the disclosure and measurement requirements stipulated in accounting standards, legislative requirements, and stock-listing requirements. They do a multiple-discriminating analysis to identify the different categories of requirements that achieve higher or lower degrees of harmonization between the two countries.

The remainder of this paper is organized as follows. Section 2 presents the three main landmarks in the IASC's history, which allows us to split its harmonization efforts into three stages. The accounting situation in each of these stages is then used as a basis to evaluate the IASC's formal harmonization progress. Section 3 presents our methodological contribution and the research plan for its application to the three stages identified in the IASC's standard-

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[3] It should be highlighted that some studies provide a theoretical framework or empirical evidence on the spontaneous trend to harmonization experienced by large companies, that is, the global players (see Cañibano & Mora, 1999; Huddart & Hughes, 1997; Meek & Gray, 1989; Meek, Roberts & Gray, 1995; Taylor-Zarzesky, 1996).

setting activity. The results of this empirical study are examined in Section 4. Finally, Section 5 reports the conclusions that may be drawn from this study.

2. Stages in IASC harmonization

In Section 1, we established the timeliness of this study, due to the new initiatives seen in the international accounting harmonization process. We devote this section of the study to presenting the IASC's harmonization history. The three different stages in the history of IASC we identify here will be used in a later section for our empirical study, which introduces a new methodology for evaluating formal harmonization.

Three different stages can be clearly identified in the harmonization strategy followed by the IASC, in accordance with the evolution of the characteristics of its harmonizing model. During the first phase, from 1973 to 1988, the IASC issued 26 generic standards, allowing multiple options and prescribing only minimal disclosures. In 1988, the IASC became concerned about the comparability achievements reached with the IAS. This marked the beginning of a new phase, that is, the second stage, from 1989 to 1995. The IASC reviewed its current standards and eliminated a significant number of options or showed its preference for a benchmark treatment, leaving the others simply as allowed treatments. As a result, a "Comparability/Improvements Project" (IASC, 1990) and a "Framework for the Preparation and Presentation of Financial Statements" (IASC, 1989) were published. Finally, 21 choices were eliminated in 10 standards. The third stage began in 1995, when the IOSCO agreed to endorse the IAS, provided that IASC complete a core set of standards by mid-1999 (see Van Hulle, 1997; Zeff, 1998).

According to the core standards program, the IASC has made additional improvements, further reducing the allowed options. And, great attention has been paid to increasing the levels of disclosure, as well as to a rigorous compliance with the IAS.

The international debate generated in accounting literature over the new thrust that the harmonization process has received in recent years should not be ignored. The debate reflects the power play between the SEC and the IASC. Both institutions are afraid of losing their clout in the accounting standard-setting process worldwide. Indeed, both the IASC and the SEC are aware of the fact that the IASC needs the SEC's acceptance of the
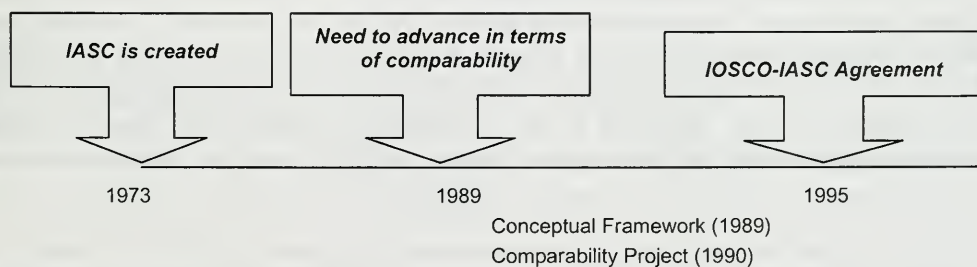
Fig. 1. IASC harmonization stages.

Table 1
Chronology of IASC standard-setting activity

High flexibility (1973/1988)	Comparability of financial reporting (1989/1995)	IOSCO–IASC Agreement results (1995 onwards)
• IAS 1–26	• Revised IAS 2, 8, 9, 11, 16, 18, 19, 21, 22, and 23 (mainly in force in 1995). • IAS 27, 28, 29 (in force in 1990), 30 (in force in 1991), 31 (in force in 1992), and 32 (in force in 1996).	• Revised IAS 1, 12, 14, 22 (in force in 1998), 16, 17, 19, 28, 31 (in force in 1999), 10 (in force in 2000), and 32 (in force in 2001). • IAS 33–39 (mainly in force in 1999).

IAS, in order to ensure the complete success of the IAS. Actually, the IASC is in the process of a restructuring process and the SEC is maneuvering trying to gain greater control over the revised IASC structure (see Flower, 1999; Zeff, 2000). In spite of the IASC's achievements, the accounting literature offers conflicting opinions on the final outcome of the IOSCO–IASC agreement (see Cairns, 1997 and 1999; Flower, 1999 and 1997; Hegarty, 1997; Kelly, 1999; McGregor, 1999; Zeff, 1998; IASC, 1998; Zorio & Garrido, 1999). The SEC has not yet issued a formal response to this momentous decision. Three important decisions serve as landmarks that divide the IASC's history into three different stages of the overall harmonization process, as shown in Fig. 1.

We base our to study of the IASC standards, both issued and revised, on the three different stages mentioned above.[4] In the next section, we apply our methodological proposal to measure "de jure" harmonization on the IAS treatments that correspond to each of the three stages (see Table 1).

3. Measurement of formal progress by the IASC

In Section 2, we presented the background and basis for this article. Our descriptive analysis of the IASC's harmonization efforts, divided into three phases, outlines a trend, from a set of highly flexible standards to a comprehensive body of accounting standards that would guarantee comparability and transparency. We shall try now to evaluate the development of the IASC's standards, from its beginnings to the present.

In discussing formal harmonization through the IASC, we focus on the IAS without considering whether such treatments are accepted or not by other regulatory authorities, such as stock exchanges worldwide. This is because the IASC endeavours to have its standards finally accepted, in the long run, without reconciliations or any exceptions imposed by the stock exchanges. In fact, according to the International Federation of Stock Exchanges (Fédération Internationale des Bourses des Valeurs, or FIBV) and the Federation of Euro-

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[4] The period of enforcement of the standards does not coincide with the dates of the landmarks above, because there are necessary transitory periods between the approval and effective date of each standard.

Asian Stock Exchanges (FEAS), nowadays, the stock exchanges seem to adopt just two kinds of positions toward the IAS: (a) those that require reconciliation to national GAAP by listed foreign companies,[5] and (b) those that accept IAS for listed foreign companies[6] or even for local companies.[7]

Therefore, if the IASC is to fulfil its aspirations, the IAS should be accepted by stock exchanges much as they are presented. This means that, in view of the present situation, reconciliations to national GAAP should be eliminated. As already mentioned, the United States is the most powerful force in this regard. However, apart from countries like the United States, which require reconciliation to domestic standards, the IAS, as they are currently outlined, are accepted as the basis for the financial information that must be filed in the stock exchanges of certain countries. Moreover, it should be highlighted that IAS 1 states that only companies that fully comply with the IASC standards can state the use of IAS in their financial statements. We expect, therefore, that when the IASC[8] declares that such stock exchanges accept the IAS, with no exceptions, then listed companies using IAS should not have to make any accounting changes as a result of their listing status.

Hence, we shall now focus on the IAS to provide evidence on the formal harmonization progress achieved by the IASC, disregarding any other requirements that might be imposed by the stock exchanges. Future studies could extend our discussion of formal harmonization by including not only the accounting regulations regarding valuation treatments, but also disclosure requirements imposed by accounting regulations or even by stock exchanges or other regulatory entities.

3.1. Sample

The sample used in our empirical analysis comprises those accounting treatments included in the IAS that have been modified during the IASC's existence. Such accounting treatments were especially conflictive at some specific moment in time. As a result, standard-setting efforts have been made to address these issues and reach a consensus. As we hope to prove, this has gradually led to a considerable improvement in terms of the accounting harmonization process.

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[5] The stock exchanges that require listed foreign companies to provide reconciliation from IAS to local GAAP are those from the following countries: United States, Argentina, Canada, Chile, Korea, Finland, Hong Kong, Poland, and Spain.

[6] The stock exchanges from the following countries allow foreign companies to file financial statements complying with IAS: Australia, Egypt, Japan, Luxembourg, Malaysia, Malta, Netherlands, New Zealand, Norway, Singapore, Slovakia, Sweden, Thailand, Turkey, Ukraine, and United Kingdom.

[7] Though, under certain specific conditions, the countries that follow allow not only foreign companies but also national companies to file financial statements in accordance with IAS: Austria, Bangladesh, Belgium, Cayman Islands, China, Croatia, Cyprus, Czech Republic, Denmark, Estonia, France, Hungary, Italy, Jordan, Latvia, Macedonia, Pakistan, Peru, Slovenia, South Africa, Sri Lanka, Switzerland, Tanzania, and Zimbabwe. See IASC's website for further information on the conditions that are to be met by national companies from some of the abovementioned countries to apply IAS.

[8] For more information, see the IASC's webpage on IAS acceptability by stock exchanges.

After a thorough analysis of the IAS, every concept is assigned four feasible treatments, for each of the three harmonization stages identified in the IASC life. Following Rahman et al. (1996), the typology we used to identify the nature of the treatments is as follows: (a) required treatment: compulsory treatment for all companies complying with IAS, (b) benchmark treatment: recommended or preferred treatment according to IAS, (c) allowed treatment: not required or not forbidden by IAS, (d) forbidden: not permitted by IAS.

The procedure for assigning numerical values was undertaken by one coder, who studied the changes introduced in the standards, developing the idea conveyed by the Statement of Intent (see IASC, 1990). In fact, we used this document to identify the main changes introduced in Stage 2, thus leaving no place for any kind of subjectivity. Changes introduced in the third stage were easily identified because the new standard highlights the recent changes in shaded text with the deleted text of former IAS both shaded and scratched-out (see, for instance, IAS 8, 16, 18, 21, 22, 25, 27, 28, 30, 31, 32 in IASC, 1999). We also examined the IASC's press releases and information published in its website very carefully to ensure we did not ignore or miss any change being implemented in existing accounting treatments. Hence, all changes should be reflected in our coding procedure. We paid special attention to the most conflictive ones, carefully considering all of the documents published by the IASC. A certain degree of subjectivity might well be inherent in the website information, such as press releases that ignore little changes and quotations, that are not clearly indicated in the IAS Bound Volume (IASC, 1999), could have been missed. We believe there is just a very small chance that this could have happened, and even if it did, that information would be highly unlikely to modify the results and conclusions herein presented.

Following the division shown in Table 1, the three stages have been called "High flexibility" (1973–1988), "Comparability of financial reporting" (1989–1995), "IOSCO–IASC Agreement results" (1995 onwards). These three stages have been denoted as Stages "A," "B," and "C," respectively, in the tables and formulae shown in the following sections. As previously mentioned, Stage A is characterized by the high flexibility allowed by IAS; Stage B represents a new period where concerns for a higher degree of comparability materialize in the reduction of alternative treatments; and Stage C's main feature is a high standard-setting activity in order to complete the core standard program agreed with the IOSCO. It should be noted that previous empirical studies also operationalize the impact of IASC standards, dividing the IASC's history into three different stages (see, for instance, Harris, 1995; Harris and Muller, 1999).

Appendix A shows the analysis of the treatments included in the IAS, with regard to 20 selected accounting concepts (see, for instance, Epstein & Ali Mirza, 2000). As already explained, the subset of corresponding IAS should constitute the whole population of accounting concepts whose valuation treatments have been modified along the IASC's life. It could seem to be a rather small sample, yet its size is restricted by the fact that we need to have a clear reference for each accounting concept throughout the three stages of the IASC's history. Some very interesting accounting issues have been addressed by the IASC in recent years, which did not exist prior to regulation (for instance, IAS 33 "Earnings Per Share").

In fact, it should be remarked that apart from the 20 accounting concepts included in our sample, changes requiring higher disclosure (see Appendix B) have also been detected with

regard to the harmonization stages in five IAS (IAS 1: "Presentation of Financial State-ments," IAS 7: "Cash Flow Statements," IAS 14: "Segment Reporting," IAS 32: "Financial Instruments: Disclosures and Presentation," IAS 33: "Earnings Per Share"). However, since our methodological approach cannot be applied to them, these formal changes have not been taken into account for our evaluation. The harmonizing criteria that we develop next is not focused on the fact that companies are required to disclose more financial information, but on the fact that alternative accounting treatments are reduced.

The empirical analysis of the level of formal harmonization reached by the IASC, throughout the three stages of its life, is based on the 20 concepts we identified and selected, following the coding procedure explained above. The basic idea is to find an indicator or a measure of the gradual reduction of alternative treatments over time.

To do so, we use Stage C (IOSCO–IASC Agreement results) as the period of reference, since it is the one that shows further harmonization with regard to the accounting concepts included in the sample. As is shown in Fig. 2, which presents the percentages of alternative treatments (required, benchmark, allowed, forbidden), there has been a rise in compulsory or required treatments (7.69, 28.95, 34.15) and forbidden treatments (2.56, 23.68, 31.71). This rise leads to a more rigid set of standards and, therefore, increases formal harmonization. Afterwards, we shall use a second period of reference, which we call the "Ideal harmonization situation."

3.2. Methodology

The methodology used is based on two different indicators to measure the degree of the IASC's formal harmonization efforts. Since Stage C is the highest harmonization period, then
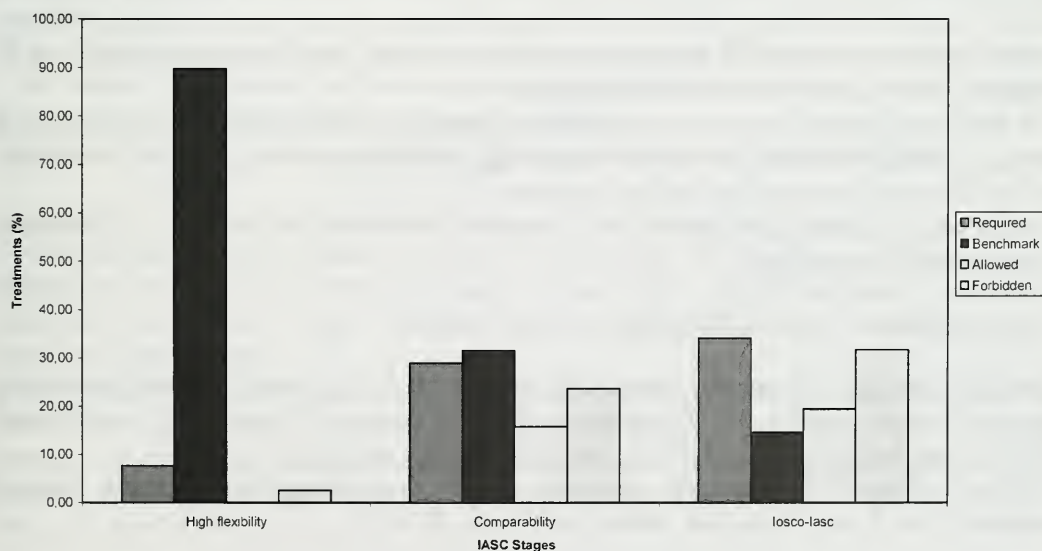
Fig. 2. Alternative accounting treatments in IASC stages.

Table 2
Groupings of IAS in our sample

	Balance sheet	Income statement
Inventories	×	
Changes in accounting policies	×	
Development costs		×
Research costs		×
Events after the balance sheet date	×	
Dividend/Profit distribution	×	
Construction contracts		×
Income taxes		×
Property, plant, and equipment	×	
Revenue		×
Post-employment benefits		
Changes in foreign exchange rates	×	
Uniting interests	×	
Positive goodwill	×	
Negative goodwill	×	
Borrowing costs		×
Contingent liabilities	×	
Intangible assets	×	
Financial instruments		×
Financial assets	×	

the first indicator is calculated by taking Stage C as the reference period (IOSCO–IASC Agreement results). The second indicator will be obtained by constructing an "Ideal harmonization period" as the period of reference, which is denoted as Stage D. We call it "Ideal" because we develop Stage D by declaring that just one treatment is required for each concept and no alternative treatments are allowed. All the other treatments considered in Stages A, B, or C must therefore be forbidden.

It should be pointed out, however, that this concept of standardization does not mean a better accounting situation. The closer we get to this "Ideal harmonization period," the higher the level of harmonization that will be achieved.

Since each accounting standard has four alternative treatments (see Appendix A), each one can be defined as a vector:

$$A_k, B_k, C_k; \qquad k = 1, 2, \ldots, 20$$

where the subscript k denotes the accounting concept and A, B, C states the IASC accounting stages defined in Section 3.1. For instance, the first concept, "Inventories," is, for each period, respectively: $A_1 = (0,4,0,0)$, $B_1 = (0,2,1,1)$, and $C_1 = (0,2,1,1)$.

Either indicators, or measures, are based on the Euclidean distance for any pair of elements.[9] Let X and Y be two vectors defined as $X = (x_1, x_2, \ldots, x_J)$ and $Y = (y_1, y_2, \ldots, y_J)$.

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[9] In Appendix C, several distance measures different from the Euclidean one are used.

The Euclidean distance (or norm) for any pair X, Y is then defined[10] as:

$$d(X, Y) = \left[\sum_{j=1}^{J} (x_j - y_j)^2 \right]^{1/2}$$

3.2.1. Measure 1 (basis period: Stage C)

The steps for building Measure 1 are as follows:

1. The Euclidean distances for all the vectors corresponding to A and B stages to Stage C are calculated, that is:

$$d(A_k, C_k), \quad d(B_k, C_k); \qquad k = 1, 2, \ldots, 20$$

in which A_k, B_k, and C_k are elements from $J \times 1$ vectors, where J denotes the number of accounting alternatives, that is, $J = 4$ in our case. To abbreviate, the above Euclidean distances are denoted as $d_{k,m}^n$ where $m = A, B$ and n is the basis period, that is, $n = C$. Three different kinds of indicators will be obtained. The first, which contains all the standards of the sample, is called the "general indicator." Furthermore, the 20 concepts have been split into two groups: the concepts from the Balance Sheet (12 concepts) and the ones from the Income Statement (8 concepts),[11] which can be seen in Table 2, and which obtain the corresponding Balance Sheet indicator and Income Statement indicator.

2. Let

$$D_m^C = \sum_{k=1}^{H} d_{k,m}^C; \qquad m = A, B$$

where D_m^C represents our formal harmonization measure taking Stage C as a reference, and H is the number of standards that make up our measure or indicator, that is, general indicator, Balance Sheet indicator, or Income Statement indicator.

Note that for $D_m^C = 0$, then m reaches the full harmonization with respect to Stage C.

3.2.2. Measure 2 (basis period: Stage D)

Another harmonization measure is based on constructing an "Ideal harmonization period," denoted as Stage D (see Table 3), which allows only a single accounting treatment, specifically, the "required" one. The other treatments are classified as "forbidden" ones in each IAS in the sample.

The number of overall treatments corresponding to each accounting concept in Table 3 is obtained through Stage C, for instance, "Inventories" has four treatments: FIFO, weighted average cost, LIFO, and base-stock formula. Since Stage C is temporarily the nearest one to Stage D, then C will be the reference stage for obtaining Stage D.

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[10] See Lancaster and Tismenetsky (1985).

[11] Our split is based on the IASC classification (see the "IASC Insight" quarterly newsletter, March 1999).

Table 3
Ideal harmonization period (Stage D)

	Stage D			
	Required	Benchmark	Allowed	Forbidden
Inventories	1	0	0	3
Changes in accounting policies	1	0	0	1
Development costs	1	0	0	0
Research costs	1	0	0	0
Events after the balance sheet date	1	0	0	2
Dividend/Profit distribution	1	0	0	1
Construction contracts	1	0	0	1
Income taxes	1	0	0	1
Property, plant, and equipment	1	0	0	1
Revenue	1	0	0	1
Postemployment benefits	1	0	0	1
Changes in foreign exchange rates	1	0	0	1
Uniting of interests	1	0	0	1
Positive goodwill	1	0	0	1
Negative goodwill	1	0	0	2
Borrowing costs	1	0	0	1
Contingent liabilities	1	0	0	1
Intangible assets	1	0	0	1
Financial instruments	1	0	0	0
Financial assets	1	0	0	1

This second indicator, D_m^D, is obtained in the same way as the first one but in this case, $m = A,B,C$ and the reference period is $n = D$. Also, m would now achieve a complete harmonization with regard to Stage D when $D_m^D = 0$.

4. Analysis and results

In this section, we look into the values obtained once the methodological approach presented above has been applied to our sample. It should be emphasized that, in accordance with the objectives of this study, these values explain the progress achieved by the IASC in terms of formal harmonization.

The lower the values, the higher the harmonization level achieved, and vice versa (i.e., the higher the figures obtained, the less important the advance made in comparability). As already explained, two groupings of indicators have been calculated, as follows (see Tables 4 and 5).

Table 4
Formal harmonization indicators (the "IOSCO–IASC Agreement results" stage is the period of reference)

Stages	General	Balance sheet	Income statement
A–C	41.27	25.41	15.86
B–C	14.04	11.04	3.00

Table 5
Formal harmonization indicators (the "ideal harmonization situation" stage is the period of reference)

Stages	General	Balance sheet	Income statement
A–D	46.29	29.40	16.89
B–D	22.47	17.47	5.00
C–D	15.40	11.99	3.41

The first grouping of indicators takes Stage C (IOSCO–IASC Agreement results) as its period of reference and it measures the progress made from Stage A to C and from Stage B to C. It consists of two general indicators, one for each stage. In addition, we have split the 20 concepts identified in the sample as they are considered to have an effect, mainly, on the Balance Sheet or on the Income Statement, and we have applied our methodological proposal to this new division.

With regard to the general indicator, we must highlight an important advancement from 41.27 to 14.04. It means that the distance from Stage B to C (14.04) is lower that the distance from Stage A to C (41.27), so considerable progress has been made regarding formal harmonization through international standard setting. This accomplishment is perhaps due to the increase in comparability of financial information, attained through the publication of the Conceptual Framework in 1989 and the Comparability Project in 1990.

The indicators for Balance Sheets and Income Statements also indicate an improvement in the situation. The former has decreased from 25.41 to 11.04 (the distance to comparability gets shorter), the more homogeneous magnitudes being those that refer to inventories, changes in accounting policies, uniting of interests, and positive goodwill. The latter, shows the progress accomplished in Income Statements, with values ranging from 15.86 to 3.00. More precisely, there has been a substantial reduction of alternative treatments with regard to development costs, construction contracts, income taxes, and revenues. An improvement has also been seen in research costs, postemployment benefits, and borrowing costs.

The second grouping of indicators takes Stage D ("Ideal harmonization situation") as a hypothetical period of reference. It evaluates the progress made in the three stages identified within the IASC's standard-setting activity to Stage D, that is, from Stage A to D, from Stage B to D, and from Stage C to D. Once again, it consists of three general indicators, three for the Balance Sheet and three for the Income Statement (one value for each Stage A, B, or C to D, as can be seen in Table 5).

The general indicator shows an advance, in terms of comparability, along the three stages considered (46.29, 22.47, 15.40), since the distances gradually decrease. The Balance Sheet indicator presents a similar pattern to that of the general indicator (29.40, 17.47, 11.99) and the same could be said for the Income Statement indicator (16.89, 5.00, 3.41).

Furthermore, the harmonizing evolution of some other IAS, which has been revised during the IASC's history, could also be taken into consideration, although they have not been included in our sample, since they rely on other sorts of financial standard-setting activities, that is, the disclosure requirements shown in Appendix B. The harmonizing criteria with regard to these standards would be focused on the idea that more requirements of this kind would increase transparency, and probably better comparability of financial information.

In this regard, we have observed that in certain cases, more disclosure requirements are included in the IAS (for instance, with regard to segment reporting), in other cases, new information is to be disclosed by companies (e.g., EPS ratio, the cash flow statement, and information on financial instruments) and an item that seems particularly important from our point of view, full compliance with the IAS and a declaration of this fact on the company's annual report.

To sum up, our methodological approach has revealed that the IASC has made great progress toward formal harmonization through the accounting standards it has issued or revised during its existence.[12] Nevertheless, this study also points to the need for the IASC to continue working towards greater formal harmonization, extending its standard-setting concerns by issuing new standards that address the projects on its current agenda (e.g., agriculture, insurance, extractive industries, emerging markets, and discounting, among others).

5. Conclusions

The IASC has improved its body of standards with a view to promoting its use in the international arena by greatly reducing the number of alternative valuation treatments allowed and increasing the comprehensiveness of its standards. This paper has introduced a new index that allows for the measurement of formal harmonization over time.

The formal harmonization measurement proposed herein focuses on a new methodological approach based on the notion of Euclidean distance. The merits of this new methodology are twofold. First, it is an appealing measure because it is simple and easily interpretable, and second, it represents an improvement over the methodological approaches used in previous studies because they could not be used to evaluate an increasing harmony obtained through the reduction of accounting valuation treatments. Different distance measurements have been calculated for the vectors in a sample with two reference periods, a real and a hypothetical one, in order to verify results and provide more robust empirical evidence.

As a result, we can state that the IASC has achieved important accomplishments in the comparability of financial information, through its IAS. In the two groupings of indicators calculated, a reduction in distances can be observed, which confirms the success of formal harmonization achieved by the IASC. Euclidean distances equal to zero would indicate total comparability.

One limitation of the study might well be that the selection of the accounting concepts included in our sample could imply an unavoidable dose of subjectivity, which we tried to minimize, as explained in Section 3.1. A thorough analysis of the "2000 IASC standards," would show that there have been many changes as a result of the IASC standard-setting activity. But for our study, we have isolated the aspects that, from our point of view and in the view of IASC's press releases and related publications, have provided conflicts and, therefore, have dominated the organization's harmonizing efforts.

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[12] Appendix C shows similar results when applying distance measures different from the Euclidean distance.

We should also point out the fact that the methodology proposed herein required a particular period of reference to calculate distances. Potential problems have been minimized by using two reference periods, that is, (a) Stage C (IOSCO–IASC Agreement results), which we believe has achieved a rather important harmonization level; and (b) Stage D ("Ideal harmonization situation"), which suggests a rather objective harmony reference situation. This "Ideal harmonization situation" is utopian and might well be undesirable, since it would finally converge with the standardization concept described in the introduction of the paper.

The research methodology presented in this study, which we believe is a new and timely contribution to international accounting harmonization literature, opens up several directions for researchers. For example, it can also be used to measure the level of harmony achieved in issuing different regulations or the evolution of comparability over time when applied to regulations from different accounting and stock exchange bodies.

We would also like to point out that the empirical evidence provided by this study highlights the important efforts towards global compatibility undertaken by the IASC. The rapid expansion of global markets and the consequent need for a single set of viable accounting standards that would be valid in the international arena makes research in this area especially valuable. We hope that further studies will shed further light on the formal harmonization process that is of concern to the academy and the accounting profession all over the world.

Last, but not least, it could be argued that, since international equity markets seem to be operating at a reasonably high level of efficiency on the basis of "de facto" harmonization, the incremental value-added contribution of "de jure" harmonization to the cost-efficient flow of goods and capital, internationally, is rather low. Nonetheless, we strongly disagree with such an opinion. There are still many companies that do not cross-list in the most developed capital markets of the world because of reconciliation requirements to local GAAP (see, for instance, Cochrane, 1994; Cochrane, Shapiro, & Tobin, 1996; Fanto and Karmel, 1997). We are referring here, of course, to the reconciliation to the USGAAP that the SEC has imposed on foreign companies.

Given that the SEC's decision to eliminate reconciliations by the IAS to the USGAAP depends partially on the level of comparability of financial statements prepared in compliance with the IAS,[13] research on the level of formal harmonization is highly valuable. This is because formal harmonization may lead to higher material harmonization, as explained in Section 1.

Moreover, as regulations gradually converge,[14] and a higher level of harmony is achieved, the accounting burden on companies considering cross-listing will undoubtedly be reduced and more companies will actually cross-list. This should then lead to a higher level of informational and allocational efficiencies in the international equities markets.[15]

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[13] In order to consider accepting the IAS, the SEC requires that they must be of "high quality"; in other words, they must result in *comparability* and *transparency*, and provide for *full disclosure* (reproduced in SEC, 1997).

[14] As previously stated, the new third objective of the IASC is "to bring about convergence of national accounting standards and IAS in order to achieve high-quality solutions." Further research on formal harmonization could evaluate IASC achievements in this regard.

[15] Research in this area is in a rather different realm (based on financial reporting and capital market reactions) from that of international accounting harmonization. See, for example, Pownall and Schipper (1999) for a review of empirical studies of this kind.

Acknowledgments

Appendix A. IAS treatments in IASC stages

Required treatment: compulsory treatment for all companies complying with IAS.
Benchmark treatment: recommended or preferred treatment according to IAS.
Allowed treatment: not required or not forbidden by IAS.
Forbidden treatment: not permitted by IAS.

	Stage A	Stage B	Stage C
Inventories (IAS 2)			
required	0	0	0
benchmark	4 (base-stock formula, FIFO, LIFO, weighted-average cost)	2 (FIFO, weighted-average cost)	2 (FIFO, weighted-average cost)
allowed	0	1 (LIFO)	1 (LIFO)
forbidden	0	1 (base-stock formula)	1 (base-stock formula)
Changes in accounting policies (IAS 8)			
required	0	0	0
benchmark	2 (adjust opening retained earnings, income of the current period)	1 (adjust opening retained earnings)	1 (adjust opening retained earnings)
allowed	0	1 (income of the current period)	1 (income of the current period)
forbidden	0	0	0
Development costs (IAS 9)			
required	0	1 (recognize as assets if certain conditions are met)	1 (recognize as assets if certain conditions are met)[a]
benchmark	2 (recognize as assets, expenses)	0	0
allowed	0	0	0
forbidden	0	0	0

Research costs (IAS 9)

required	0	1 (expenses)	1 (expenses)[a]
benchmark	1 (expenses)	0	0
allowed	0	0	0
forbidden	0	0	0

Events occurring after the balance sheet date (IAS 10)

required	1 (adjust financial statements if the events constitute new evidence from facts that already existed on the closing date, irrespective of whether or not the going concern principle is respected)	1 (adjust financial statements if the events constitute new evidence from facts that already existed on the closing date, irrespective of whether or not the going concern principle is respected)	1 (adjust financial statements if there is a breach of the going concern principle)
benchmark	0	0	0
allowed	0	0	1 (adjust financial statements if there is not a breach of the going concern principle)
forbidden	1 (adjust events of evidence arisen after the closing date)	1 (adjust events of evidence arisen after the closing date)	1 (adjust events of evidence arisen after the closing date)

Proposal of dividends distribution (IAS 10)

required	0	0	1 (disclose in the notes)
benchmark	2 (adjust as liability, disclose in the notes)	2 (adjust as liability, disclose in the notes)	0
allowed	0	0	0
forbidden	0	0	1 (adjust as liability)

Construction contracts (IAS 11)

required	0	1 (percentage of completion)	1 (percentage of completion)
benchmark	2 (percentage of completion, completed contract method)	0	0
allowed	0	0	0
forbidden	0	1 (completed contract method)	1 (completed contract method)

Income taxes (IAS 12)

required	0	1 (liability method)	1 (liability method)
benchmark	2 (liability method, deferral method)	0	0
allowed	0	0	0
forbidden	0	1 (deferral method)	1 (deferral method)

Property, plant, and equipment (IAS 16)

required	0	0	0
benchmark	2 (measure at historical cost, revalued amounts)	1 (measure at historical cost)	1 (measure at historical cost)
allowed	0	1 (revalued amounts)	1 (revalued amounts)
forbidden	0	0	0

Revenue — transactions involving the rendering of services (IAS 18)

required	0	1 (percentage of completion)	1 (percentage of completion)
benchmark	2 (percentage of completion, completed contract method)	0	0
allowed	0	0	0
forbidden	0	1 (completed contract method)	1 (completed contract method)

Retirement benefits (IAS 19)

required	0	0	1 (accrued benefit valuation methods)
benchmark	2 (accrued benefit valuation methods, projected benefit valuation methods)	1 (accrued benefit valuation methods)	0
allowed	0	1 (projected benefit valuation methods)	0
forbidden	0	0	1 (projected benefit valuation methods)

Recognition of foreign exchange gains and losses on long-term monetary items (IAS 21)

required	0	1 (income of the current period)	1 (income of the current period)

Recognition of foreign exchange gains and losses on long-term monetary items (IAS 21)

benchmark	2 (income of the current period, defer and recognize in income of future periods)	0	0
allowed	0	0	0
forbidden	0	1 (defer and recognize in income of future periods)	1 (defer and recognize in income of future periods)

Unitings of interests (IAS 22)

required	0	1 (pooling of interest method)	1 (pooling of interest method)
benchmark	2 (pooling of interest method, purchase method)	0	0
allowed	0	0	0
forbidden	0	1 (purchase method)	1 (purchase method)

Positive goodwill (IAS 22)

required	0	1 (asset)	1 (asset)
benchmark	2 (asset, adjust to shareholders equity)	0	0
allowed	0	0	0
forbidden	0	1 (adjust to shareholders equity)	1 (adjust to shareholders equity)

Negative goodwill (IAS 22)

required	0	0	1 (deferred income, the amount exceeding the nonmonetary assets is income of the current period)
benchmark	3 (deferred income, allocate over nonmonetary assets, adjust to shareholders equity)	1 (allocate over nonmonetary assets)	0

Negative goodwill (IAS 22)

allowed	0	1 (deferred income)	0
forbidden	0	1 (adjust to shareholders equity)	2 (adjust to shareholders equity, allocate over nonmonetary assets)

Borrowing costs (IAS 23)

required	0	0	0
benchmark	2 (expense, recognize as part of the cost of an asset)	1 (expense)	1 (expense)
allowed	0	1 (recognize as part of the cost of an asset)	1 (recognize as part of the cost of an asset)
forbidden	0	0	0

Contingent liabilities (IAS 37)

required	1 (liability, expense)[a]	1 (liability, expense)[a]	1 (disclose in the notes)
benchmark	1 (disclose in the notes to the accounts whether conditions are met to recognize as liability/expense)[b]	1 (disclose in the notes to the accounts whether conditions are met to recognize as liability/expense)[b]	0
allowed	0	0	0
forbidden	0	0	1 (liability, expense)

Intangible assets (IAS 38)

required	1 (historical cost)[c]	1 (historical cost)[c]	0
benchmark	0	0	1 (historical cost)
allowed	0	0	1 (revalued amount)
forbidden	0	0	0

Hedging operations with financial instruments (IAS 39)

required	0	0	0
benchmark	0	0	0
allowed	0	0	1 (accounting for hedging operations is allowed)
forbidden	0	0	0

Financial assets (IAS 39)

required	0	0	1 (fair value, unless under certain circumstances, where value at cost will be used)
benchmark	2 (market value, value at cost if lower than market value)[d]	2 (market value, value at cost if lower than market value)[d]	0
allowed	0	0	1 (value at cost)
forbidden	0	0	0

[a] Treatment included in IAS 38, Intangible Assets.
[b] Treatment in the original IAS 10, Contingencies and events after the balance sheet date.
[c] Treatment in the original IAS 9, Research and development costs.
[d] Treatment in the original IAS 25, Accounting for investments.

Appendix B. IASC disclosure requirements

Disclosure requirements	Stage A	Stage B	Stage C
Compliance with IAS (IAS 1)	No explicit regulation.	No explicit regulation.	Companies applying IAS, must do so completely and state so in the annual accounts.
Statement of source and application of funds (IAS 7)	Required.	Not required.	Not required.
Cash flow statement (IAS 7)	Not required.	Required.	Required.
Segment reporting (IAS 14)	Listed companies and companies with significant activity segments must disclose segmented information.	Listed companies and companies with significant activity segments must disclose segmented information.	Companies with quoted shares or debenture loans must disclose segmented information

| Disclosure requirements for segment reporting (IAS 14) | Information on each segment will be provided with regard to sales, income, assets, and the basis of intersegment transfer pricing. | Information on each segment will be provided with regard to sales, income, assets, and the basis of intersegment transfer pricing. | One of the bases for segmentation is primary, the other is secondary. The following should be disclosed for each primary segment:
• revenue (external and intersegment shown separately);
• operating result (before interest and taxes);
• carrying amount of segment assets;
• carrying amount of segment liabilities;
• cost to acquire property, plant, equipment, and intangibles;
• depreciation and amortization;
• noncash expenses other than depreciation;
• share of profit or loss of equity and joint venture investments;
• the basis of intersegment pricing
The following should be disclosed for each secondary segment:
• revenue (external and intersegment shown separately);
• carrying amount of segment assets;
• cost to acquire property, plant, equipment, and intangibles;
• the basis of intersegment pricing. |

Financial instruments (IAS 32)	No explicit regulation.	No explicit regulation.	Disclosures: • Terms and conditions. • Interest rate risk (repricing and maturity dates, fixed and floating interest rates, maturities). • Credit risk (maximum exposure and significant concentrations). • Fair values of financial instruments. • Assets below fair value. • Hedges of anticipated transactions.
EPS (IAS 33)	No explicit regulation.	No explicit regulation.	Required.

Appendix C. Some distance measures different from the Euclidean one

Let Z be a $J \times 1$ vector defined as:

$$Z = (z_1, \ldots, z_J) = (x_1 - y_1, \ldots, x_J - y_J)$$

where $X = (x_1, x_2, \ldots, x_J)$, $Y = (y_1, y_2, \ldots, y_J)$

The distance or norm for any pair X, Y is defined as:

$$||Z||_p = (|z_1|^p + \ldots + |z_J|^p)^{1/p}, \qquad p \geq 1$$

where $|\ |$ denotes the absolute value. For different values of p, we get different distance measures or vector norms (see Lancaster & Tismenetsky, 1985); specifically for $p = 2$, the Euclidean distance is obtained. Other alternative well-known measures are:

1. $||Z||_1 = |z_1| + \ldots + |z_J|$
2. $||Z||_\infty = \max\{|z_1|, \ldots, |z_J|\}$

Next, the above measures are applied to our sample obtaining the following results:

Stages	General		Balance sheet		Income statement	
	$p = 1$	$p \rightarrow \infty$	$p = 1$	$p \rightarrow \infty$	$p = 1$	$p \rightarrow \infty$
A–C	64	33	40	20	24	13
B–C	23	10	18	8	5	2
A–D	72	38	46	24	26	14
B–D	39	15	30	12	9	3
C–D	28	9	22	7	6	2

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Are recent segment disclosures of Japanese firms useful? Views of Japanese financial analysts

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Abstract

Since 1990, the Japanese Ministry of Finance (MOF) has required Japanese firms to disclose segment data in annual financial statements. Using a survey instrument, we examine whether Japanese analysts find these segment disclosures to be useful. Our study finds that analysts perceive that segment data aid them in forecasting consolidated sales and net income. However, results also show that analysts are concerned that Japanese firms do not define segments meaningfully and consistently and are arbitrary in the allocation of common costs. Further, the analysts do not believe that the usefulness of segment data improves when it is audited. These results have implications for investors in Japanese stocks and accounting policy bodies, such as the US Securities and Exchange Commission (SEC). © 2002 University of Illinois. All rights reserved.

Keywords: Segment disclosures; Japanese financial reporting; Financial analysts; Segment reporting

1. Introduction

Consolidated financial statements involve the aggregation of information about various subunits of the firm into a single financial report. Often, subunits of a firm are in different industries with significantly different sales and earnings growth rates. Because the process of aggregation can hinder analysts in their evaluation of a firm's performance, many countries

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require firms to provide financial information about their subunits (segment data). Studies show, however, that firms are generally opposed to disclosing segment data because they are concerned that these disclosures provide proprietary information to their competitors.

The practices of international firms regarding segment reporting have come under much criticism because users believe that firms disclose only coarse segment data. Saudagaran and Meek (1996), for example, state that while five international organizations and 30 countries have strongly endorsed segment reporting, the quality of those required disclosures has been less than adequate. Japanese firms' opposition to disclosing segment data has been widely reported in the academic and business press (see Ozu & Gray, 1997). For several decades, Japanese firms refused to list their stocks on American exchanges because they opposed providing the segment data required of them by the US Securities and Exchange Commission (SEC). Not until 1990, and only with much debate, was the Japanese Ministry of Finance (MOF) able to mandate some degree of segment reporting for Japanese firms.

Examining the quality of segment information disclosed in Japanese financial statements is important to US and global investors that have made significant investments in Japanese firms. According to the US Department of Treasury, purchases and sales of Japanese stocks by US investors amounted to US$153 billion in 1997. The total value of US direct investment (private enterprises owned or controlled by US investors) in Japan amounted to US$35.6 trillion as of December 31, 1997.[1] The quality of segment disclosures in Japanese financial statements also has implications for accounting policy bodies such as the US SEC. Under the Integrated Disclosure System (IDS), annual reports and filings of Japanese firms with the SEC may contain segment data generated according to the Japanese MOF rules, not US GAAP. Therefore, two important policy issues for the SEC are whether US firms are at a competitive disadvantage because Japanese firms are permitted to list their stocks on US exchanges using a set of rules that allow fewer disclosures of segment information than GAAP does and whether US investors are being provided with misleading segment data to base significant investment allocation decisions. Saudagaran and Biddle (1994) conclude that the SEC's segment reporting rules do, in fact, create a double standard.[2] Our study throws light on these issues by examining the usefulness of Japanese segment data as required by the Japanese MOF.

Our main findings are that Japanese financial analysts perceive that Japanese segment data contain useful information for forecasting consolidated sales and net income. However, results also show that Japanese analysts believe that significant problems exist regarding Japanese segment reporting. Specifically, analysts are concerned that firms do not meaningfully and consistently define segments. Also, analysts do not find that the auditing of segment data makes it more useful. The remainder of this study is organized as follows: a summary of relevant literature followed by a description of the data, empirical results, and conclusion.

[1] See *The Statistical Abstract of the United States 1998* published by Hoover Business Press.
[2] Because US accounting standards on segment reporting are the most stringent standards in the world (Radebaugh & Gray, 1997), US companies are said to be at a competitive disadvantage when compared to Japanese firms.

2. Review of the literature

2.1. International studies on the usefulness of segment reporting

Several studies have found that segment data in US financial statements provide investors with useful information. Baldwin (1984) and Fried, Schiff, and Sondhi (1992) found that US analysts' forecasts of consolidated net income significantly increased in accuracy following the disclosure of business segment data by US firms. Collins (1976) has also shown that time series forecasts of consolidated net income of US firms improved with the use of business segment data. Similarly, Balakrishnan, Harris, and Sen (1990) found that geographic segment disclosures by US firms have information content.

There has been little empirical work on the usefulness of segment disclosures of firms in other countries. Emmanuel and Gray (1977) found that segments are defined very "coarsely" by UK firms, making segment performance comparisons among different firms nearly impossible. On the other hand, Prodhan (1986), Prodhan and Harris (1989), and Roberts (1989) found that segment disclosures of UK firms do contain useful information. Aitken, Czernkowski, and Hooper (1994) examined business segment disclosures of Australian firms and reported that these disclosures have information content. This study contributes to the literature by providing some of the first evidence on the usefulness of Japanese segment disclosures.

2.2. US pressure to require Japanese segment reporting

For Japanese firms, segment reporting constituted a major hurdle when it came to listing on US exchanges (Balakrishnan et al., 1990).[3] Japanese firms believed that disclosing segment information would place them at a competitive disadvantage (Balakrishnan et al., 1990; Choi & Stonehill, 1982). Whether to allow Japanese firms to list on US exchanges was a source of conflict between the SEC and the New York Stock Exchange (NYSE), which stood to gain substantial revenues from Japanese firms that would list their stocks on its exchange. Efforts were made to allay the fears of Japanese companies about the information that would be required in segment disclosures in order to entice them to list. A US law firm retained by the Japanese Chamber of Commerce advised the Chamber that segment reporting did not require sensitive disclosures about individual products and profits in different areas (Balakrishnan et al., 1990).[4]

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[3] In 1982, the SEC, under pressure from investors, adopted the IDS for foreign firms. Under IDS, several regulations with regard to listing were relaxed. Foreign firms wishing to list on US exchanges could, for example, satisfy listing requirements by disclosing segment data mandated under their own GAAP.

[4] The Japanese Chamber of Commerce retained a prominent US law firm (Sullivan and Cromwell) to examine whether listing and capital issue requirements in the US would be relaxed for Japanese firms. Balakrishnan et al. quote a 1985 report (*Report to the Keidanren on Segment Reporting by Japanese Companies*) to the Chamber from Mr. Grant of Sullivan and Cromwell who states that:

> Industry segment reporting does not require disclosing profits by individual products, and U.S. companies have shown the way in combining different operations into broad segments which do not disclose sensitive information. Geographic segment reporting does not require showing profit in different areas that can be compared when products are manufactured in Japan and sold abroad.

The Japanese MOF began to consider mandating segment reporting for Japanese firms once the Chamber of Commerce reassured them that segment disclosures did not have to be "fine" (Balakrishnan et al., 1990).

The SEC, at the 1987 MOF–SEC Round Table Conference, pressured the MOF to require segment disclosures by Japanese firms. In the late 1980s, the US demand for segment disclosures from Japanese firms was a key item that was included in the Japan–US Structural Impediments Initiative. The objective of this Initiative was to search for ways in which the US trade deficit could be reduced. Ozu and Gray (1997) argue that the MOF was persuaded by the developments. Also, despite widespread opposition by Japanese firms, the MOF mandated reporting of business segment data for all years beginning on or after April 1, 1990. Because of the strong opposition by Japanese firms and because of reassurances that reported segment data did not have to be "fine," it appears important to test whether or not Japanese segment reports do, in fact, contain useful information for users of Japanese financial statements.

2.3. Incremental segment disclosures by Japanese firms

The MOF began requiring that segment data be disclosed in 1990, with increasing disclosure requirements in 1995 and 1997. For fiscal years starting April 1, 1990, disclosure of sales and income by segments was required along with export sales. Audits of segment data were required for fiscal years beginning April 1, 1993. Assets, depreciation, and capital expenditures by business segment had to be disclosed for fiscal years beginning April 1, 1995. Most recently, disclosure of sales, operating income, and asset investment by geographic region was required for fiscal years starting April 1, 1997.[5]

In defining a segment, the Japanese standard states that firms should consider the type of product, manufacturing process, and marketing regions.[6] Disclosure of segment information is required if (a) segment sales (including intergroup sales) exceeds 10% of total firm sales or (b) if segment operating revenue (loss) is greater than 10% of total firm operating revenue (loss) from all segments having operating revenues (losses).[7] If export sales exceed 10% of total sales, such sales must be reported, but not by country. Once specific segments are identified, the firm must continue to report data on these segments for a while — the Japanese standard does not state a definite period of time that this reporting must continue.

Compared to US standards, Japanese standards require fewer segment disclosures: Japanese firms are not required to report major customers by segments and Japanese standards require only 50% of total sales/operating income be shown by reportable segments;

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[5] There was much stronger opposition by Japanese firms to disclosing geographical segment information (Ozu & Gray, 1997). Japanese firms, therefore, were not required to make geographical segment disclosures immediately.

[6] The discussion summarizes segment-reporting rules under the Securities and Exchange Law set by the MOF in consultation with Business Accounting Deliberation Council.

[7] Firms are allowed to combine outside sales with intragroup sales and transfers in applying these conditions. The firm may use a different measure of profit or loss instead of operating profit or loss in cases where the former is a better indicator of firm performance. The Japanese Institute of Certified Public Accountants (JICPA) has issued several guidelines for the preparation and audit of segment information. We thank Fumito Kogomori of the JICPA for his information.

the US standard is 75%. Because Japanese standards contain only a 50% standard, their financial statements are able to disclose a fewer number of segments. Japanese and US firms also differ in their practice of disclosing segment data. Unlike US firms, which report segments by organizational structure, Japanese firms generally disclose segment data according to major industry grouping that can result in far greater aggregation of financial data and loss of information content.[8] Finally, of concern is whether the quality of the audit function in Japan is as high as that in the US. Low-quality monitoring by auditors increases managerial opportunities for "garbling" of segment data.

If segment reports of Japanese firms contain "garbled" data, the affected parties would include investors, creditors, and accounting policy bodies such as the US SEC, which permits Japanese firms to list on US exchanges with segment data mandated by the MOF. For these parties, an important question is whether or not segment disclosures of Japanese firms have information content.

2.4. Prior surveys on segment reporting in Japan

In 1987, while the MOF was in the process of developing segment reporting standards, it sent a survey to 683 companies (preparers of financial statements) and 219 financial institutions (users of financial statements) requesting their opinions on segment reporting. Seventy-six percent of the firms responding were opposed to having a segment reporting standard because the firms believed that segment reporting would reveal sensitive information to their competitors, thus putting them at a competitive disadvantage, especially with regard to overseas trading.[9] The greatest opposition by firms was to the disclosure of geographical segment data, which firms believed would lead to allegations of dumping practices and increased transfer-pricing taxation. Firms also argued that requiring simultaneous disclosures by both line of business and geographic area would be too demanding on them. Despite overwhelming firm opposition, the MOF under pressure from mainly the US (see Section 2.2) mandated segment reporting for years beginning on or after April 1, 1990.

The MOF survey revealed several areas of conflict between financial statement preparers and users. In contrast to the widespread opposition by companies to reporting segment data, 96% of users stated that segment information should be mandated. There were also differences on important issues relating to segment definition and allocations of common costs.

On the issue of how segments should be defined, most firms (60%) responded that judgement of directors should be an important factor in defining reportable segments. Users, however, were concerned that segments may not be defined meaningfully if segment definition was based on management's discretion. Users were concerned that comparability across firms would be lost. About 50% of the users wanted the MOF to require that the Japanese SIC (JSIC) code be used as a basis for business segmentation. Similarly, on the issue

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[8] Under SFAS 131, US firms use a management approach that requires firms to disclose data according to segments used in decision making by the chief operating officer.

[9] Other reasons cited in the survey were that it was costly to produce segment information and that it may force some managers to focus on the short-term.

of geographic segments, 50% of the responding firms wanted the MOF to require geographic segment data for two broad geographic segments: Japan and overseas. By contrast, 52% of the users surveyed believed that geographic segment data should be provided by country and region. Users in the survey also expressed the concern that the allocation of common costs would make segment information less meaningful.

Ozu and Gray (1997) showed that, throughout this debate, the MOF had to confront dramatically different views of users and preparers on important issues relating to segment reporting. While users were constantly concerned about consistency and comparability, the MOF realized that firms were very hesitant to disclose any segment information whatsoever. In the end, the MOF took the side of the firms on three important issues, namely geographic segment reporting, how a segment is to be defined, and how common costs are to be allocated.

On the issue of geographic segment data, the MOF compromised with firms and required that firms need only disclose geographic data by region for fiscal years beginning on or after April 1, 1997. Therefore, from 1990 to 1997, firms had to report sales in only two categories: those made in Japan and those overseas—hardly data rich in information content. The MOF also concluded that the use of the JSIC code would make segment reporting too rigid and less meaningful when compared to the approach that took into account management's judgment. On the issue of allocating common costs, the MOF decided that common costs could be allocated among segments in a way that directors regard most appropriate.[10] Since segment reporting went into effect, our study examines Japanese financial analysts' views on these issues in an attempt to gauge if the concerns expressed in the 1987 MOF study still exist.

In July 1991, following the adoption of segment reporting, the Commercial Law Center (CLC) surveyed 970 listed Japanese firms on segment reporting practices used by these firms.[11] Two problems were immediately noted: First, because 31% of the 548 firms that responded did not disclose any segment data, it was apparent that many Japanese firms were hesitant to disclose segment data and were able to avoid doing so by inappropriately using the discretion given to management under the standards for identifying business segments (Ozu & Gray, 1997). Second, the survey found that among the firms that did disclose segment data, about 55% did not define their segments meaningfully. However, Ozu and Gray (1997) state that it would be premature to conclude from this initial survey that segment reporting in Japan has failed. They believe that Japanese firms will eventually advance and disclose meaningful segment data in the future.

Our study examines the usefulness of segment data 7 years after the CLC study. It may be that in the 7 years since the 1991 survey, Japanese firms may have overcome their initial hesitancy about disclosing meaningful segment data. Our study differs from the 1991 CLC study in two other significant ways: First, unlike the CLC study, which surveyed firms, we survey financial analysts (users). Second, in 1991, not all aspects of the segment reporting standard were in effect. In contrast, our survey incorporates views of analysts regarding "new" segment disclosures not required to be reported until 1995 and 1997.

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[10] Alternatively, rather than trace costs to segments, Japanese firms can choose to disclose the total common costs in a separate column.

[11] The CLC is a research corporation that collects data on issues relating to commercial law and justice.

3. Survey data

In October 1998, surveys were mailed to all Japanese chartered financial analysts (CFAs) who were listed as members of the AIMR. The AIMR was selected because there is no comparable institute of financial analysts in Japan and because obtaining membership as a chartered financial analyst is considered prestigious by Japanese analysts. Questionnaires were sent in English and Japanese. Of the 170 questionnaires mailed, 53 responses (31%) were returned. Of these, three were received in Japanese. The survey contained 15 questions that had to be rated by the analysts on a ordinal scale from 1 to 5. The scale also included the response "0," "Do not know." There were also three open-ended questions and concluded by asking several biographical-type questions such as the number of years of experience as an analyst and a description of firms the analysts followed.

Fifteen responses came from Japanese financial analysts that were employed by foreign financial institutions, such as Merrill Lynch (hereafter foreign company analysts) and the remaining 38 responses were from analysts employed by Japanese firms, such as Nomura Securities (hereafter domestic company analysts).[12] A distinction is made between these groups because conversations with analysts in Japan suggested that these two groups were likely to differ in their use of segment data (see also Section 4.6). Conroy, Fukuda, and Harris (1997) also argue that analysts employed by foreign (Western) and domestic securities houses in Japan differ in expertise and professional development. They argue that foreign securities houses in Japan attract the best Japanese analysts because these houses pay higher salaries. This suggests that foreign company analysts are likely to be more efficient in their use of segment data for forecasting. However, Conroy et al. also point out that domestic securities houses have closer ties with Japanese firms. They find that domestic company analysts are able to exploit their informational advantage by producing superior forecasts. To the extent that domestic company analysts have access to "inside" information about firms' segments, their use of publicly available segment data for forecasting is likely to be less. From a policy perspective, it is important to know if domestic company analysts have an unfair informational advantage over their foreign company counterparts.[13]

The mean number of Japanese financial analysts employed in the survey respondent's institution was 20 and 45 for foreign and domestic company analysts, respectively. Domestic and foreign company analysts in our sample have about the same number of years of experience — about eight. Foreign company analysts responded that they follow an average of 30 firms a year in one country per region, while their domestic company counterparts follow an average of 24 firms in three countries per region. The survey also showed that firms

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[12] The domestic company-analyst group includes a few surveys where the analyst did not indicate the institution of employment. Deleting these observations from our sample did not change our results.

[13] A decreased use of segment data in annual financial statements by domestic company analysts is consistent with either of the following explanations: (1) domestic company analysts have inside access to segment data and/ or (2) domestic company analysts are less efficient in their use of segment data. Our data, however, do not allow us to determine which is the explanation.

that were followed by the analysts come from a wide range of industries and vary in size and degree of diversification.

4. Analyses of results

4.1. The usefulness of segment data for predicting consolidated sales and net income

All the tables in this section show the percentage of domestic and foreign company analysts that selected one of the six possible responses (0–5). In addition, the means and standard deviations of the responses from analysts of each group as well as both groups combined are presented. Because market share and sales growth are most important to Japanese investors, we first examine whether analysts find segment data to be useful for forecasting consolidated sales.

Table 1 (Panel A) shows that both groups of analysts (foreign and domestic company) find segment data to be useful for predicting consolidated sales. Both groups consider segment sales and segment operating income to be most useful for making sales forecasts. Specifically, by combining the "useful" categories—i.e., 3 (useful), 4 (very useful), and 5 (extremely useful)—we find that 79% (87%) and 69% (86%) of domestic (foreign) company analysts find segment sales and operating income data to be useful for predicting consolidated sales. While export sales is considered to be useful (45% of domestic and 74% of foreign company analysts), it is ranked last in terms of predictive ability by both groups.

However, Panel A also shows that fewer domestic company analysts find segment data useful compared to foreign company analysts. This might be because foreign company analysts have more experience in the use of segment data or that domestic company analysts are more skeptical about the usefulness of segment data. This point is discussed in Section 4.2. Panel A also indicates that domestic and foreign company analysts differ most in the way they rate the usefulness of export sales (45% vs. 74%) and assets and depreciation and capital expenditures (57% vs. 80%).

Table 1 (Panel B) shows that both groups find segment data useful for predicting consolidated income. Segment operating income is considered to be the most important predictor of future consolidated profits (77% of domestic and 93% of foreign company analysts). As before, fewer domestic company analysts rate all types of segment information to be useful in forecasting consolidated net income when compared to foreign company analysts. Also, consistent with Table 1 (Panel A), domestic and foreign company analysts differ most in the way they rank the usefulness of export sales (39% and 74%, respectively) and assets, depreciation, and capital expenditures (62% and 86%, respectively).

We examine whether the mean responses of foreign company analysts were significantly higher than corresponding mean responses of domestic company analysts. Our univariate tests [parametric t and/or nonparametric Mann–Whitney–Wilcoxon (MWW)] shown in Table 1 (Panels A and B) reject that there are no statistically significant differences in the use of (1) segment assets, capital, and depreciation expenditures and (2) export sales by foreign and domestic company analysts for predicting consolidated sales and income. Table 1 (Panels A

and B) also presents results of a multivariate test of differences in mean responses of foreign and domestic company analysts for predicting consolidated sales (Wilks' $\lambda = 0.831$, $F = 2.179$, Prob. $> F = 0.086$) and consolidated income (Wilks' $\lambda = 0.849$, $F = 2.088$, Prob. $> F = 0.097$).[14]

Overall, results show that segment data are useful for predicting sales and net income. Another finding of this study is that more foreign company analysts rely on segment data when compared to domestic company analysts. The percentage (about 60%) of domestic company analysts who find segment data useful (ex-post) is also not as high as the percentage (about 96%; ex-ante) who indicated on the MOF 1987 survey that they thought they would find segment information useful. In Section 4.2, several reasons why domestic company analysts may have been disappointed with segment disclosures of Japanese firms are examined.

4.2. Segment definition and common cost allocation

Table 2 (Panel A) presents important issues raised by Japanese analysts in the 1987 MOF survey. As discussed in Section 2.4, those analysts were most concerned about segments being meaningfully and consistently defined and common costs being arbitrarily allocated among segments. Combining the "agreement" categories—agree, 4 and absolutely agree, 5—we find that 67% (73%) of foreign company analysts agree that Japanese firms define industry segments (Japanese and export sales) consistently from year to year. While most foreign company analysts agree that there is consistency in segment definition, only 54% of these analysts agree that firms trace financial data to business segments objectively and a disappointing 43% agree that companies define export sales meaningfully. Further, only 20% of foreign company analysts disagree that Japanese firms deliberately misallocate common costs to segments.

The survey results show that domestic company analysts are even more skeptical of the integrity of segment disclosures than are foreign company analysts. Domestic company analysts who agree that firms are consistent in their definition of segments and export sales are less than half the proportion of foreign company analysts. Less than one-third as many domestic company analysts agree that firms trace items objectively to segments as compared to foreign company analysts. Twenty-five percent more foreign than domestic company analysts agree that firms are consistent in their definition of Japanese and export sales. Finally, 29% of domestic company analysts disagree that firms deliberately misallocate common costs.

Table 2 (Panel A) presents univariate tests (t and MWW) that show that there are statistically significant differences between the two groups on questions relating to (1) consistency of segment definition over time and (2) objectivity used in tracing sales, operating income, etc., to segments. Table 2 (Panel A) also shows results of the multivariate test of differences in mean responses of foreign and domestic company analysts (Wilks' $\lambda = 0.780$, $F = 2.594$, Prob. $> F = 0.038$). These results support and provide an explanation for findings in Section

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[14] Unlike the univariate tests above, our multivariate procedures *jointly* test for significant differences in the use of *any* of the segment data sources by foreign and domestic company analysts. The test statistic used is Wilks' λ, which for two groups has an "exact" F distribution with $p(n - p - 1)$ *df*, where p is the number of variables and n the total number of observations (Johnson & Wichern, 1982).

Table 1

Panel A: The usefulness of various segment data in predicting consolidated sales: domestic vs. foreign company analysts

How useful has the following information been to you in predicting consolidated sales?	Domestic company analysts (n=38)								Foreign company analysts (n=15)								Both groups (n=53)		Tests of differences in means	
	Do not know (0)	Useless (1)	Somewhat useful (2)	Useful (3)	Very useful (4)	Extremely useful (5)	Mean	S.D.	Do not know (0)	Useless (1)	Somewhat useful (2)	Useful (3)	Very useful (4)	Extremely useful (5)	Mean	S.D.	Mean	S.D.	t-value	MWW value
• Industry segment sales	8	3	10	42	29	8	3.053	1.251	0	0	13	47	20	20	3.467	0.990	3.170	1.189	1.27	0.73
• Industry segment operating income	11	8	12	32	37	0	2.737	1.245	7	7	0	40	33	13	3.333	1.047	2.906	1.213	1.77*	1.40
• Assets, depreciation, and capital expenditures by industry segment	8	5	30	51	3	3	2.432	1.042	13	7	0	27	40	13	3.133	1.598	2.635	1.253	1.57	2.37**
• Total export sales (but not by region)	8	11	36	32	13	0	2.316	1.093	0	13	13	47	20	7	2.933	1.100	2.491	1.120	1.84*	2.23**

Multivariate test of means, Wilks' λ (WL)=0.831, F=2.179, Prob>F=0.084

Panel B. Usefulness of various segment data in predicting consolidated net income: domestic vs. foreign company analysts

How useful has the following information been to you in predicting consolidated net income?	Domestic company analysts (n = 38)								Foreign company analysts (n = 15)								Both groups (n = 53)		Tests of differences in means	
	Do not know (0)	Useless (1)	Somewhat useful (2)	Useful (3)	Very useful (4)	Extremely useful (5)	Mean	S.D.	Do not know (0)	Useless (1)	Somewhat useful (2)	Useful (3)	Very useful (4)	Extremely useful (5)	Mean	S.D.	Mean	S.D.	t-value	MWW value
• Industry segment sales	8	5	24	37	21	5	2.763	1.324	0	0	27	27	33	13	3.267	1.335	2.906	1.334	1.24	1.21
• Industry segment operating income by industry segment	8	3	12	32	29	16	3.184	1.373	0	0	7	40	20	33	3.800	1.014	3.358	1.302	1.79*	1.30
• Assets, depreciation, and capital expenditures	8	5	25	30	24	8	2.811	1.330	7	0	7	33	20	33	3.600	1.404	3.038	1.386	1.86*	1.98**
• Total export sales (but not by region)	8	19	34	26	13	0	2.184	1.136	0	13	13	47	20	7	2.933	1.100	2.396	1.166	2.21**	2.08**

Multivariate test of means, Wilks' λ (WL) = 0.849, F = 2.088, Prob > F = 0.097

* Significant at the .10 level.
** Significant at the .05 level.

Table 2

Panel A: Extent of agreement regarding statements relating to Japanese segment disclosures: domestic vs. foreign company analysts

Indicate the degree of agreement with each of the statements relating to Japanese segment disclosures.	Domestic company analysts (n=38)								Foreign company analysts (n=15)								Both groups (n=53)		Tests of differences in means	
	Do not know (0)	Absolutely Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Absolutely Agree (5)	Mean	S.D.	Do not know (0)	Absolutely Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Absolutely Agree (5)	Mean	S.D.	Mean	S.D.	t-value	MWW value
• Firms are generally consistent from year to year in the definition of their industry segments.	8	0	21	39	29	3	2.895	1.158	0	0	13	20	40	27	3.800	1.014	3.151	1.183	2.81*	2.44**
• Firms are generally consistent from year to year in the definition of domestic and export sales.	5	0	5	32	55	3	3.395	1.028	7	0	7	13	53	20	3.667	1.291	3.472	1.103	0.73	1.25
• Firms generally trace sales, operating income, assets, depreciation, and capital expenditures to industry segments as objectively and as thoroughly as possible.	8	3	53	20	16	0	2.342	1.047	0	0	27	19	27	27	3.533	1.187	2.679	1.205	3.40*	2.90*
• Companies generally define export sales meaningfully.	5	0	24	53	18	0	2.789	0.935	7	0	14	36	29	14	3.214	1.311	2.904	1.053	1.11	1.68***
• Firms deliberately misallocate common costs to their industry and geographic segments.	21	3	26	26	24	0	2.289	1.431	20	0	20	26	27	7	2.600	1.595	2.377	1.471	0.66	0.73

Multivariate test of means, Wilks' λ (WL)=0.780, F=2.594, Prob>F=0.038

Panel B: Usefulness of audited data in predicting consolidated sales and net income: domestic vs. foreign company analysts

How useful has the following information been to you in predicting:	Domestic company analysts (n = 38)								Foreign company analysts (n = 15)								Both groups (n = 53)		Tests of differences in means	
	Do not know (0)	Useless (1)	Somewhat useful (2)	Useful (3)	Very useful (4)	Extremely useful (5)	Mean	S.D.	Do not know (0)	Useless (1)	Somewhat useful (2)	Useful (3)	Very useful (4)	Extremely useful (5)	Mean	S.D.	Mean	S.D.	t-value	MWW value
Sales? • The requirement that segment data bc audited	16	16	36	21	11	0	1.947	1.207	13	7	53	13	7	7	2.133	1.302	2.000	1.225	0.48	0.32
Net income? • The requirement that segment data be audited	16	16	39	24	5	0	1.868	1.119	13	7	40	33	0	7	2.200	1.265	1.962	1.160	0.89	0.09

*   Significant at the .01 level.
**   Significant at the .05 level.
*** Significant at the .10 level.

Table 3
Disclosures that would make segment reporting more useful: domestic vs. foreign company analysts

How useful has the following information been to you in predicting:	Domestic company analysts (n=38)							
	Do not know (0)	Useless (1)	Somewhat useful (2)	Useful (3)	Very useful (4)	Extremely useful (5)	Mean	S.D.
Sales? • Disclosure of sales, operating income, and asset investment by geographic region	8	0	19	43	27	3	2.892	1.149
Net income? • Disclosure of sales, operating income, and asset investment by geographic region	8	0	28	32	27	5	2.865	1.228
• How useful would the disclosure of sales by major customers be?	8	0	3	20	61	8	3.500	1.202

(Bracket annotations in the table: Sales row — 30 above columns (4)+(5), 73 below columns (3)+(4). Net income row — 32 above columns (4)+(5), 64 below columns (3)+(4). Sales by major customers row — 3 above columns (1)+(2), 69 above columns (4)+(5), 89 below columns (3)+(4).)

* Significant at the .01 level.
** Significant at the .05 level.

4.1 that a smaller proportion of domestic company analysts found segment data to be useful. The data indicate that analyses of segment trends as well as comparability across firms, both major issues mentioned in the 1987 MOF survey, still pose problems for analysts.

4.3. Utility of audit function with regard to segment data disclosures

In light of the findings above, an interesting question is what are analysts' views on the usefulness of audited segment data. Because the audit of segment data was not required until April 1, 1993, a unique opportunity for examining the usefulness of the audit function was possible.[15]

Combining "useful" categories (survey responses 3,4, and 5), Table 2 (Panel B) shows that only 27% (40%) of foreign company analysts view audited data as useful for forecasting consolidated sales (net income). Audited data have even lesser utility to domestic company

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[15] Because no new segment disclosures were mandated in that year, we ask analysts to rate the usefulness of the audit function independent of the firms' segment data disclosures.

Foreign company analysts (n=15)								Both groups (n=53)		Tests of differences in means	
Do not know (0)	Useless (1)	Somewhat useful (2)	Useful (3)	Very useful (4)	Extremely useful (5)	Mean	S.D.	Mean	S.D.	t-value	MWW value
7	0	7	33	20	33	3.133	1.356	2.962	1.204	0.61	0.45
0	7	20	33	13	27	3.333	1.291	3.000	1.252	1.20	0.98
0	0	0	20	33	47	4.267	0.799	3.717	1.150	2.70 *	2.21 **

(Row 1 bracket annotations: 53, 86. Row 2: 40, 73. Row 3: 0, 80, 100.)

analysts for predicting consolidated net income and only 32% (29%) of domestic company analysts view audited data as useful for forecasting consolidated sales (net income). Both groups of analysts, therefore, agree that the requirement that segment data be audited did not generally make it more useful for predictive purposes.[16] This finding suggests that auditors are not perceived by Japanese analysts as effective in preventing the "garbling" of segment data documented in Section 4.2, which, coupled with an infant segment reporting standard, could result in very negative results for investors and creditors relying on these data.

To explore conditions facing analysts, we asked them three open-ended questions. Because fewer analysts responded to our open-ended questions and because there were no readily apparent differences between domestic and foreign company analysts on these issues, we combine responses of both groups and report only on the more significant findings.[17] The first open-ended question that the Japanese analysts were asked was "what did they believe could be done to improve segment disclosures of Japanese firms." An overwhelming 76% of

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[16] Differences in means of the two groups are not statistically significant using both t and MWW tests.

[17] Percentages do not sum to 100 on the open-ended questions because only significant reasons are reported.

Table 4
Usefulness of alternative sources of segment information: domestic vs. foreign company analysts

How useful have you found the following as a source of segment information?	Domestic company analysts											
	Prior to 1991 (n=38)						1991 and after (n=38)					
	Do not Know (0)	Useless (1)	Somewhat useful (2)	Useful (3)	Very useful (4)	Extremely useful (5)	Do not know (0)	Useless (1)	Somewhat useful (2)	Useful (3)	Very useful (4)	Extremely useful (5)
• Voluntary firm disclosures	19	11 [22]	11	30	24 [29] 59	5	8	5 [16]	11	30	46 [46] 76	0
• People within the firm	22	11 [25]	14	25	22 [28] 53	6	10	6 [17]	11	28	39 [45] 73	6
• Trade journals	28	22 [50]	28	11	11 [11] 22	0	20	19 [52]	33	22	6 [6] 28	0

analysts (n = 25) believe that segment data would be of greater use if management defined segments more meaningfully and consistently. Of these, 16% suggest that Japanese firms use the approach of IAS 14, while 12% suggest that the firms adopt the US approach by defining segments according to the firm's internal structure (i.e., SFAS 131). Interestingly, 12% of analysts believe that segment reporting would improve if stockholders would increase pressure on management to report quality data.

The second open-ended question that Japanese analysts were asked was to "describe characteristics of Japanese firms that the analysts believe intentionally distort segment data." Only 29% of the analysts (n = 17) believe that Japanese firms do not intentionally distort segment data. Of the 71% that do, 42% believe the reason is to garble/hide a firm's true economic condition, while another 12% believe the reason is that traditional Japanese firms with "old style" management intentionally do not report quality segment data.

While the discussion above suggests that Japanese analysts are less than satisfied with segment disclosures, they also believe that there are certain types of firms that do report reliable segment data. The third open-ended question asked analysts to "describe characteristics of Japanese firms that they believe report segment data reliably." Analysts (n = 38) believe that these firms are those with (1) significant overseas operations (34%), (2) significant international investor following (34%), and (3) a concern for their stockholders' interests (18%).

4.4. Additional disclosures that would make segment data more useful

The survey had two questions where analysts were given the opportunity to suggest (on a scale of 0–5) changes for improving the quality of segment reporting.

Table 3 shows that both groups of analysts believe that when geographic data are disclosed it will be highly useful (73% of domestic and 86% of foreign company analysts). The analysts rank this item's usefulness as high as that of segment operating income and sales (see Table 1,

Foreign company analysts

Prior to 1991 (n = 15)						1991 and after (n = 15)					
Do not know (0)	Useless (1)	Somewhat useful (2)	Useful (3)	Very useful (4)	Extremely useful (5)	Do not know (0)	Useless (1)	Somewhat useful (2)	Useful (3)	Very useful (4)	Extremely useful (5)
33	20	14	33	0	0	7	7	20	52	7	7
21	13	33	13	13	7	0	7	20	40	26	7
33	20	7	33	7	0	20	27	13	27	13	0

Panels A and B). While the disclosure of geographic segment data has become mandatory since our survey, there is no requirement that Japanese firms disclose sales by major customer. Combining "agreement" categories (survey responses 4 and 5), Table 3 shows that 89% of domestic and 100% of foreign company analysts overwhelmingly agree that disclosure by customer would be very useful.[18]

4.5. Usefulness of alternative information for predicting consolidated sales and income

Beaver (1989) states that an important role for accounting information is to preempt and substitute for potentially more costly information available in alternative sources. Our results indicate that this is not the case. Instead, the analysts we surveyed often turn to information available from other sources. Segment disclosures appear to be stimulating additional inquiries by analysts rather than being a substitute for them (see Table 4).

For example, combining "useful" categories (survey responses 3, 4, and 5), we find that 59% (33%) of domestic (foreign) company analysts relied on voluntary firm disclosures prior to segment reporting being mandated. This increased to 76% (66%) following segment reporting. This result also was true for other forms of alternative information available to the analysts.[19] Table 4 shows that, of the different sources of alternative information available,

[18] With regard to usefulness of sales disclosures by major customer, the difference in means of the two groups is statistically significant. However, with regard to usefulness of geographic segment disclosures, there is no statistically significant difference in means using both t and MWW tests.

[19] An interesting question for future work is to examine whether the additional inquiries are from analysts merely seeking management's clarification of "noisy" segment disclosures in financial statements or whether the inquiries represent analysts' demands, stimulated by segment disclosures, for "new" information. It would also be interesting to examine the specific types of information that are sought by analysts from alternative sources.

Table 5
Extent of agreement regarding competitive disadvantage and Japanese segment disclosures: domestic vs. foreign company analysts

By revealing sensitive information, segment reporting puts Japanese firms at a competitive disadvantage with regard to :	Domestic company analysts (n = 38)							
	Do not know (0)	Absolutely disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Absolutely agree (5)	Mean	S.D.
Other Japanese firms		58			16			
	11	8	50	15	16	0	2.184	1.136
US firms	13	13	45	13	13	3	2.079	1.260
		58			16			

*Significant at the .10 level.

analysts find information from voluntary disclosures to be most useful, then information from people within the firm, and lastly information from trade journals or other sources.

4.6. Determinants of the use of segment data by analysts

We attempted to evaluate if analysts found segment information to be more useful for certain types of firms. Overall, survey results (not shown) indicate that no one type of firm was identified by Japanese analysts. Foreign company analysts view segment data to be most useful for firms with foreign ownership and numerous international stock exchange listings. This result is to be expected since analysts employed by foreign institutions are more likely to emphasize the international characteristics of the firm. Domestic company analysts, however, rate firm size and horizontal diversification to be the most important firm characteristics for segment information to be useful. These results also suggest that foreign and domestic company analysts have different "biases" that affect information use and support separate data analyses for the two groups.

4.7. Do segment disclosures put Japanese firms at a competitive disadvantage?

Finally, we asked analysts whether segment disclosures would place Japanese firms at a competitive disadvantage. As discussed, the 1987 MOF survey showed that Japanese managers were very hesitant to disclose segment data because they believed their firms would be at a competitive disadvantage as a result of those disclosures.

Financial analysts, however, did not appear to share in this view. Combining "disagreement" categories (survey responses 1 and 2), Table 5 shows that 58% (46%) of domestic (foreign) company analysts disagree that Japanese firms that disclose segment data would be disadvantaged with regard to other Japanese firms. Interestingly, Japanese managers in the MOF survey were most concerned about their competitiveness with regard to firms overseas.

Foreign company analysts (n = 15)								Both groups (n = 53)		Tests of differences in means	
Do not know (0)	Absolutely disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Absolutely agree (5)	Mean	S.D.	Mean	S.D.	t-value	MWW value
	⌐——— 46 ———⌐			⌐— 34 —⌐							
0	13	33	20	27	7	2.800	1.207	2.358	1.178	1.70*	1.45
0	13	33	27	7	20	2.867	1.356	2.302	1.324	1.94*	1.53
	∟——— 46 ———∟			∟— 27 —∟							

Survey results, however, show that analysts do not appear to distinguish between overseas and Japanese firms on this issue. Specifically, results show that the same percentage of analysts disagrees that Japanese firms will be disadvantaged with regard to US competition.[20]

5. Conclusion

While there have been numerous studies on the information content of segment data of US firms, there has been little work done on segment disclosures of firms in other countries. This study provides some of the first evidence on the quality of segment reporting in Japan. Japanese firms have had a long history of opposition to providing segment data. After much debate and many compromises, the MOF approved segment reporting for Japan. However, some have argued that the Japanese segment standard is a token enacted solely to pacify international bodies such as the US SEC. They argue that Japanese segment data contain little useful information for investors. Indeed, the first survey by the CLC following the introduction of segment reporting appears to lend support to this argument. Our study contributes to the literature by surveying Japanese financial analysts 9 years after the initial CLC survey to gauge if users of financial statements perceive any change in the quality of segment reporting since 1991. The results of this study have important implications for global investors in Japanese stocks and accounting policy bodies. For these groups, we summarize our findings below.

The results of this study show that Japanese analysts have significant concerns relating to the quality of segment data provided by Japanese firms: these analysts believe these firms do not define their segments meaningfully and consistently; their allocation of common costs is arbitrary; and the audit of segment data adds little to the utility of the data. Interestingly, these

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[20] Differences in means of the two groups are not statistically significant at the .05 level using both t and MWW tests.

are bigger concerns for analysts employed by Japanese financial institutions than analysts employed by non-Japanese financial institutions. However, despite their concerns and reservations, Japanese financial analysts find segment data in Japanese reports to be generally useful for predicting consolidated sales and net income. Further, results indicate that with new geographic disclosures, segment reporting in Japan should be of even greater usefulness to analysts.

Acknowledgments

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Discussion of "Are recent segment disclosures of Japanese firms useful?: views of Japanese financial analysts"

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1. Introduction

Research is a process by which one acquires evidence to better understand, predict, or resolve uncertain events. In some cases, research can generate as many questions as it answers. This discussion presents my questions as well as some of those raised by the conference participants concerning "Are Recent Segment Disclosures of Japanese Firms Useful?: Views of Japanese Financial Analysts" by Mande and Ortman. Specifically, questions pertaining to the paper's motivation, research design, results, and contribution are discussed.

2. Motivation

Mande and Ortman's research examines the tensions created by the demand for segment disclosures by market regulators versus firms' unwillingness to supply segment disclosures. After reviewing the US capital market literature on the usefulness of segment disclosures, the authors observe that there has been little empirical research on the usefulness of segment disclosures of firms domiciled in countries other than the US. They examine the

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usefulness of escalating segment disclosures required by the Japanese Ministry of Finance (MOF) in response to the US Securities and Exchange Commission's (SEC) demand for more segment information from Japanese firms listed or wanting to be listed in the US during the late 1980s and early 1990s. The authors provide a short chronology of the increasing disclosure requirements of the MOF: the disclosure of sales and income by segment was required as of 1990; assets, depreciation, and capital expenditures by segment was required as of 1995; and sales, operating income, and asset investment by geographic region was required as of 1997. They then discuss the technical differences between US and Japanese segment disclosure requirements.

My first question is fundamental to all research: What is the relevant standard or set of standards that mandate segment disclosures for Japanese firms? Authors are responsible for citing the appropriate references that are necessary for readers to identify and directly access standards or literature that formulate the research. Complete citations are necessary for the reader to gain background knowledge that allows him or her to comprehend the research question.

My second question relates to the chronology of the MOF segment disclosure requirements: Is there any evidence that Japanese firms were consistently complying with the escalating segment disclosures demanded by the MOF during the 1990s? While the presence of the SEC in the US market suggests that US firms, on average, prepare segment disclosures and present such disclosures in their annual reports, the authors did not cite any prior literature or provide evidence to suggest that Japanese firms prepare MOF segment disclosures. The authors suggest that Japanese firms provide fewer segment disclosures than US firms due to the technical differences in the countries' disclosure standards, but they do not provide any empirical evidence to support this claim. If, on average, Japanese firms are not preparing segment disclosures, i.e., not complying with the MOF requirements, then the authors are restricted in their ability to draw any inferences on how analysts use MOF-mandated segment disclosures. In other words, analysts' perception of usefulness may be due to a lack of enforcement of segment disclosure standards versus the quality of the standards.

My last question pertains to the notion that reporting standards are taken as a whole to produce a set of financial statements: How do the required business segment disclosures interact with required consolidated financial reporting? Prior research suggests that Japanese firms do not prepare consolidated financial statements unless they are listed in the US. If the firm's operations are not geographically dispersed, then a firm's unconsolidated financial statements are potentially the same as a business segment disclosure. Whether a firm prepares a consolidated or unconsolidated financial statement may affect the analyst's perception of usefulness of segment disclosures.

3. Research design

Mande and Ortman use a quasi-experimental research design to investigate the usefulness of the MOF's segment disclosure requirements. They sent a survey to the

population of Japanese chartered financial analysts ($N=170$) who were listed as members of the Association for Investment Management and Research (AIMR). The authors state that the survey contained 15 questions, and the analysts were asked to respond to each question on an ordinal scale from one to five, zero, or "don't know." The authors also state that the survey contained three "open-ended" and several "biographical-type" questions (specifically, they asked respondents for the number of years of experience as an analyst and a description of firms that they follow). Fifty-three surveys were returned, 15 from analysts employed by international institutions (e.g., "foreign-company analysts"), and 38 from analysts employed by Japanese institutions (e.g., "domestic-company analysts").

As in any quasi-experimental research design, there are issues of internal and external validity that need to be controlled for, or at least considered, in developing and implementing a survey in order to draw valid inferences from the research. Related to the internal validity of the research, conference participants and I questioned the reliability of the analysts' responses and the potential biases that result from analysts self-selecting to complete the survey. The questions in the survey were framed as "How useful has the following information been to you in predicting...?" where industry segment sales, industry segment operating income, etc., were the substitutes for information. The authors did not ask the survey respondents to interpret "useful." Given that "useful" could mean anything from "helpful" to "necessary as inputs to a prediction model," the survey responses may be unreliable. Not knowing how the survey respondents interpret "useful" restricts the inferences that can be drawn from the results.

A 31% response rate for a survey is a reasonable response rate. The authors did not, however, indicate that they sent second requests or collected biographical data on the respondents that would minimize the concern of biased responses due to selection threats. It could be that the least-busy analysts, i.e., least competent analysts, responded to the survey. A second request would have had the potential to increase the sample size, and thereby reduce the effects of response bias. The authors could also have collected biographic data (such as analysts' age, other certification, number of reports issued per year, whether they follow consolidated entities) that would allow the authors to control for differences across analysts. Furthermore, the authors could have considered conducting analyses on nonrespondents to reduce concerns of validity.

Turning to external validity, conference participants and I had concerns related to the motivation of analysts to complete the survey, which could minimize the generalizability of the results. The authors did not indicate how, if at all, they motivated analysts to participate in the survey.

Fully acknowledging that one cannot redo a survey, I suggested that the authors use multivariate analysis to control for differences between analysts that may bias their responses. The authors state, "more foreign company analysts rely on segment data than domestic company analysts," "domestic company analysts are even more skeptical of the integrity of segment disclosures than are foreign company analysts," and "foreign company analysts view segment data to be most useful for firms with foreign ownership and foreign listings." I think that these conclusions are invalid because the authors do not control for cross-sectional

differences between foreign and domestic analysts. Consider the following descriptive statistics that the authors report:

	Foreign analysts	Domestic analysts
Number of firms followed on average	30	24
Number of countries in which followed firms are domiciled	1	3
Percent of analysts perceiving usefulness of		
Segment sales	87%	79%
Export sales	74%	45%
Believe that firms are consistent in their segment disclosures	67%	32%

I question whether domestic analysts follow non-Japanese firms that may not be subject to the MOF segment disclosure requirements. It could be that firms followed by domestic analysts are subject to other countries' segment disclosure requirements, resulting in inconsistencies in firms' segment disclosure practices. In addition, I question whether foreign analysts tend to follow US-listed Japanese firms that (1) prepare consolidated financial statements, which may increase the importance of firms' segment disclosures and (2) are regulated by the SEC, which results in greater consistency in their segment disclosures. It is important that the authors acknowledge the potential limitations of their study due to internal and external validity threats.

4. Contribution

Mande and Ortman state that their results have important implications for global investors in Japanese stocks and for accounting standard-setting bodies. What are the implications for investors? What are the implications for accounting standard setters? What are the implications to market regulators? It is important that the authors specifically articulate how the results of their study affect these financial statement users.

Additional analyses of recent segment disclosures of Japanese firms

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Abstract

This paper discusses additional issues concerning segment reporting in Japan. Specifically, it discusses what the relevant segment reporting standards are, enforcement issues, the interaction of consolidation standards with segment disclosures, survey biases and response rates and the implications of segment disclosures in Japan for global investors and accounting standard setting bodies. © 2002 University of Illinois. All rights reserved.

Keywords: Segment reporting; Japanese accounting

1. Introduction

The discussant and conference participants raise several interesting issues with regard to segment reporting by Japanese firms. These questions relate to the paper's motivation, the research design used, as well as the results and contribution. We thank the discussant and participants for their insights. As we see it, there are nine major issues that were raised. We address each of these issues below.

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2. What are the relevant segment reporting standards?

The Business Accounting Deliberation Council (BADC), an advisory body to the Ministry of Finance (MOF), mostly sets accounting standards in Japan, which is the agency that regulates Japanese securities, markets. Once the BADC issues a *Statement* on an accounting issue, the MOF formally includes the Statement as part of Japanese GAAP. All firms listed on Japanese stock exchanges are subject to the Japanese Securities Exchange Law of the MOF and are obligated to comply with the BADC's *Statements*. Japanese accounting standards, therefore, are set in the public sector, in contrast to standard setting in the US. A private body which does play a role in the implementation of Japanese GAAP is the Accounting Standards Committee of the Japanese Institute of CPAs (JICPA), which issues implementation guidelines for the BADC's *Statements*. With regard to the segment-reporting standard, the BADC issued its standard titled *Reporting Standards for Financial Information by Segment* on May 26, 1988. On April 1, 1995, the JICPA issued its *Report #1: Accounting Techniques for Disclosing Segment Information*. These publications can be obtained from the MOF and JICPA. However, because these are written in Japanese, we recommend that English readers obtain the translation of the standard in *TRANSACC: Transnational accounting*, which is edited by Dieter Ordelheide and KPMG and published by Stockton Press, New York, 1995. We also recommend the English reader visit the web site ~ ykawamur/" locator-type="URL" > http://www2g.biglobe.ne.jp/ ~ ykawamur/, which has extensive information on Japanese accounting standards.

3. Lack of enforcement versus low-quality segment-reporting standards

While our results show that Japanese financial analysts perceive that there are significant problems relating to the quality of segment data disclosed by Japanese firms, the discussant raises the important question of whether such perception is due to the standard being deficient or due to lack of enforcement. While we do not examine this question, we can provide some indirect evidence that the quality of the standard by itself is of concern to analysts. First, in our survey and in our conversations with analysts, we were informed that the "situation" would greatly improve if Japan adopted International Accounting Standard (IAS) #14 in place of the current Japanese segment standard. Second, we were able to examine segment footnote data for Japanese firms on the Nikkei 225 Index for the period 1992–1994. Segment footnote data were obtained from Worldscope Disclosure databases organized by Disclosure National Research Center, MD, USA. Our inspection of these reports suggested to us that Japanese firms almost always disclose segment data according to very broad industry classifications rather than Japanese SIC codes, which is what the financial analysts wanted firms to use (see also Ozu & Gray, 1997 for more discussion on this point). However, we acknowledge that these tests do not conclusively prove that the segment-reporting standard by itself is deficient. Instead, as suggested by the discussant, it may be that a lack of enforcement is the reason why Japanese analysts expressed significant concern about the segment disclosures. This being said, we point out that the major objective

and contribution of this study is to gauge analysts' views on segment disclosures of Japanese firms. Regardless of whether their concerns arose because of the standard's low quality or lack of enforcement, or a combination of both, our study's contribution is to suggest to analysts and investors that they use great caution in utilizing the segment footnote of Japanese firms for investment analyses.

4. How does consolidation of Japanese financial reports interact with segment disclosures?

The discussant states that Japanese firms do not prepare consolidated statements unless they are listed in the US. In view of this, the discussant is concerned that for Japanese firms not listed in the US, segment data used in conjunction with unconsolidated reports would be less useful. The discussant's comments with regard to consolidation requirements in Japan are incorrect. Since 1977, *all* Japanese firms listed on Japanese stock exchanges (not just those listed on US exchanges) are required to prepare consolidated financial statements. Specifically, since 1977 (similar to US firms), *all* Japanese firms are required to consolidate financial results of subsidiaries when more than 50% ownership exists. Because effective control in Japan due to keiretsu relationships commonly exists where ownership is less than 50%, the Japanese MOF recently changed its consolidation standards. Thus, since April 1, 1999, the Japanese MOF requires consolidation where effective control exists.

A unique aspect of Japanese financial reporting is that Japanese firms present both parent-only and consolidated financial statements. There are conflicting results on whether consolidated financial statements have value-relevance. Ely and Pownall (2001) found that consolidated financial statement data do not possess incremental information content beyond those in parent-only statements. If consolidation has no value-relevance, one could argue whether it is even possible to measure the usefulness of segment information about the consolidated entity. Ely and Pownall, however, only examined a small sample of 23 firms. In contrast to the above study, Sakakibara, Yamaji, Sakurai, Shiroshita, and Fukuda (1988) found that consolidated net income does have significant information content over and beyond parent-only net income. To fully appreciate this result, one must understand that if firms properly applied the equity method, parent-only and consolidated net incomes would be identical. The fact that consolidated net income has incremental information content over parent-only net income is because these two incomes are not identical in Japan. Indeed, Beckman (1998) finds that Japanese firms systematically exclude losses experienced by subsidiaries in the parent-only statements but must include them in their consolidated statements. She shows how a comparison of parent-only with consolidated financials could disclose the magnitude of losses excluded in parent-only statements. If a parent excluded a loss sustained by a subsidiary belonging to a particular segment, an analysis of the segment note in the consolidated financial statements could reveal which segment experienced that loss. Thus, given the practice of excluding losses of subsidiaries in parent-only statements, the analyses of consolidated statements and the accompanying segment footnote become even more essential in Japan.

5. Should the survey respondents have been asked to interpret the term "useful"? Does not doing so restrict the inferences that can be drawn from the study?

In allowing respondents to select the degree of usefulness a particular type of data were in their prediction process, we believe that respondents are defining the term useful. The survey clearly states the particular circumstances under which we wanted respondents to assess the usefulness of several distinct data: in their process of predicting consolidated sales and net income. We believe we did provide respondents with the opportunity to define the term "useful" in regard to predicting consolidated sales and net income by allowing them to select five levels of usefulness as well as "I don't know." We agree that different individuals may define "extremely useful" differently with regard to their prediction process, but the alternative, as we see it, would have been to include in the questionnaire "our" definition of each degree of usefulness and possibly provide an illustration of each degree of usefulness as it pertains to the predicting of consolidated sales and net income. Analysts sent the questionnaire, we believe, would have received this negatively. They might not agree with our definitions and/or illustrations of each degree of usefulness and either find responding to the questionnaire confusing or just decide not to respond at all. Lastly, it may be that a 31% response rate would smooth out, on the average, any differences in respondents' perceptions of the term "useful."

6. Is nonresponse bias a significant problem for the study?

Compared to other studies, a 31% response rate is extremely high. Most published survey studies have less than a 20% response rate. Therefore, we believe that, relatively speaking, nonresponse bias is a less significant problem for this study. Because of the distance between Japan and the US, follow-up requests to stimulate a higher response rate are more difficult than for domestic studies. Extreme time differences make calling a problem. There is always a language problem, especially with the domestic company analysts. Reply envelopes must have Japanese postage that is difficult to obtain in the US. In summary, geographic, time, mailing, and language differences make follow-up requests very difficult. We did separate early replies from later replies and no statistical difference in replies existed between the two groups.

7. Should more biographical data have been requested to help resolving the nonresponse bias issue?

To ensure a high response rate, we decided to limit the questionnaire to one page (both sides). The envelope received by potential respondents only contained a short cover letter, a one-page (both sides) questionnaire, and a self-addressed, stamped, return envelope. We had hoped potential respondents would favorably welcome such an approach and our response rate clearly indicates that. We had to make a decision regarding what were the most critical items to include and decided that including 23 questions about segment reporting was more critical than collecting more biographical data. And exceeding the one page, both-side limit

we believe would have adversely affected our response rate, significantly. Lastly, we were fortunate to have a Japanese research assistant (RA) who was able to test our questionnaire when she returned to Japan during breaks. Initially, our questionnaire was longer and included more questions and biographical items. All survey studies, we believe, involve trade-offs. A major goal was a high response rate and to achieve such, we felt we had to limit other objectives, such as collecting extensive biographical information.

8. Why was the response rate so high in relation to other survey studies?

We have previously addressed most of this issue. Limiting the length of the questionnaire to one page (both sides) and not asking for professional data that might generate negative feelings in potential respondents were probably the two major reasons the response rate was so high. We also included our business school pencil as a thank you (whether they responded or not). Lastly, an interesting issue for further study would be whether response rates to all Japanese surveys are significantly higher than similar studies in other countries. There may be a cultural reason why the response was so high.

9. Could there be inherent cross-sectional differences between "domestic" and "foreign" company analysts that would bias their responses and limit the generalizability of the study's results?

First, while we agree there are probably some differences in the types of firms "domestic" and "foreign" analysts follow, we also believe there are many similarities. While we presume that "foreign" company analysts are somewhat more focused on Japanese firms listed on US exchanges, that is not to say these firms are not also of interest to "domestic" company analysts, but possibly not to the same extent. Also, only a small number of Japanese firms are listed on US exchanges. Since "foreign" company analysts responding to our survey, on the average, followed 30 firms, a large number of firms followed by them must include firms not listed on US exchanges.

We agree with the reviewer that both groups of analysts would probably analyze financial statements of firms that are not either Japanese or US and thus have footnote disclosure rules determined by other countries. Thus, analysts in our survey probably study financial statements from firms subject to different countries' segment disclosure reporting requirements. This situation, however, should not have significantly affected our study. Respondents of our study clearly understood that we were only interested in footnote disclosures of Japanese firms subject to MOF segment disclosure rules. We clearly omitted any reference to other countries segment disclosure rules.

In addition, all Japanese firms, whether listed on US exchanges or not, must prepare consolidated financial statements. This means both groups of analysts, "domestic" and "foreign," must routinely analyze consolidated reports. So while "foreign" company analysts in our study found segment information more useful than their "domestic" counterparts, both groups

must extensively and routinely analyze consolidated reports. Therefore, it is not the differences in the types of reports analyzed that resulted in the two groups differing in their evaluation of the usefulness of segment information. Also, even though we agree that foreign company analysts may follow more Japanese firms listed on US exchanges than their domestic counterparts, this would not cause a difference in the analysis of the two responding groups because the SEC allows Japanese firms listed on US exchanges to use segment disclosure rules mandated by the MOF. Therefore, the segment disclosures of US-listed Japanese firms would be the same as those of non-US-listed Japanese firms.

10. Contribution of study

The results of this study have important implications for global investors in Japanese stocks and for accounting standard-setting bodies. In response to the discussant's comments, we discuss these implications. As of December 31, 1999, the value of US mutual funds invested in Japanese stocks was US$8.1 billion. This amount does not include balances of mutual funds that purchase only Pacific Rim/Global or International Stocks. The balance of US mutual funds that specialize in Pacific Rim stocks was US$12.4 billion. We argue that because of these large investments in Japanese stocks, examining the quality of Japanese segment disclosures is important to US fund managers and investors. Second, because Japanese analysts are more likely to have better access to private information about segment performance, we also suggest that those US analysts and investors who are unaware of the low quality of segment disclosures in Japan would be at a distinct economic disadvantage if they relied on publicly disclosed segment data of Japanese firms. Third, with regard to policymaking, we discussed in the paper how the SEC had a major role in MOF's adoption of the segment-reporting standard. Our study suggests that the SEC continue to influence the MOF to adopt more rigorous rules and/or step up enforcement. Finally, our study has implications for SEC policy, which allows Japanese firms to list on US exchanges using home-country segment disclosures. While we cannot conclusively prove that US firms suffered negative consequences because US GAAP standards are more tringent than Japanese standards, we believe that requiring all Japanese firms that list on US exchanges to adopt US GAAP segment-reporting rules would level the playing field for US firms.

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Earnings management of seasoned equity offering firms in Korea

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Abstract

We investigated 249 Korean seasoned equity offering (SEO) firms during the period 1995–1997 to determine if the SEO firms manage earnings in the year before a planned issue of seasoned equity stocks. Using three test methods (accrual difference, correlation, and sign-change), we found that the Korean firms contemplating SEOs in the following year do manage earnings particularly when their relative performances have been poor. The results are robust irrespective of control samples. Analysis of operating performances around SEOs shows that SEO firms tend to increase reported earnings in the year immediately preceding and the year of SEOs, but no differences were found in operating cash flows between the SEO firms and the control firms. By using a regression analysis for discretionary accruals, we found that SEO firms are more likely to manage earnings if the operating performances are poor and if the offer sizes are relatively large. Association tests between stock returns and discretionary accruals indicate that the market reacts positively to net income but negatively to discretionary accruals. The results indicate that the market correctly analyzes the cash flow implications of the SEO firms' opportunistic use of discretionary accruals. © 2002 University of Illinois. All rights reserved.

Keywords: Seasoned equity offering; Earnings management; Cash from operations; Discretionary accruals; Operating performance around seasoned equity offerings; Earnings management inducement factors; Association test

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1. Introduction

Korean accounting standards are generally based on the rules issued by the US Financial Accounting Standards Board (FASB). Before the 1997 financial crisis, however, Korean firms pursued earnings management practices due to the less stringent financial reporting environment, including lenient audit opinions and a lack of general oversight functions. Since the 1997 financial crisis, many changes in the Korean financial reporting environment have been implemented, including the establishment of the Korean Accounting Standards Board, a private sector standard setting body in 1999; the introduction of mandated outside directorship and audit committees for listed firms in 2000; an increase in the number of lawsuits against public auditors; and an increase in shareholders' activism movements.

The potential for abuse in earnings management has become a concern throughout the world, as so reflected in the literature (see Levitt, 1998; Brown, 1999). Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports. The objective is to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers (Healy & Wahlen, 1999).

The incentives to apply earnings management are diverse: income smoothing (Moses, 1987), management compensation (Healy, 1985), ownership control or management buyout (DeAngelo, 1986, 1988; Perry & Williams, 1994), and political costs (Cahan, 1992; Liberty & Zimmerman, 1986; Maydew, 1997).

There are studies documenting earnings management by the seasoned equity offering (SEO) firms prior to or during the period of SEO year (Loughran & Ritter, 1995, 1997; Rangan, 1998; Teoh, Welch, & Wong, 1998). Many SEO firms experience poor operating performances and poor stock returns after their stock issuance (Loughran & Ritter, 1995; Rangan, 1998; Spiess & Affleck-Graves, 1995; Teoh et al., 1998). Shivakumar (2000) argues that earnings management by seasoned equity issuers' may not be designed to mislead investors, but may merely reflect the issuers' rational response to anticipated market behaviors at the offering announcements. He argues that SEO firms' earnings management is rational since investors infer earnings management and rationally undo its effects at equity offering announcements. Choi and Paik (1999) investigated operating performances and earnings management of 236 Korean SEO firms in the 5-year period surrounding the year of SEO during the period 1991–1995. They document that the discretionary accruals (DA) of the SEO firms gradually increase and peak during the SEO year and then decrease afterwards. They also found that the SEO firms usually have poor cash flows and earnings as compared to the non-SEO firms in the same industries.

This study investigates whether SEO firms manage earnings in the year before the SEOs. We hypothesize that the SEO firms have incentives to manage earnings in the year preceding the planned equity issues especially when operating performances are relatively poor. There is no regulation in Korea that requires SEO firms to report positive earnings prior to SEOs. However, better earnings figures may result in stock price increases at issue. In Korea, the stock subscription prices of SEOs are determined at 1-month average prices before the date of subscription.

We dichotomized the sample firms into negative cash flows from operations (CFO) and positive CFO groups based on the assumption that firm operating performances measured in terms of CFO will affect the firms' accounting decisions. Though all firms may have incentives to manage earnings when the firms have poor operating performances, the firms should have stronger incentives to manage earnings when they contemplate SEOs in the following year.

The development of a proper model to estimate DA is critical to ensure reasonable empirical results and interpretations. We developed a model that does fit relatively well to Korean industrial firms during our estimation period 1993–1997.

We used three test methods (accrual difference, correlation, and sign-change) to investigate whether the SEO firms differ systematically in earning management from the non-SEO firms during the same period. We also explained the operating performances of the SEO firms in the year before and after the issue and compared them with the control firms.

The results of the study support the hypothesis that many SEO firms widely employ income-increasing strategies during this time. The degree of earnings management by the SEO firms is more pronounced when their operating performances are relatively poor. That is, firms contemplating SEOs in the following year tend to increase reported earnings (NI) compared to the non-SEO firms in the same period.

An analysis of operating performances in the years surrounding the SEO reveals that the SEO firms tend to increase NIs in the preceding year and the year of the SEO while CFOs are not different from the non-SEO firms.

Multiple regressions run on factors driving the SEO firms to manage earnings indicate that the poorer the operating performance and the larger the offer size, the more likely the firm will manage earnings when an SEO is contemplated in the following year.

Association tests between cumulative abnormal return and DAs show that the market reacts positively to net income but negatively to DAs. The results reveal that the SEO firms employ DAs opportunistically but the market correctly interprets the cash flow implications of the SEO firms' DAs.

The remainder of this paper is structured as follows. Samples and test methods are described in Section 2. Section 3 presents the empirical results of the earnings management tests. Section 4 addresses additional issues including the characteristics of SEO firms, sensitivity analysis, and additional tests. Section 5 provides concluding remarks.

2. Samples and test methods

2.1. Samples

We examine the Korean listed firms that issued seasoned equity stocks from March 1995 to December 1997. The sample choice is limited to 1995, the year when reporting the cash flow statement became mandatory. Financial statements are usually available 2 or 3 months after the fiscal year ends. The process of issuing SEOs requires about 2 months from the date the board of directors approves the action to the date of payment. At this time, investors know the

issue prices based on the 1-month average stock prices prior to the subscription. The SEO process is completed when new stocks are issued about a month from the date of payment. We assume that investors would make their decisions at the date of payment. Therefore, we confine our test period to March 1995 through December 1997.[1]

The final sample of 249 firms was selected as follows.

SEOs during the period March 1995 to December 1997		305
Less: Consecutive SEOs since 1995	15	
Financial Institutions	28	
Unmatchable firms	12	
Outliers	1	56
Final sample		249[2]

We included only the first SEO when a firm had multiple SEOs in the test period. Fifteen SEOs were eliminated for this reason. Twenty-eight financial institutions including banks, security dealers, and insurance firms were deleted from the sample since these firms usually have different firm characteristics than other industrial firms. We compare the earnings-management practices of the SEO firms with two matched-pair non-SEO samples. The first control sample is matched on calendar year, industry classification, and cash from operations. We assume the SEO firms will issue additional stocks to finance their requirements for cash that generally depends on CFO. The second control sample is matched on calendar year, industry classification, and net sales assuming that firm size may explain earnings-management behavior of some firms. Twelve firms were eliminated since the companies could not be properly matched based on our matching criteria.[3] Finally, one wholesale firm was deleted from the sample due to obtaining extreme values for variables standardized by total assets.

The offer size in terms of the increase in capital averages 43.0% (median 38.0%) and ranges between 2% and 250%.[4] In addition, the time lags between the fiscal year-end of the previous fiscal period to the actual SEO date, which is defined as the date of payment in this study, averages 8.8 months (median 8 months) and ranges between 3 and 14 months.

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[1] Our study period is not a unique period. We wanted to investigate earnings management for recent SEOs when cash flow statements are available. In addition, quite a few SEOs are available during the period selected to assure the robustness of our test results. SEOs after 1997 are very limited as a result of the stock market crash after the financial crisis.

[2] The financial statements for our sample of 249 SEO firms are distributed as follows by each calendar year: 109 in 1994, 82 in 1995, 53 in 1996 and 5 in 1997.

[3] We tested whether the matches were proper or not by comparing differences in the matching variables between the two groups. For the CFO-matched sample, the t ratio for the difference in CFO deflated by the beginning total assets is only 0.06. For the sales-matched sample, the t ratio for the difference in firm size (natural logarithm of total assets) is only -0.68.

[4] More than 30% of shares are held by outside investors for all listed companies. Initial public offerings regulations mandate that 30% or more of the shares should be sold to the general public. Individual investors have all the rights pertaining to shares including voting rights.

2.2. Earnings management test methods

Yoon (1998) documents that operating performances are a major reason for earnings-management practices in Korea. Unless firms intentionally delay or frontload the recognition of cash accompanying revenue or expense, CFOs typically represent unbiased operating performance for the firms. The distribution of CFO statements will provide a good benchmark to judge earnings management. Therefore, we dichotomize SEO firms into negative and positive CFO portfolios. We assume that negative CFO firms will have stronger incentives to manage earnings especially when the firms contemplate SEOs in the following year.

Three test methods (accrual difference tests, correlation tests between net income and CFO, and sign-change ratio tests) are used to investigate whether the SEO sample differs systematically in earnings management from the control samples.

The accrual difference tests examine how accruals (discretionary and total) differ between the treatment sample and the matched-pair control samples. Based on the earnings management hypothesis, the SEO firms should employ income-increasing strategies in the year preceding the SEOs. Therefore, SEO firms' DAs and total accruals (TA) should be higher than those for non-SEO firms. The differences should be larger when the SEO firms experience negative CFO in the preceding year.

The correlation tests examine the correlation coefficients between CFO and NI. Based on the null hypothesis of no earnings management, we expect to find high positive correlations between CFO and NI since both of the measures represent operating performances.[5] However, when firms manage earnings, we will not necessarily find a strong positive correlation. We, therefore, hypothesize that the correlation coefficients between CFO and NI will be low when SEO firms experience negative CFO.

The sign-change tests examine the ratios of observations reporting positive NI when CFO is negative or vice versa for each CFO portfolio. Negative CFO firms will have strong incentives to report positive NI figures, while positive CFO firms will not report negative NI figures under normal circumstances unless the firms are strongly motivated to reduce income taxes or political costs. Therefore, we expect much higher sign-change ratios among the negative CFO firms than the positive CFO firms. The sign-change ratio tests are variations of proportion tests and are nonparametric tests in nature because the magnitude of earnings management is ignored.

2.3. Estimation of DAs

TAs are defined as NI less CFO. TA can be decomposed into discretionary and non-DAs. The discretionary component of TA represents the degree of earnings management. A model is needed to separate the discretionary component from TA.

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[5] It should be noted that NI is the accrual basis earnings and CFO is the cash basis earnings.

Some early studies including Healy (1985) used a random walk model. Jones (1991) proposed a seminal model. Then, Dechow, Sloan, and Sweeny (1995) proposed a modified Jones model, which has been widely used by many researchers. Kang and Sivaramakrishnan (1995) proposed a model (KS model) stating that accrual balances will change in proportion to the changes in revenue, expense and gross property, plant, and equipment.

In this paper, we develop a better-fitting model, based partly on those models discussed previously, to provide better explanatory power. The model is described below:

$$\text{TA}_{it}/\text{BTA}_{it} = \beta_0 + \beta_1(\Delta\text{REV}_{it} - \Delta\text{REC}_{it})/\text{BTA}_{it}$$

$$+ \beta_2(\Delta\text{EXP}_{it} - \Delta\text{PAY}_{it})/\text{BTA}_{it}$$

$$+ \beta_3(\text{NCASH}_{it-1} \times \text{GPPEGRW}_{it})/\text{BTA}_{it} + \varepsilon_{it} \qquad (1)$$

where TA_{it} = total accruals = $\text{NI}_{it} - \text{CFO}_{it}$; REV_{it} = net sales revenue; REC_{it} = receivables; EXP_{it} = operating expenses excluding noncash expenses; PAY_{it} = payables; NCASH_{it-1} = previous period noncash expenses such as depreciation; GPPEGRW_{it} = rate of growth in gross property, plant, and equipment; and BTA_{it} = total assets at the beginning of the current period.

The model posits that TAs will normally depend on changes in cash-sales revenue, changes in cash expenses and noncash expenses, which in turn depend partly on changes in gross property, plant, and equipment.

The first explanatory variable, $(\Delta\text{REV} - \Delta\text{REC})/\text{BTA}$, was borrowed from the modified Jones model. The variable represents changes in cash revenues since we subtract changes in receivables from changes in revenue. The changes in the cash revenues account for the effect of current accruals and represent the normal or the nondiscretionary portion for revenue. This variable should capture a firm's tendency to increase NIs by increasing credit sales toward the end of the fiscal year. In other words, the change in cash sales should not be affected by the front-loading of credit sales. Therefore, this variable should properly capture a firm's tendency to increase the front-loading of credit sales.

The second explanatory variable, $(\Delta\text{EXP} - \Delta\text{PAY})/\text{BTA}$, was adopted from the KS model.[6] The variable associates current accruals with changes in cash expenses. Management may utilize not only sales but also expenses in managing NIs. Hence, unless we properly take into account both cash sales and cash expenses, we may not properly capture the dual aspects of current accruals. One of the major weaknesses of the modified Jones model is that the first variable, changes in cash sales, does not have a predicted relationship with TAs. TAs will have a certain relationship with current accruals. However, it is difficult to predict the relationship the changes in cash sales will have with TAs. Therefore, the predicted relationship can be either positive or negative. Sometimes, sales and receivables will be utilized to manage earnings, whereas at other times expenses and payables can be utilized for the same purpose. If we include only the first variable in our model, we may in fact capture

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[6] Rangan (1998) also uses a similar variable.

the impact of cash expenses on the current accruals because cash revenues and cash expenses are correlated to a certain degree.[7]

The third variable associates noncash expenses for the current period with noncurrent accruals. A normal or nondiscretionary level of noncash expense is obtained by multiplying the previous year's noncash expense by the growth rate of gross property, plant, and equipment. The third variable will have a negative sign by construction.

To help ensure statistical robustness we used panel data to estimate the DAs made by combining the financial statements for the listed firms from the period[8] 1993–1997.[9] Next, we estimated the regression coefficients for each of the 28 two-digit industries. We maintained as many firm-year observations as possible by winsorizing, instead of eliminating, outliers in order to keep small-member-firm industries in the panel data. We also tried to keep the winsorization to a minimum level[10] to maintain the original data as much as possible.

Discretionary accruals are obtained by subtracting fitted values of accruals (non-DAs) from TAs as follows:

$$DA_{it} = TA_{it}/BTA_{it} - [b_0 + b_1(\Delta REV_{it} - \Delta REC_{it})/BTA_{it} + b_2(\Delta EXP_{it} - \Delta PAY_{it})$$

$$/BTA_{it} + b_3(NCASH_{it} \times GPPEGRW_{it})/BTA_{it}] \tag{2}$$

Here, b_k represents the estimated coefficients of β_k in Eq. (1). The DAs obtained from Eq. (2) represent the differences between actual TAs and the expected (nondiscretionary) TAs for each observation. The DAs are used to test differences between the SEO firms and the matched-pair non-SEO firms.

In addition, we use TAs for the accrual-difference tests as a complement since TAs should be free of model-fitting errors. If we use incorrect models in estimating the discretionary

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[7] We may have a multicollinearity problem when we include explanatory variables that are correlated. We need to take into account the trade-off between the adverse effect of multicollinearity and the problems of omitted variables in this case. Changes in revenues and changes in expenses are highly correlated (Pearson Product Correlation Coefficient = .953). However, the correlation between changes in cash revenues and changes in cash expenses decreased significantly (Pearson Product Correlation Coefficient = .838). Furthermore, when we use both of the variables, we get significant and consistent signs for both of the variables from the regressions (see the regression results for our model in Table 1.) However, if we omit the second variable, we get inconsistent regression coefficients. The average adjusted R^2 of our model is .324 and the first two variables show consistent and significant signs most times. However, the goodness-of-fit is much lower for the modified Jones model (see footnote 11).

[8] We included in the panel data firms in two-digit industry with more than five firms so that we could have 25 observations (5 years times five firms) at least to make our regression results robust.

[9] When cash flow statements are not available, we estimated current accruals by subtracting operation-related current liabilities (total current liabilities – short-term borrowings – current portion of long-term debt) from operation-related current assets (receivables + inventories + prepaid expenses). Noncurrent accruals are directly available from the statement of changes in financial position – working capital basis by subtracting working capital from operations from net income.

[10] We winsorized up to 1% of the panel data (about 30 observations) at each end for some key variables. We did not winsorize the data if it was not necessary.

models, then we are introducing unwarranted estimation bias into our tests. Unless we get a reasonable goodness-of-fit for the model, we may not be free from a possible problem of misspecification.

2.4. Results of the estimation of DAs

The results of the DA estimations are reported in Table 1. For convenience, only the t ratios of the three explanatory variables are shown in the variable column. We did not show the regression results for the constant term. Since we fitted the model to each industry with 5-year

Table 1
Discretionary accrual estimation model

SIC	n	Explanatory variables			Adjusted R^2
		$x1$	$x2$	$x3$	
0500	19	− 2.18	2.65	− 0.79	.293
1500	220	− 5.93	5.97	− 0.58	.152
1700	236	− 5.84	6.68	− 4.03	.203
1800	79	− 2.94	3.47	− 0.17	.104
1900	52	− 5.22	6.76	− 0.53	.456
2100	159	− 2.99	4.15	− 4.90	.231
2300	30	− 0.05	2.81	− 0.27	.226
2400	443	− 14.39	13.02	− 7.01	.420
2500	87	− 5.83	6.03	− 2.12	.326
2600	135	− 8.06	7.56	− 3.77	.389
2700	205	− 7.82	9.90	− 3.17	.364
2800	67	− 3.58	4.90	− 0.10	.250
2900	132	− 9.51	8.49	− 2.96	.454
3000	45	− 4.15	4.10	− 0.49	.285
3100	105	− 6.26	6.67	− 2.39	.344
3200	301	− 6.10	6.68	− 5.83	.255
3300	34	− 4.60	4.41	− 1.29	.506
3400	160	− 8.09	7.91	− 5.02	.430
3500	25	− 3.59	6.73	− 1.26	.755
3600	48	− 4.64	6.79	− 1.04	.516
4000	49	1.03	− 0.93	− 3.59	.195
4500	266	− 1.76	3.78	− 1.05	.063
5000	14	− 2.08	1.73	− 0.59	.168
5100	146	− 5.13	5.59	0.47	.173
5200	45	− 5.53	6.67	− 1.66	.551
6000	40	− 2.06	3.08	− 3.39	.293
6100	25	− 2.82	2.95	0.18	.253
Other	35	− 1.90	1.72	− 2.69	.403

Model: $TA_{it}/BTA_{it} = \beta_0 + \beta_1(\Delta REV_{it} - \Delta REC_{it})/BTA_{it} + \beta_2(\Delta EXP_{it} - \Delta PAY_{it})/BTA_{it} + \beta_3(NCASH_{it-1} \times GPPEGRW_{it})/BTA_{it} + \varepsilon_{it}$.
Explanatory variables $x1$, $x2$, and $x3$ represent $(\Delta REV_{it} - \Delta REC_{it})/BTA_{it}$, $(\Delta EXP_{it} - \Delta PAY_{it})/BTA_{it}$, and $(NCASH_{it-1} \times GPPEGRW_{it})/BTA_{it}$, respectively. To make the table compact, only t ratios are presented for each explanatory variable and the constant terms are not shown.

Table 2
Comparative descriptive statistics of the treatment and control samples

Samples and variables		Mean	Median	S.D.	Maximum	Minimum	$Q1$	$Q3$	Percent positive
SEO firms	DA	0.0152	0.0077	0.0862	0.3957	− 0.2259	− 0.0360	0.0584	55
	TA	0.0060	− 0.0101	0.1118	0.4420	− 0.3438	− 0.0632	0.0608	46
	NI	0.0402	0.0227	0.0691	0.6244	− 0.1576	0.0099	0.0508	94
	CFO	0.0342	0.0279	0.1253	0.7759	− 0.3607	− 0.0284	0.0978	63
CFO matched	DA	− 0.0059	− 0.0090	0.0743	0.2504	− 0.3836	− 0.0427	0.0283	43
non-SEO firms	TA	− 0.0184	− 0.0240	0.0900	0.3524	− 0.2384	− 0.0750	0.0299	39
	NI	0.0152	0.0154	0.0732	0.5443	− 0.3586	0.0029	0.0377	79
	CFO	0.0336	0.0321	0.1140	0.6850	− 0.2806	− 0.0289	0.0950	64
Sales matched	DA	− 0.0081	− 0.0110	0.0678	0.2923	− 0.3143	− 0.0433	0.0275	43
non-SEO firms	TA	− 0.0314	− 0.0343	0.0910	0.2135	− 0.4102	− 0.0826	0.0263	36
	NI	0.0103	0.0135	0.0558	0.2524	− 0.3267	0.0030	0.0314	77
	CFO	0.0340	0.0361	0.0984	0.5852	− 0.3568	− 0.0252	0.0861	68

panel data, the number of firm-year observations for each industry varies from a low of 14 to a high of 443.

The results reveal that the model fits well in general. Adjusted R^2 range from a low of .063 (SIC 4500: construction) to a high of .755 (SIC 3500: other transportation vehicles). The goodness-of-fit of the model is much better than that of the modified Jones model.[11]

Furthermore, individual explanatory variables show consistent signs and overwhelming significance. That is, changes in cash revenues, (ΔREV − ΔREC)/BTA, have negative relationships with TAs. The results are statistically significant for 26 out of 28 industries. Changes in cash expenses, (ΔEXP − ΔPAY)/BTA, have positive relationships with TAs. The frequency of their statistical significance is as high as the changes in cash revenues. The results indicate that we are better off by including not only changes in cash revenues but also changes in cash expenses to measure the nondiscretionary nature of current accruals. Finally, noncash expenses that are intended to capture the nondiscretionary nature of noncurrent accruals also have negative relationships with TAs. Approximately half of them are statistically significant.

2.5. Descriptive statistics

The descriptive statistics for the variables are shown in Table 2. Two accrual proxies (DA and TA) for the SEO firms are on average greater than those of the matched-pair non-SEO firms.

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[11] In the case of the modified Jones model, the adjusted R^2 were much lower than our model and the explanatory variables have either very low explanatory power or inconsistent signs. Of the 28 industry-model regressions, only two have the adjusted R^2 greater than .2, five between .1 and .2, and the remaining 21 have virtually no power at all. Furthermore, the explanatory power of the two important variables was very limited. (ΔREV − ΔREC)/BTA had 20 positive signs (six of them statistically significant) and eight negative signs (two of them statistically significant). GPPE/ BTA had 24 positive signs (13 of them statistically significant) and four negative signs (nonsignificant). Therefore, the modified Jones model exhibited little explanatory power in explaining total accruals in Korea, especially during the period of 1993–1997.

Accordingly, the NI of the SEO firms are greater than those of the non-SEO firms. However, there seems to be little difference in CFOs between the SEO firms and non-SEO firms.

The ranges between the maximum and the minimum values for DA, TA, and NI indicate that they are skewed somewhat toward the positive for the SEO firms relative to the control firms. The proportion of positive figures for each variable also indicates the possibility of earnings management by the SEO firms. Though the proportion of positive CFO is similar (63% vs. 64% and 68%), the proportion of positive NI is much higher for the SEO firms than for the non-SEO firms (94% vs. 79% and 77%).

3. Results of earnings management tests

3.1. Results of accrual difference tests

Tables 3–5 present the empirical results for the earnings-management tests. Each test is conducted for the two subportfolios of negative CFO and positive CFO and the total sample. Even though we have a large enough sample size to justify parametric tests, we conducted both parametric and nonparametric tests for both accrual difference tests and correlation tests to enhance the robustness of the test results.

Panel A of Table 3 reports the results of the accrual-difference tests between the SEO firms, and the CFO-matched control firms. Panel B of Table 3 reports the results of the same test between the SEO firms and the sales-matched control firms. The results clearly indicate that both the DAs and TAs are higher for the SEO firms than for the non-SEO firms especially when their CFOs are negative. When CFOs are negative, the differences in accruals are positive and statistically significant for all the test metrics. When CFOs are positive, the differences in accruals between the SEO firms and the non-SEO firms are not significant or are weakly significant though the accruals are consistently higher for SEO firms than for the non-SEO firms.

The results of accrual-difference tests, both the *t* tests and the Mann–Whitney tests, strongly and consistently support the hypothesis of earnings management by the SEO firms relative to the non-SEO firms.

The magnitude of the income increases for the SEO firms in the preceding year is significant. As shown in Table 2, NI and CFO for both samples of the matched-pair non-SEO firms account for only about 1.5% or less and about 3.4% of the beginning total assets respectively. However, the negative CFO firms' DA and TA amount to 10.9% and 10.5% of the beginning total assets, respectively, when the firms contemplate SEOs in the following year. This does indicate that the magnitude of income increases by the SEO firms in the preceding year is material.

3.2. Results of correlation analysis

Table 4 shows the results of the correlation analysis between NI and CFO. The upper line shows the Pearson Product Correlation Coefficients with *t* ratios. The lower line presents the

Table 3
Results of the mean difference tests

Panel A: Comparison with CFO-matched control sample
Panel A-1: Mean difference test

Accruals	CFO	SEO firms			CFO-matched non-SEO firms			Difference	t ratio	P value
		n	Mean	S.D.	n	Mean	S.D.			
DA	−	93	0.1091	0.0818	89	0.0663	0.0725	0.0428	3.74	.000
	+	156	− 0.0122	0.0774	160	−0.0206	0.0616	0.0084	1.07	.143
	Total	249	0.0331	0.0984	249	0.0104	0.0777	0.0227	2.85	.002
TA	−	93	0.1050	0.0865	89	0.0560	0.0754	0.0490	4.08	.000
	+	156	− 0.0530	0.0787	160	− 0.0598	0.0682	0.0068	0.82	.208
	Total	249	0.0060	0.1118	249	− 0.0184	0.0900	0.0244	2.69	.004

Panel A-2: Mann–Whitney test

Accruals	CFO	SEO firms		CFO-matched non-SEO firms		W value	P value
		n	Median	n	Median		
DA	−	93	0.0524	89	0.0268	9416	.011
	+	156	− 0.0151	160	− 0.0215	26,028	.109
	Total	249	0.0077	249	− 0.0090	66,553	.006
TA	−	93	0.0759	89	0.0477	9805	.000
	+	156	− 0.0444	160	− 0.0513	25,597	.284
	Total	249	− 0.0101	259	− 0.0240	66,049	0.015

Panel B: Comparison with sales-matched control sample
Panel B-1: Mean difference test

Accruals	CFO	SEO firms			Sales-matched non-SEO firms			Difference	t ratio	P value
		n	Mean	S.D.	n	Mean	S.D.			
DA	−	93	0.1091	0.0818	80	0.0679	0.0690	0.0412	3.59	.000
	+	156	− 0.0122	0.0774	169	− 0.0255	0.0573	0.0133	1.75	.040
	Total	249	0.0331	0.0984	249	0.0045	0.0752	0.0286	3.65	.000
TA	−	93	0.1050	0.0865	80	0.0594	0.0609	0.0455	4.04	.000
	+	156	− 0.0530	0.0787	169	− 0.0630	0.0653	0.0100	1.24	.108
	Total	249	0.0060	0.1118	249	− 0.0237	0.0857	0.0297	3.32	.000

Panel B-2: Mann–Whitney test

Accruals	CFO	SEO firms		Sales-matched non-SEO firms		W value	P value
		n	Median	n	Median		
DA	−	93	0.0911	80	0.0586	9222	.001
	+	156	− 0.0064	169	− 0.0206	26,939	.074
	Total	249	0.0238	249	0.0028	67,762	.000
TA	−	93	0.0759	80	0.0512	9173	.001
	+	156	− 0.0444	169	− 0.0570	26,375	.263
	Total	249	− 0.0101	249	− 0.0308	66,546	.006

Table 4
Results of the correlation tests between CFO and NI

	SEO firms		CFO-matched non-SEO firms		Sales-matched non-SEO firms	
CFO	n	Correlation coefficient	n	Correlation coefficient	n	Correlation coefficient
−	93	.0284 ($t=0.27$), −.1402 ($t=-1.35$)	89	.4184 ($t=4.30$), .1727 ($t=1.64$)	80	.4208 ($t=4.10$), .2055 ($t=1.85$)
+	156	.6203 ($t=9.81$), .4631 ($t=6.48$)	160	.6044 ($t=9.54$), .4727 ($t=6.74$)	169	.5001 ($t=7.46$), .3714 ($t=5.17$)
Total	249	.4605 ($t=8.15$), .3224 ($t=5.35$)	249	.6147 ($t=12.25$), .5428 ($t=10.16$)	249	.4964 ($t=8.99$), .4481 ($t=7.88$)

Upper line: Pearson Product–Correlation Coefficients (t ratios).
Lower line: Spearman Rank–Correlation Coefficients (t ratios).

Spearman Rank Correlation Coefficients with t ratios. As indicated earlier, the two operating performance indicators should exhibit a high positive correlation unless firms manage earnings to a considerable degree. A low correlation between the two indicators will, therefore, imply the evidence of earnings management practices.

The correlation analysis indicates that the SEO firms with negative CFO in the preceding year manage earnings so significantly that the correlation coefficient between the two variables is only .028 (t ratio of 0.27) for the Pearson Product Correlation and −.1402 (t ratio of −1.35) for the Spearman Rank Correlation. In contrast, the correlation coefficient between the two performance indicators is significantly positive for the SEO firms with positive CFO.

For the non-SEO firms, the correlation coefficients between the two performance indicators are positive and significant. The Pearson Product Correlation Coefficients are not so different across CFO portfolios. However, the Spearman Rank Correlation shows that the correlations become weaker when their CFOs are negative for the non-SEO firms even though they are still statistically significantly positive.

The correlation analysis is also consistent in showing that the SEO firms with negative CFO manage earnings more heavily than the non-SEO firms with negative CFO in the same calendar years.

3.3. Results of sign-change analysis

Table 5 reports the results of the sign-change analysis. As discussed, the sign-change tests are nonparametric tests in the sense that the results are not affected by the existence of extreme observations. Based on the fact that TAs would normally be negative because of noncash expenses such as depreciation, retirement benefit expenses, and others,[12] we expect

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[12] For the sample firms of this study, the average noncurrent accruals relative to beginning total assets are very similar at −0.0611 for the SEO firms and −0.0623 for the non-SEO firms. Furthermore, the third quartiles are also negative at −0.0336 and −0.0380, respectively, for SEO firms and non-SEO firms. Therefore, noncurrent accruals are in general negative.

Table 5
Results of the sign-change ratio tests

CFO	SEO firms			CFO-matched non-SEO firms			Difference test		
	n	No. of sign-changes	Ratio of sign-changes	n	No. of sign-changes	Ratio of sign-changes	Difference	z value	P value
Panel A: Comparison with CFO-matched control sample									
–	93	85	0.914	89	53	0.596	0.318	7.59	.000
+	156	7	0.045	160	16	0.100	– 0.055	– 1.31	.101
Total	249	92	0.369	249	69	0.277	0.092		
Panel B: Comparison with sales-matched control sample									
–	93	85	0.914	80	50	0.625	0.289	6.80	.000
+	156	7	0.045	169	28	0.166	– 0.121	– 2.85	.022
Total	249	92	0.369	249	78	0.313	0.053		

that there should be a few firms reporting net losses even if their CFOs are positive, provided that the firms do not manage earnings. Nevertheless, we hypothesize that firms would be reluctant to report net losses when their CFOs are positive or slightly negative especially when the firms contemplate SEOs in the following years.

The results of the sign-change tests also strongly support the hypothesis that firms planning SEOs in the following year heavily manage earnings when their CFO is negative. The sign-change ratios show extremely contrasting results among the comparative groups of firms. Almost all (85 out of 93 or 91.4%) of the SEO firms with negative CFO report positive earnings in the preceding year. This means that almost all of the negative CFO firms apparently manage earnings to report positive earnings. In contrast, only a few SEO firms with positive CFO (seven out of 156 or 4.5%) report negative earnings. Even though the proportion of change is also high for the non-SEO firms when their CFOs are negative,[13] the difference in sign-change ratio between the two groups when their CFOs are negative is statistically significant (0.318 with a z value of 7.59 when compared with the CFO-matched control sample, and 0.289 with a z value of 6.80 when compared with the sales-matched control sample). For the positive CFO portfolios, the differences of – 0.055 (a z value of – 1.31) when compared with the CFO-matched control sample and – 0.121 (a z value of – 2.85) when compared with the sales-matched control sample are less significant than for the negative CFO portfolios. These results are generally consistent with the earnings-management hypothesis that SEO firms will try to avoid reporting net losses when their CFOs are positive in order to carry out their SEO plans in the following years.

In summary, the results of the three tests strongly indicate that the firms with negative CFO manage earnings very heavily when the companies contemplate seasoned-equity offerings in the following year. The strong test results may not be surprising because the SEO firms should have strong incentives to increase NIs to successfully carry out their SEO plan when

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[13] Assuming that other noise factors are averaged out, the negative CFO alone affects about two-thirds of firms that adopt income-increasing strategies. Any additional increases in the sign-change ratio for the SEO firms can be attributed to SEO plans.

their CFOs are negative. With negative NIs, the firms may have a difficult time persuading potential subscribers to participate in any subscription. The firms would get lower cash inflows from any equity issues due to the relatively low stock prices.

4. Additional issues

4.1. What types of firms issue seasoned equity stocks?

We examined how SEO firms differ from the non-SEO firms in general. For this, we compared the SEO firms with the non-SEO population during the study period. The non-SEO firms include all the industrial firm-year observations with financial statements information available during the period 1993–1997. Comparisons of some key characteristics are summarized in Table 6.

There is no statistically significant difference in CFO between the SEO firms and the entire population of non-SEO firms. However, TAs of the SEO firms are significantly higher than those of the non-SEO firms (t ratio of 5.56), thereby increasing NIs significantly higher than the non-SEO firms (t ratio of 6.25).

There seems to be no sizable differences in debt ratios (total liabilities/total assets) and the size between the SEO firms and the non-SEO firms. However, the SEO firms are faster growing firms both in terms of total assets (t ratio of 5.16) and revenue (t ratio of 5.30) as compared to the non-SEO firms. In addition, the SEO firms seem to pay off debts with stocks. The change in debt ratio is lower for the SEO firms than for the non-SEO firms (t ratio of -2.30).

4.2. Sensitivity analysis

4.2.1. Third control sample
The SEO firms appear to grow faster than the non-SEO firms. We decided to select a third control sample that is matched to the test sample on the basis of the growth rate of total assets in addition to calendar year and industry classification. We replicated the three tests

Table 6
Characteristics of the SEO Firms in comparison to the non-SEO firms

Variables	SEO firms ($n = 249$)	Non-SEO population ($n = 2971$)	t ratio	P value (two-sided)
CFO/BTA	0.0342 (0.1253)	0.0465 (0.1225)	-1.48	.138
NI/BTA	0.0402 (0.0693)	0.0114 (0.0775)	6.25	.000
TA/BTA	0.0060 (0.1118)	-0.0351 (0.1122)	5.56	.000
Total liabilities/total assets	0.6808 (0.1518)	0.6989 (0.2200)	-1.73	.084
Size (log of total assets)	18.7881 (1.3967)	18.8758 (1.3705)	-0.95	.342
Change in debt ratio	-0.0005 (0.0671)	0.0100 (0.0953)	-2.30	.022
Change in size	1.0118 (0.0010)	1.0081 (0.0010)	5.16	.000
Revenue growth	0.2140 (0.2412)	0.1302 (0.2191)	5.30	.000

Mean (standard deviation).

(TA difference, correlation, and sign-change ratio). The results are very similar to the results reported in Tables 2–4. Mean difference tests for TAs between the SEO firms and the growth-matched control firms show that the TAs of the SEO firms are much higher than those of the growth-matched control firms (t ratio of 2.10 for the negative CFO portfolio, 2.22 for the positive CFO portfolio, and 2.46 for the total sample). The correlation between CFO and NI is much higher for the growth-matched control firms than for the SEO firms. The Pearson Product Correlation Coefficients are .4182 ($t=4.29$), .5982 ($t=9.38$), and .5577 ($t=10.50$) for the negative CFO portfolio, the positive CFO portfolio, and total sample, respectively. Finally, the results of the sign-change ratio tests also reveal that the sign-change ratios are much higher for the SEO firms than for the growth-matched control firms especially when CFO is negative. The sign-change ratio for the negative CFO portfolio is 0.753 for the growth-matched control firms and it was significantly lower than the ratio of 0.914 for the SEO firms ($z=3.76$). However, the sign-change ratio of the growth-matched control firms is higher than the ratio of the SEO firms when CFO is positive, but the difference is not statistically significant ($z=-1.43$). This indicates that the SEO firms tend to report more positive earnings than the non-SEO firms when they contemplate equity issues in the following year irrespective of their CFO performances.

4.2.2. Entire population for non-SEO firm-year observations

We also replicated the three tests using the entire population of the non-SEO firm-year observations (2971 observations) during the study period. We get even stronger results supporting the earnings management hypothesis of the SEO firms when we compare them with the entire population of the non-SEO firms. As shown in Table 6, the TA difference between the SEO firms and the entire population of the non-SEO firms is highly significant at $t=5.56$. In addition, when CFO is negative, the Pearson Product Correlation Coefficient between CFO and NI for the non-SEO population is .1988, while it is .0284 for the SEO firms. However, when CFO is positive, the coefficient for the non-SEO population is .4678, which is lower than the SEO firms' coefficient of .6203. The sign-change ratios also support the earnings-management hypothesis for the SEO firms. When the CFO is negative, the sign-change ratio for the SEO firms is 91.4% while it is 59.4% for the non-SEO population. When CFO is positive, the ratio is 4.5% for the SEO firms and 15.4% for the non-SEO population. The differences for the sign-change ratios between the two groups are all statistically significant.

4.3. Additional tests

In this section, we compare operating performances of the SEO firms with the CFO-matched control firms around the SEOs. In addition, we investigate the main factors related to the SEO firms to managing earnings before the firms issue seasoned equity stocks. Finally, we investigate how investors react to earnings management of the SEO firms.

4.3.1. Operating performance around seasoned stock issues

We examined both NI and CFO as performance indicators around the 5-year window centered at the year of SEO and compared them with the CFO-matched control firms. For

reference, TAs (TA) are also compared. Beginning total assets deflates them. Control firms were matched based on cash from operations in the year preceding SEOs. Therefore, by construction, there should be no difference in CFO in year -1.

Table 7 reports the results of both t tests (Panel A) and Mann–Whitney tests (Panel B). The two tests show qualitatively the same results. SEO firms' CFO are significantly greater than

Table 7
Operating performance comparison around the year of SEOs

Panel A: Mean difference test

	Year relative to SEO year	SEO firms			CFO-matched control firms					
		Observed	Mean	S.E.	Observed	Mean	S.E.	Difference	t ratio	P value
CFO	− 2	233	0.0847	0.0076	233	0.0628	0.0071	0.0219	2.13	.034
	− 1	249	0.0325	0.0073	249	0.0323	0.0069	0.0002	0.01	.988
	0	246	0.0107	0.0071	243	0.0125	0.0066	− 0.0018	− 0.19	.849
	1	238	0.0180	0.0070	237	0.0207	0.0071	− 0.0027	− 0.27	.787
	2	223	0.0321	0.0076	222	0.0331	0.0073	− 0.0010	− 0.09	.927
NI	− 2	233	0.0295	0.0041	233	0.0226	0.0034	0.0069	1.30	.195
	− 1	249	0.0371	0.0032	249	0.0132	0.0040	0.0239	4.63	.000
	0	246	0.0247	0.0040	243	0.0050	0.0056	0.0197	2.87	.004
	1	238	− 0.0016	0.0065	237	− 0.0122	0.0070	0.0106	1.12	.264
	2	223	− 0.0203	0.0081	222	− 0.0166	0.0082	− 0.0037	− 0.31	.754
TA	− 2	233	− 0.0551	0.0068	233	− 0.0403	0.0060	− 0.0148	− 1.65	.103
	− 1	249	0.0058	0.0071	249	− 0.0184	0.0057	0.0242	2.67	.008
	0	246	0.0145	0.0074	243	− 0.0049	0.0065	0.0193	1.97	.049
	1	238	− 0.0196	0.0079	237	− 0.0324	0.0074	0.0127	1.17	.241
	2	223	− 0.0557	0.0091	222	− 0.0498	0.0079	− 0.0059	− 0.49	.622

Panel B: Mann–Whitney test

	Year relative to SEO year	SEO firms		CFO matched control firms			
		Observed	Median	Observed	Median	W value	P value
CFO	− 2	233	0.0876	233	0.0689	57,539	.031
	− 1	249	0.0279	249	0.0321	61,863	.870
	0	246	0.0105	243	0.0226	59,089	.450
	1	238	0.0127	237	0.0225	56,121	.727
	2	223	0.0328	222	0.0262	50,249	.702
NI	− 2	233	0.0223	233	0.0169	56,938	.082
	− 1	249	0.0227	249	0.0154	68,641	.000
	0	246	0.0163	243	0.0113	64,184	.012
	1	238	0.0105	237	0.0084	58,674	.174
	2	223	0.0085	222	0.0096	49,180	.686
TA	− 2	233	− 0.0605	233	− 0.0491	51,185	.026
	− 1	249	− 0.0101	249	− 0.0240	66,049	.015
	0	246	0.0082	243	− 0.0152	64,160	.013
	1	238	− 0.0158	238	− 0.0279	58,386	.244
	2	223	− 0.0455	222	− 0.0420	49,011	.597

other firms in year -2.[14] There is no difference in CFOs, however, between the SEO firms and the matched control firms in the year of SEO and the following years.[15]

In contrast, NIs are significantly higher for the SEO firms in the year preceding and the year of SEO than for the matched-control firms. This is supported by the significantly greater TAs for the SEO firms than for the CFO-matched control firms in the 2 years.[16]

The findings, unlike some of the prior studies, reveal that there is no real difference in operating performances between the SEO firms and the CFO-matched control firms. Prior studies document underperformance of SEO firms in the years following SEOs. For our study, the SEO firms tend to increase NIs in the year prior to and in the SEO year.

4.3.2. Earnings management inducing factors

After we confirmed the earnings-management practices by the SEO firms, we then investigated the factors that influence the DAs. A multiple regression approach is used to identify the important factors that relate to earnings-management practices. We reviewed prior studies to design the multiple-regression analysis. The three most commonly cited variables are firm size, debt ratios, and CFOs. These three variables are hypothesized to have a negative relationship to the discretionary accruals. CFOs are expected to be a major determinant for discretionary accruals. If CFOs are poor, then firms may have incentives to increase NIs. On the other hand, if CFOs are good, then firms may have incentives to reduce NIs in order to reduce political costs and/or tax expenses. Some additional factors may motivate the SEO firms to manage earnings. We believe that the offer size and the time lag between the fiscal year-end and the month of SEO may influence the degree of earnings management. We hypothesize that the larger the offer size, the more is at stake for the SEO firms. Consequently, these firms are more likely to employ earnings-management strategies. Furthermore, the shorter the time lag between fiscal year-end and the date of the SEO, the more like managers may be to choose income-increasing accounting strategies. In sum, we expect the degree of earnings management for the SEO firms to be associated positively with the offer size and negatively with the time lag. Therefore, we can set up a regression model as follows to explain the variability of the DAs for the SEO firms (Eq. (3)):

$$DA_{it} = \alpha_0 + \alpha_1 SIZE_{it} + \alpha_2 LEV_{it} + \alpha_3 CFO_{it} + \alpha_4 INC_{it} + \alpha_5 LAG_{it} + \nu_{it} \qquad (3)$$

DA is defined in Eq. (2). SIZE is the natural logarithm of the beginning total assets. CFO is cash from operations scaled by the beginning total assets. INC is the offer size measured in

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[14] It is not clear whether good operating cash flows led the SEO firms to plan SEOs.

[15] Even though operating cash flows decrease drastically around the SEO year, the cash flows tend to increase 2 years after SEOs. The decrease in operating cash flows may partly be attributable to the 1997 Korean financial crisis.

[16] The total accruals can be compared to the total accruals of US SEOs. According to Teoh et al. (1998), total accruals over beginning total assets average 0.0027, 0.0269, 0.0392, -0.0063, and -0.0450 over the 5-year period centered at the SEO years. They are -0.0551, 0.0058, 0.0145, -0.0196, and -0.0557 for the Korean SEO firms. Therefore, we cannot say, in general, that management of Korean firms have more flexibility and discretion than the management of US.

Table 8
Results of the analysis of earnings management inducement

Variables	Coefficient	Standard errors	t ratio	P value	Adjusted R^2
Constant	0.1835	0.0566	3.24	.001	.629
SIZE	− 0.0039	0.0031	− 1.24	.217	
LEV	− 0.0856	0.0286	− 2.99	.003	
CFO	− 0.6636	0.0325	− 20.43	.000	
INC	− 0.0229	0.0126	1.82	.070	
LAG	− 0.0005	0.0012	− 0.40	.686	

Model: $DA_{it} = \alpha_0 + \alpha_1 SIZE_{it} + \alpha_2 LEV_{it} + \alpha_3 CFO_{it} + \alpha_4 INC_{it} + \alpha_5 LAG_{it} + \varepsilon_{it}$.

terms of the rate of capital stock increase as a result of the SEO. LAG is the time lag between the fiscal year-end and the month for the SEOs.

The multiple-regression results are reported in Table 8. The regression results reveal that the DAs are heavily dependent on and negatively associated with CFO. The results are consistent with Yoon (1998) that CFO is the major determinant of earnings managements by Korean firms. The results also indicate that DAs are negatively associated with the debt ratio. The debt ratio is inconsistent with the general expectation that highly levered firms will tend to increase NIs. Furthermore, the offer size is slightly positively related with the DAs. This is consistent with our expectation that the higher the offer size, the more likely a firm is to increase NIs. Ex ante, both firm size and the time lag are expected to have negative relationships with accruals. Perhaps the SEO firms focus on increasing NIs given all other factors. Irrespective of their size, the firms may focus on the best accounting choices that will help the firms successfully carry out their SEO plans. In addition, the SEO firms plan their SEOs well in advance so that management may make their accounting policy choices in the year preceding the SEOs. Hence, the time lags would not affect their accounting choices.

4.3.3. Stock market reactions to DAs

Because some managers may use DAs opportunistically, we examined how the stock market reacts to DAs. Rational investors may react negatively to DAs. Investors could react to DAs positively or neutrally if accrual earnings regarded as superior measures of firm performance than cash flows because they mitigate timing and mismatching problems inherent in measuring cash flows over short intervals (Dechow, 1994; Subramanyam, 1996). Furthermore, investors may also react positively to DAs if they are functionally fixated on NIs by failing to unscramble the cash flow implications for DAs.[17]

Subramanyam (1996) provides two alternative scenarios related to the pricing of DAs. In the first scenario, the market is rational and prices the DAs because it improves the ability

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[17] Traditionally, more shares are held by individual investors than by institutional investors in Korea. When a firm goes public in the Korea Stock Exchange, they are required to provide at least 30% of outstanding shares to the general public. These may lead some observers to believe that the Korea Stock Exchange may not be as efficient as other established stock markets such as the New York Stock Exchange.

of earnings to reflect the economic value of the firm. In the second scenario, DAs may distort earnings because DAs are evidence of mispricing, i.e., investors are functionally fixated on earnings. He documents that the market prices DAs positively, indicating that the first scenario is supported.

Another possible scenario is that if DAs distort earnings, investors will correctly reflect the distortion so that they will react negatively to income-increasing strategies. We argue that the SEO firms will use DAs opportunistically and, hence, if investors are rational they should react negatively to DAs. To test our hypothesis, we run the following regression model (Eq. (4)):

$$CAR_i = \alpha_0 + \alpha_1 D + \alpha_2 NI_i + \alpha_3 D * NI_i + \alpha_4 DA_i + \alpha_5 D * DA_i + \varepsilon_i \qquad (4)$$

CARs are market-adjusted cumulative abnormal returns measured as geometric annual returns. It is measured over a 12-month period ending 3 months after the fiscal year end of the preceding year of SEOs. The 12-month return is believed to reflect the information content of financial reporting for the year preceding SEOs. D is a dummy variable taking on the value of 1 for SEO firms and 0 for non-SEO firms. We assume that the SEO firms, therefore, utilize DAs more opportunistically than the non-SEO firms. We expect that investors will pay more attention to the SEO firms. That is, investors will react to the SEO firms' NIs more sensitively than to the non-SEO firms. Since prior studies document that investor reaction to NIs is generally significantly positive, we include NI as the control variable together with DA, the main variable in our study.[18] The dummy variables should capture the differences in mean cumulative abnormal returns and the regression coefficients on the two explanatory variables between the treatment sample and the control sample.

The results of the analysis of the stock market reaction to DAs are presented in Table 9.[19]

The regression analysis indicates that the market reacts positively to net income but negatively to DAs. The results imply that the market correctly interprets the cash flow implications of the SEO firms' DAs even though the SEO firms employ DAs opportunistically. Furthermore, the market reacts more sensitively to the SEO firms than to the non-SEO firms. The regression coefficients of NI and DA for the non-SEO firms are not statistically significant even though the variables show the expected signs. However, the coefficients are highly significant for the SEO firms. For example, the SEO firms' regression coefficient of

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[18] We admit that Subramanyam's approach to regress returns on earnings and its components is appropriate. We replicated his approach and the results are qualitatively similar to the ones reported in our study. Even though discretionary accruals are components of earnings, the correlation coefficients between NI and DA are modest at .2425 for our sample. They are much weaker than the ones between CFO and DA at − .4839 for our sample. Therefore, we decided to use NI as the control variable and, furthermore, the explanatory power is highest when we use NI.

[19] The sample size was further decreased to 424 firms (201 SEO firms and 223 non-SEO firms). Seven firms were dropped because of stock return data unavailability (five for the SEO firms and two for the non-SEO firms). Forty-three SEO firms were found to have increased their capital stock either before the firms went public or within 1 year after their initial public offerings. These SEO firms were also dropped in the analysis. Finally, 24 of the non-SEO firms were matched with the SEO firms before they went public and, therefore, dropped in the analysis. Financial statements are available on the KIS-FAS database even before they are listed on the Korean Stock Exchange.

Table 9
Results of the market reaction analysis to discretionary accruals

Variables	Coefficient	Standard errors	t ratio	P level	Adjusted R^2
Constant	0.0287	0.0313	0.92	.359	.075
D	− 0.0474	0.0494	− 0.96	.338	
NI	0.6716	0.6088	1.10	.271	
D*NI	3.6330	1.1179	3.25	.001	
DA	− 0.2271	0.4819	− 0.47	.638	
D*DA	− 1.6471	0.6264	− 2.63	.009	

Model: $CAR_i = \alpha_0 + \alpha_1 D + \alpha_2 NI_i + \alpha_3 D*NI_i + \alpha_4 DA_i + \alpha_5 D*DA_i + \varepsilon_1$.

− 1.8742 for DA is much stronger than that of − .2271 for the non-SEO firms. Similarly, the regression coefficient of NI increases from .6716 for the non-SEO firms to 4.3046 for the SEO firms. This implies that investors pay more attention to the SEO firms than to the non-SEO firms and react more sensitively. Apparently some firms opportunistically make use of DAs to make the firms look relatively better in the year preceding their SEOs. The market, however, reacts rationally by discounting the DAs. In other words, the market rewards the SEO firms more favorably if their operating performance is good, probably because they also see the growth potential for the SEO firms. The market penalizes the firms more severely if their operating performance is bad and the firms seek to fool investors by favorably painting their performance.[20] Therefore, the SEO firms' opportunistic utilization of DAs, by the negative CFO subgroup firms does not appear to have been rewarded by the stock market.

Another question may arise related to who benefits from or who is hurt by the earnings-management behavior of the SEO firms. From the results of the association test, one might conclude that the SEO firms manage earnings in vain or that the market penalizes the SEO firms. Any conclusions must be evaluated carefully. Obviously, the SEO firms would manage earnings in the preceding years of SEO in the hope that the practice would help the firms carry out their SEO plans. Some may argue that SEO firms' earnings management is rational since investors infer earnings management and rationally undo its effects at equity-offering announcements (Shivakumar, 2000). Others may argue that investors are temporarily fooled by the earnings-management practices and penalize the SEO firms when they later find out about the practices (Teoh et al., 1998). Both arguments could be true. Some SEO firms may manage earnings to carry out successfully their SEO plans when the firms need cash and equally attractive alternatives are not available. Maybe the firms do not believe that investors can see through the earnings management activities thoroughly even though the stock market can be collectively efficient.

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[20] The mean CAR values for the SEO firms are − 0.0285 for the negative CFO subgroup and 0.1213 for the positive CFO subgroup. The difference in mean CAR between the negative CFO subgroup and the positive CFO subgroup is statistically significant at a t ratio of − 2.32. The mean CAR for the non-SEO firms are 0.0192 for the negative CFO subgroup and 0.0434 for the positive subgroup. The difference in mean CAR between the two subgroups of CFO is not significant at a t ratio of − 0.35 for the non-SEO firms. This indicates that the average CAR are clearly dichotomized depending on the performance measured in terms of CFO for the SEO firms. However, the average CAR value of the two CFO subgroups is not different for the non-SEO firms.

5. Conclusions

We investigated 249 Korean SEO firms during the period 1995–1997 to determine whether firms manage earnings in the year preceding a planned seasoned equity issue of stocks.

We developed a model to estimate DAs. In developing the model, we attempted to include the variables that have both ex ante relationships with non-DAs and high explanatory powers. The results indicate that our model has a much better goodness-of-fit than other commonly used models including the modified Jones model.

Based on three test methods (accrual difference, correlation, and sign-change ratio), we document that the Korean firms contemplating seasoned equity issues in the following year manage earnings, particularly when their relative performances are poor. When firms have plans to issue seasoned equity stocks in the following year, virtually all of the negative CFO firms increase NIs to such an extent that their NIs become positive. The results consistently support the earnings-management hypothesis for the negative operating-cash-flow firms irrespective of test methods and control samples.

However, unlike some prior studies investigating operating performances of SEO firms surrounding the year of SEO, the SEO firms for our study did not perform poorly in the periods following SEOs as compared to non-SEO firms. This indicates that although the SEO firms may manage earnings to successfully implement their SEO plans, these firms may still perform adequately in future years.

We regressed the DAs on some variables to identify the factors that drive firms to manage earnings. Our regression analysis reveals that CFO is the major determinant for earnings-management practices. Offer size also affects the earnings management for the SEO firms.

Our association tests between cumulative abnormal returns and DAs indicate that the market reacts positively to net income but negatively to DAs. The results imply that the market correctly sees the cash flow implications of the SEO firms' DAs. The market reacts more sensitively to the SEO firms than to the non-SEO firms, implying that investors pay more attention to the SEO firms than to the non-SEO firms. Even though firms opportunistically make use of DAs to make them look better in the year preceding their SEO, the market is not fooled and reacts rationally by discounting the DAs.

Our study is subject to several limitations. First, the modified Jones model, which was proven by many prior studies to be a good model in estimating DAs, was found to have a serious misspecification problem in Korea. The relative goodness-of-fit problem clearly needs to be closely studied empirically in future studies.

Second, the SEO firms in general employ earnings-management practices. However, we did not examine which vehicles were most often used in managing NIs. An additional study is needed to explore the most frequently used vehicles for earnings-management practices.

Third, the stock return performances for SEO firms after the issuance of their SEOs are not examined in this study. Future research may be needed to analyze stock performance after the SEOs.

Fourth, we limited our study to the SEO firms after the introduction of the cash flow statements in the Korean Accounting Standards to minimize the measurement errors. Future studies can extend our study by augmenting the study period.

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A discussion of the paper "Earnings management of seasoned equity offering firms in Korea"

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1. Introduction

In this study, the authors examine whether managers of a sample of Korean firms, which undertake seasoned equity offerings (SEOs), use discretionary accruals to increase reported earnings prior to the SEO. To measure the discretionary portion of accruals, the authors modify the Jones models of discretionary accruals. Using matched-pair comparisons, they measure the relative distribution of discretionary accruals. They further partition the sample into firms with good and poor operating performance (where positive operating cash flows proxy for good performance and negative operating cash flows proxy for poor performance). They report evidence supporting their hypothesis, that managers record income-increasing discretionary accruals in the year prior to the SEO, and provide evidence of firm character-istics associated with greater use of income-increasing discretionary accruals (e.g., firm size and operating performance). Finally, they report a negative relation between contempor-aneous market-adjusted returns and discretionary accruals after controlling for net income.

2. Motivation

Earnings management using discretionary accruals has been examined in some depth in the prior literature. Further, Rangan (1998) and Teoh, Welch, and Wong (1998) examine abnormal accruals around SEOs in the US market. This paper extends the literature by examining the same issue in a sample of Korean firms. While such an extension is potentially

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interesting, the authors do not explain what we learn by replicating prior studies in this setting. To make a more meaningful contribution, the authors should explain the unique characteristics of their Korean sample or of the Korean capital market and provide reasons why the results using a sample of Korean firms would be expected to differ from those using the sample of US firms in prior studies. For example, the authors find that the nondiscretionary accruals models used in the prior literature do not fit the data for their sample. We believe that this is an important observation and it would be interesting to determine whether this is due to differences in economic circumstances, accounting treatments, or managerial incentives. The authors could use their expertise and experience to help readers to understand the limitations of applying the (unmodified) Jones model in other settings. Currently, the authors merely mention this finding in a footnote, as a justification for using their modified model. The reader is left wondering whether this model is designed to be a general improvement over the Jones model or is specific to their sample.

3. Discussion of methodologies

3.1. Estimation of discretionary accruals

The authors begin by developing a new empirical model for estimating expected accruals by combining portions of the modified Jones (1991) and the Kang and Sivaramakrishnan (1995) models. They regress total accruals on change in cash revenues, change in cash expenses, and the level of noncash expenses, all scaled by net assets. This model incorporates both revenue and expense components as predictors of the level of total accruals. In addition, the model replaces the level of fixed assets, as used by Jones, with lagged depreciation modified by the growth in fixed assets. As is typical, the model is estimated within years and within industry classifications.

The Jones (1991) model has been justifiably criticized for potential misspecification error when explaining the variation in total accruals for US samples (Dechow, Sabino, & Sloan, 1998; Dechow, Sloan, & Sweeney, 1995; Guay, Kothari, & Watts, 1997). Given the similarities between the Jones model and the model used in this paper, the authors should explore their model's potential misspecification of nondiscretionary accruals as discretionary. For example, their expected-accruals model achieves an average R^2 of only .32. Therefore, using this model, almost 70% of the variation in total accruals is interpreted as discretionary. Table 2 reports that mean discretionary accruals are 1.5% of total assets and that the standard deviation is 8.6% of total assets, implying that approximately one third of the managers use their discretion to increase earnings by more than 5% of total assets. This is greater than the average net income for these firms. While this is similar to the findings in other discretionary accruals papers (e.g., Xie, 2001), the authors should acknowledge that the residuals are only rough proxies for managerial discretion.

Dechow et al. (1998) find evidence that the Jones (1991) model is most likely to misidentify income-increasing earnings management for firms with unusually low cash flows. Partitioning on cash flows is precisely the partitioning used in this paper. Therefore, the

authors should address the possibility that the low-performance bias found by Dechow et al. may also afflict the model used in this paper. The misclassification issue is important because it affects the interpretation of results.

3.2. Tests of earnings management

The authors provide evidence of earnings management using three tests of abnormal accruals across matched samples. First, they compare the mean discretionary accruals of the SEO firms and the matched non-SEO firms. They perform tests on the differences for the full sample and for the operating performance subsamples. Second, they compare the correlation between reported net income and cash flows for SEO and non-SEO firms. Third, they use a nonparametric sign test and compare the frequency of opposite signs for net income and cash flows across the SEO and non-SEO firms.

We are somewhat concerned about the matched-pair design because the economics of the matching firms differ in at least one fundamental way from those of the sample firms: The sample firms all need to raise capital and the matched firms do not. Managers access the capital markets to meet economic needs that, in turn, affect income. Moreover, firms experiencing little growth and firms with short operating cycles should have the highest correlation between cash flows and earnings, while firms with the highest rate of growth and firms with longer operating cycles should have lower correlations (Dechow, 1994). Given the likelihood that a large portion of the measured discretionary accruals is due to measurement error rather than managers' manipulation of accounting numbers, differential economic factors may be the source of the differences in the level of measured discretionary accruals.[1]

3.3. Stock market reactions to discretionary accruals

The authors attempt to provide evidence on the degree to which stock prices react to discretionary accruals. Specifically, the authors predict that "under the efficient market hypothesis, the market will react negatively to discretionary accruals" if managers use discretionary accruals opportunistically. They estimate the following regression in an attempt to test this prediction:

$$\mathrm{CAR}_i = \alpha_0 + \alpha_1 D_i + \alpha_2 \mathrm{NI}_i + \alpha_3 D_i \mathrm{NI}_i + \alpha_4 \mathrm{DA}_i + \alpha_5 D_i \mathrm{DA}_i + \varepsilon$$

where D_i is an indicator variable equal to 1 if the observation is an SEO firm, NI is net income, DA is their estimate of discretionary accruals, and returns are cumulated over a 12-month window. Based on the results from estimating this regression, the authors claim that (1) the market reacts "negatively" to discretionary accruals; (2) the market correctly interprets the cash flow implications of discretionary accruals in that the coefficient on DA is more negative for SEO firms; (3) investors "pay more attention" to SEO firm earnings and discretionary

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[1] The authors' additional analysis controlling for past asset growth provides some assurance that the results are not driven by differential growth rates. Given the importance of differential growth, this partitioning should probably be incorporated into the paper's main analysis.

accruals and react "more sensitively"; and (4) the opportunistic use of discretionary accruals by SEO firm managers is not rewarded by the stock market.

We believe these conclusions are based on a misinterpretation of the estimated coefficients. When interpreting the regression results, it is important to remember that discretionary accruals affect both NI and DA. In addition, the coefficients associated with the indicator variables represent the *incremental* coefficient for SEO firms as compared with non-SEO firms. Consequently, the overall price effect from US$1 of DA is $(\alpha_2 + \alpha_4)$ for non-SEO firms and $(\alpha_2 + \alpha_3 + \alpha_4 + \alpha_5)$ for SEO firms. Similarly, the overall price effect from US$1 of NI is $(\alpha_2 + \alpha_3)$ for SEO firms. Below is a table, based on the results in Table 9, containing estimated overall price response coefficients associated with NI and DA:

	Non-SEO firms	SEO firms
Price response to NI	0.6716	4.3046[a]
Price response to DA	0.4445[b]	2.4304[c]

[a] $0.6716 + 3.6330$.
[b] $0.6716 - 0.2271$.
[c] $0.6716 + 3.6330 - 0.2271 - 1.6471$.

Given these coefficients, we reexamine the paper's stated findings.

The market reacts "negatively" to DA. This conclusion is incorrect. The price–response coefficients associated with DA are positive for both groups of firms.

The market correctly interprets the cash flow implications of discretionary accruals in that SEO firms have a more negative coefficient on DA. Based on the authors' maintained assumption that SEO firms opportunistically manage accruals, this conclusion is not correct. The market values discretionary accruals of SEO firms more positively than non-SEO firms. Either market participants misinterpret SEO firms' discretionary accruals or managers of SEO firms do not opportunistically manage discretionary accruals.

Investors "pay more attention" to SEO firm earnings and DA and react "more sensitively." Long-window-returns tests cannot tell us anything about the degree to which investors attend to the information contained in earnings—only the degree to which changes in prices are associated with the components of earnings. The results show that returns are more highly associated with SEO earnings and discretionary accruals than with equivalent amounts of non-SEO earnings and discretionary accruals. This can be interpreted as evidence that market participants expect SEO earnings and discretionary accruals to be more persistent than non-SEO earnings and accruals. This result is the opposite of what one would expect if managers of SEO firms practice earnings management, and leads us to suspect that the SEO firms are in very different economic circumstances than the non-SEO firms. As such, it would be interesting to compare the subsequent realized-earnings growth for SEO firms and non-SEO firms.

The market does not reward the use of opportunistic discretionary accruals by SEO firm managers. The regression results clearly contradict this conclusion. The overall coefficient on DA is positive for both groups and even more positive for the SEO group. In fact, the results

are exactly what we would expect if investors see discretionary accruals as measuring firm performance with error. This could either happen because the discretionary accruals are themselves informative or because the expected-accruals model misestimates the amount of managerial discretion.

In sum, the four conclusions drawn by the authors are not supported by the results of the regression when those results are properly interpreted. What conclusions can be drawn from the results? First, the market values the earnings of SEO firms much more highly than non-SEO firms. Second, the market values DA of SEO firms much more highly than those of non-SEO firms. Third, the market discounts the value of DA as compared with NI, but still places significant weight on DA. Finally, the significant coefficient on DA for SEO firms as compared with non-SEO firms casts doubt on the study's central finding of opportunistic earnings management prior to SEOs. These results are consistent with market participants expecting the earnings of SEO firms to grow at a faster rate than earnings of non-SEO firms.

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Discussion of "Earnings management of seasoned equity offerings in Korea"

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1. Introduction

This discussion tries to avoid any overlaps with the discussion by Chambers and Myers. The paper by Yoon and Miller investigates whether Korean firms making seasoned equity offerings (SEOs) during the 1995–1997 period manage earnings in the year preceding the one in which they contemplate making the SEO. The authors rely primarily on prior U.S. literature and models that have performed reasonably well using U.S. data to develop and test their propositions. The results of their study are generally not consistent with this prior U.S. evidence, particularly the goodness-of-fit performance of the modified Jones model (Dechow, Sloan, & Sweeny, 1995), and the operating performance of the SEO firms in the periods following SEOs (see, for example, Teoh, Welch, & Wong, 1998).

This discussion of the paper focuses on two main issues: (a) additional discussion of the accounting literature that focuses on the motivations and characteristics of firms that manage earnings to obtain external financing at the most favorable terms, and (b) suggestions for how this paper and future multicountry research that investigates issues already investigated in one country could possibly make a greater contribution to the theory and literature by examining relevant institutional differences between the respective countries. The discussion also briefly comments on the interpretation of the results of the Korean SEO firms' operating performance in the periods following SEOs, and the Korean stock market reactions to discretionary accruals.

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2. Accounting literature

The earnings management literature has long maintained that the desire to obtain external financing at the most favorable terms creates incentives for management to manage earnings (e.g., Dechow et al., 1995; Jiambalvo, 1996). For example, Dechow et al. (1995, p. 1) present evidence that "an important motivation for earnings manipulation is the desire to attract external financing at low cost." SEOs thus create excellent incentives; such firms want the market to pay as much as possible for the securities to be issued. And the stronger the incentives, the more likely some forms of earnings management will occur. Burgstahler and Dichev (1997) also find that firms with poor economic performance have greater, and possibly different, incentives to manage earnings than firms exhibiting strong economic performance. Dechow et al. (1995) also find that controlling for financial performance is important to examining earnings-management behavior. Consistent with this literature, Yoon and Miller hypothesize and present evidence that Korean SEO firms manage earnings in the year preceding the year in which they contemplate SEOs, especially when their operating performance is poor or the offer-size is large.

Other relevant literature suggests there are additional factors that influence earnings management behavior. For example, McNichols, Wilson, and DeAngelo (1988) and Kinnunen, Kasanen, and Niskanen (1995) present evidence that earnings-management behavior differs across industries. Dechow et al. (1995) also identify ownership as a relevant characteristic: firms that manipulate earnings tend to be closely held. Carlson and Bathala (1997) also report on ownership differences and firm income-smoothing behavior. However, apart from footnote 25 stating, "traditionally, more shares are held by individual investors than by institutional investors in Korea," Yoon and Miller do not provide any evidence about the ownership of the Korean SEO firms.

Another possibly relevant empirical finding is that of Aharony, Lin, and Loeb (1993), which finds little evidence of earnings management prior to initial public offerings. Whether the same evidence holds for Korean initial public-offering firms could be of some interest in explaining the inconsistent results for Korean SEO firms.

3. Institutional differences between the United States and Korea

Similar studies undertaken in different regulatory and financial reporting environments would likely make a greater contribution to the literature if important institutional differences could be identified. This is particularly so when the results obtained are different from the prior research. Yoon and Miller (footnote 12, p. 13) find that the modified Jones model (Dechow et al., 1995), which has performed reasonably well in estimating discretionary accruals in many prior studies undertaken in the United States, exhibits little explanatory power in explaining total accruals of Korean SEO firms during the 1993–1997 period. However, their paper does not elaborate on any of the accounting or other relevant differences between the Korean and U.S. financial-reporting environments during the period of their study that could possibly explain this inconsistency. It alludes (p. 1) only to the "less stringent financial-reporting

environment including lenient audit opinions and a lack of general oversight functions," and discusses some "notable changes" after the 1997 financial crisis.

There are two ways that differences in these respective U.S. and Korean financial reporting environments could contribute to explaining differences in the explanatory variables and consequent performance of the test models in such studies. First, there are likely differences in the interpretation and implementation of the accounting rules and standards that could result in "more liberal" revenue recognition, amortization, provision, write-off, etc. practices, together with auditor concurrence, in Korea. Second, there are some particular differences in the accounting standards that would likely result in significant differences in some of the model variables. For example, the practice of permitted discretionary revaluation of non-current assets (banned in the United States by the SEC since 1933), affects the reported amounts of the variables "noncash expenses such as depreciation," "rate of growth in gross property, plant and equipment," and "total assets at the beginning of the period." Some empirical examination of the extent to which such differences affect the explanatory variables could possibly explain differences in the performance of the modified Jones model in the two countries.

4. Additional remarks

The study was undertaken in the period preceding the Asian financial crisis, a period of very high growth in reported firm incomes and stock prices. It is possible that the inconsistent empirical finding that Korean SEO firms did not perform poorly in the periods following SEOs as compared to U.S. firms that experience poor operating performance after the stock issuance is attributable to this factor, rather than Korean SEO firms' ability to "manage earnings to successfully implement their SEO plans, ... [and] still perform adequately in future years" (p. 29). Similarly, this pre-Asian financial crisis time period of the study implies that caution must be exercised in interpretation of the (consistent with U.S. evidence) finding that the stock market reacts positively to net income but negatively to discretionary accruals.

5. Conclusion

The authors' motivation for this study is to investigate whether Korean SEO firms manage earnings in the year preceding the issue of seasoned equity stocks. The study relies on prior U.S. literature and test methods, but subsequently finds inconsistencies in the explanatory power of the modified Jones model used in many prior U.S. studies and in some of the empirical results. From an academic–accounting viewpoint, the paper could possibly make a greater contribution if the authors focused on identifying institutional differences between the U.S. and Korean financial-reporting environments, particularly those accounting differences that relate to the explanatory variables in the models used. Similarly, caution should be exercised in the interpretation of the results, and the paper in its present form would be of limited use to practitioners and regulators.

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Reply to discussion of "Earnings Management of Seasoned Equity Offering Firms in Korea"

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We acknowledge the invaluable comments from Dennis J. Chambers and James N. Myers of the University of Illinois at Urbana-Champaign and Trevor Wilkins of the National University of Singapore. We also acknowledge helpful comments from the participants of the Illinois International Accounting Summer Conference held in June 2001.

Now, we will respond to the reviewers' comments one by one. However, their comments are not incorporated in the paper since we were asked by the editor of the journal to reply to comments in a separate reply rather than to revise the paper.

Wilkins (2002) suggests additional prior studies to be relevant for the paper. Specifically, he suggests that such studies as Aharony, Lin, and Loeb (1993), Burgstahler and Dichev (1997), Dechow, Sloan, and Sweeney (1995), and Jiambalvo (1996) are relevant prior studies. He also suggests that earnings-management behavior differs across industries (Kinnunen, Kasanen, & Niskanen, 1995; McNichols & Wilson, 1988) and that ownership is a relevant factor in earnings-management studies (Carlson & Bathala, 1997; Dechow et al., 1995). We agree that those are proper prior studies. In addition, Yoon, Wee, Baik, and Miller (2001) document that IPO-related stringent regulations prevent Korean IPO firms from managing earnings prior to the IPO year.

Both sets of comments suggest that we should explain the unique characteristics of the Korean sample and provide reasons why the results using a sample of Korean firms would be expected to differ from the results using the sample of US firms in prior studies.

As described in the paper, the Korean accounting standards basically adopt the US GAAP. However, there are some nontrivial differences in accounting standards between the two

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countries. For example, asset revaluation accounting, pension accounting, and foreign currency transaction accounting are notable differences. Until the year 2000, Korean firms had been allowed to revalue operation-related assets using replacement costs. This could result in relative overstatement of total assets of the Korean sample. Pension accounting is not adopted in Korea. Instead, periodic allowance for one-time retirement benefit payments is used. Accounting for foreign transaction gains and losses was subject to politicization. For some firms, its impact on financial position and operating performance was enormous. For example, firms were required to include foreign transaction gains and losses in net income until 1995. However, in 1996, they had been allowed to bypass the income statements. In 1997, firms were even allowed to capitalize them as deferred assets. Now, the foreign transaction gains and losses are required to be included in the income statements.

Furthermore, Korean firms are believed to have followed more liberal revenue recognition, amortization, provision, and write-off practices even though the accounting standards are seemingly as rigid as the US GAAP in most of the specific standards.

Because of institutional differences between the US and Korean accounting environments, the variables used in the study may be slightly different from the US samples. For example, most of the variables used in this study might be understated since total assets of some Korean firms are relatively overstated as a result of discretionary asset revaluations. Specifically, the main variables of interests in this study like NI (net income), CFO (cash from operations), TA (total accruals), and DA (discretionary accruals) might be understated to a certain degree because of the standardization by the total assets. GPPEGRW (growth rates of gross property, plant, and equipment) may also include the impact of asset revaluations. Lastly, one of the major components of NCASH (noncash expenses) is the allowance for retirement benefit payments since the allowance is mostly unfunded liabilities in Korea. If we do not take into account the effect of the allowance for the retirement benefit payments, we may underestimate the noncurrent accruals.

We think the model used in the study can be justified in terms of both theoretical improvement and better fit to the Korean data. Even though the modified Jones model has been widely used, it has also been criticized for potential misspecification error even for US samples (Guay, Kothari, & Watts, 1997). The modified Jones model uses change variables for total accruals (dependent variable) and the change in cash sales (proxy for current accruals) and level variable for GPPE (proxy for noncurrent accruals). Improper matching between the dependent variable (a change variable) and GPPE (a level variable) may explain the poor fit of the modified Jones model. In addition, it does not take into account the fact that current accruals are composed of operation-related current assets and current liabilities as well. In addition, the size variable (1/total assets) in the modified Jones model is not supposed to covary with total accruals by construction since it is the byproduct of standardizing a constant term by total assets. Therefore, development of a better-fitting model may be justified. Furthermore, differences in economic environments such as managerial incentives, regulations, and accounting standards may justify the development of a proper model to fit Korean data.

Chambers and Myers (2002) asked us to explore our model's potential misspecification of nondiscretionary accruals as discretionary and acknowledge that the residuals are only rough proxies for managerial discretion. Given the similarities between the modified Jones model

(1995) and the model used in this study, we admit that our model is not without mis-specification errors. Our model's average r^2 is only .32. Hence, about 68% of total variation in total accruals are not explained by the explanatory variables and interpreted as discretionary. Even though our model's explanatory power is much greater than that of the modified Jones model, we still suffer from potential misspecification errors. Therefore, we admit that the discretionary accruals of our study are still rough proxies for true discretionary accruals. This partly justifies the use of total accruals as a complement in studies of this nature.

Chambers and Myers (2002) and Wilkins (2002) suggest that we reconsider the design and interpretations of the stock market reaction to accruals. Wilkins suggests that caution be exercised in the interpretations of the findings that the stock market reacts positively to net income but negatively to discretionary accruals. Chambers and Myers argue that we incorrectly attempt to provide evidence on the degree to which stock prices react to discretionary accruals. They ask that both model and interpretations should be properly modified. They suggest that we use NIBDA (net income before discretionary accruals) instead of NI (net income). We agree that their suggestion is reasonable. While our original model focuses on NI and DA, their suggestion focuses on the elimination of possible misinterpretations caused by the double inclusion of discretionary accruals both in NI and DA. When we follow their suggestions, we get the following results for Table 1.

The revised regression analysis indicates that the market reacts positively both to NIBDA and to DA. The results imply that the market fails to correctly interpret the cash-flow im-plications of the SEO firms' discretionary accruals when the SEO firms employ discretionary accruals opportunistically, since investors are expected to respond negatively to discretionary accruals if the market is fully efficient.

The regression coefficients of NIBDA and DA are statistically significant for the SEO firms but not so for the non-SEO firms. This implies that the market values SEO earnings much more highly than non-SEO earnings. Likewise, the market values DA of SEO firms much more highly than that of non-SEO firms. For example, the SEO firms' regression coefficient of 2.4303 for DA is much stronger than that of 0.4444 for the non-SEO firms. Similarly, the regression coefficient of NIBDA increases from 0.6716 for the non-SEO firms to 4.3046 for the SEO firms. Furthermore, DA response coefficients are discounted as com-

Table 1
Results of the market reaction analysis to discretionary accruals

Variables	Coefficient	Standard errors	t ratio	P-level	Adj. r^2
Constant	0.0287	0.0313	0.92	.359	.075
D	− 0.0474	0.0494	− 0.96	.338	
NIBDA	0.6716	0.6088	1.10	.271	
$D \times$ NIBDA	3.6330	1.1179	3.25	.001	
DA	0.4444	0.6272	0.71	.479	
$D \times$ DA	1.9859	1.1527	1.72	.080	

Model: $\text{CAR}_i = \alpha_0 + \alpha_1 D + \alpha_2 \text{NIBDA}_i + \alpha_3 D \times \text{NIBDA}_i + \alpha_4 \text{DA}_i + \alpha_5 D \times \text{DA}_i + \varepsilon_1$.
NIBDA is net income before discretionary accruals, which is defined as NI less DA. All the other variables are as defined in the paper.

pared with NIBDA. The significantly positive and yet relatively discounted (as compared with NIBDA coefficient) DA coefficient for SEO firms implies that the market reacts in a partially rational but also partially inefficient manner by discounting the discretionary accruals but with wrong signs. In other words, if the market is perfectly efficient, it will negatively react to discretionary accruals. However, the market reacts positively to discretionary accruals and yet the response coefficients are much lower than the earnings-response coefficients. This may imply that the market casts doubt on the opportunistic earnings management of SEO firms.

Therefore, we get different regression results from the results reported in the paper. More specifically, the coefficient on DA changed from negative significance to positive significance for SEO firms. The reason for the change in sign of the coefficient comes probably from the double inclusion of DA both in NI and in DA, which in turn causes a multicollinearity problem and distortion of the coefficient. Therefore, caution must be exercised in designing and interpreting stock price reactions to accruals.

Chambers and Myers (2002) ask that we address the possibility that the low-performance bias found by Dechow, Sabino, and Sloan (1998) may also afflict the model used in this paper. We agree with them in that the low-performance bias can affect our results.

Chambers and Myers (2002) also suggested that we incorporate the comparison between SEO firms and growth-matched firms into the paper's main analysis. We decided not to incorporate the third control sample test into our main results partly because the paper is already fairly voluminous as is and partly because we are supposed to reply to comments rather than to rewrite the paper.

Once again, we acknowledge the invaluable comments by Chambers and Myers (2002) and Wilkins (2002). Their comments are all relevant and deserve to be incorporated at a later date. We hope this reply will help readers understand the main theme of our paper as presented and fill any missing links or blanks that we might have left unanswered in the paper.

We also express our thanks to Professor Abdel-khalik and The Center for International Education and Research in Accounting.

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The changing nature of financial disclosure in Japan

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Abstract

This paper investigates whether Japanese companies listed on the Tokyo Stock Exchange (TSE) altered their voluntary accounting disclosure behavior over the period of the 1990s. It implicitly tests for whether the collapse of Japan's "Financial Bubble" in the late 1980s altered the incentives of Japanese managers to be more forthcoming about corporate information. Previous research on Japanese disclosure practices highlights the "secretive" nature of Japanese managers and suggests that cultural preferences strongly discourage disclosure. Our findings suggest that Japanese disclosure practices are sensitive to economic conditions. © 2002 University of Illinois. All rights reserved.

1. Introduction

The Japanese economy in the 1990s was subjected to recessionary pressures that were unprecedented in the post-WWII period. In particular, large-scale capital losses among Japanese banks and other financial companies, as well as the collapse of Japanese asset prices, including stock prices, contributed to a significant contraction in the ability (and willingness) of Japanese companies to raise capital in domestic capital markets. As a consequence, an increasing number of Japanese companies turned to foreign companies as equity-based partners, or sold assets and operating businesses to foreign investors.[1] Japanese

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[1] By way of illustration, foreign direct investment inflows into Japan in 1994 totaled approximately US$1.9 billion. They totaled close to US$5 billion in 1999 (Phillips, 2000). Developments related to inward FDI in Japan are discussed in Globerman and Kokko (1999).

companies seeking foreign capital faced strong competition to attract and retain that capital given the very strong performances of American and European stock markets over the period.

In light of an increased reliance on foreign capital, one might expect Japanese companies to undertake initiatives to improve the "marketability" of their debt and equity securities in international capital markets. One potential initiative is to "improve" disclosure practices as they are relevant to foreign investors. There is some theoretical and empirical support for the assertion that increased disclosure, in circumstances characterized by asymmetric information between company officials and potential lenders and investors, can reduce a company's cost of capital.[2] All other things constant, one might expect Japanese companies to incur additional costs associated with improved disclosure to the extent that any resulting favorable impacts on capital costs are expected to exceed the additional costs associated with altering historical disclosure practices.

It seems likely that the profound and widely publicized industrial and financial problems experienced by Japan in the 1990s would have increased the perceived "nonsystematic" risks associated with investing in Japanese assets. For example, news of recession and corporate bankruptcies arguably increased perceived bankruptcy risks across a range of Japanese industrial sectors. Moreover, foreign investors may have perceived an even greater risk of Japanese companies holding back economic "bad news" from foreign investors during the 1990s than during the boom times of the 1970s and 1980s. That is, concerns about opportunistic behavior related to asymmetric information are likely to have grown during the 1990s.

It therefore seems plausible that Japanese companies may have seen it in their economic self-interest to alter their disclosure practices during the 1990s. Haskins, Ferris, and Selling (2000) assert that as an increasing number of large Japanese companies place more emphasis on foreign equity markets for meeting their capital needs, they will be subjected to more stringent disclosure requirements. The plausibility of this development is tempered by at least two considerations. One is that financial analysts' report and other sources of information about Japanese companies may be sufficiently informative and forthcoming about the earnings prospects of those companies such that "additional" disclosure by the latter would have little impact on their costs of capital.[3] Put in other words, the informational efficiency of markets in which Japanese corporate assets are traded may not have been significantly and adversely affected by economic developments in the 1990s, and, as a consequence, corporate incentives to disclose may have been little changed from earlier periods. A second consideration is that reduced needs for financial capital, given reductions in planned investment levels, may have mitigated the pressures of increasing costs of capital facing Japanese companies.

The broad purpose of this paper is to examine whether the "voluntary" disclosure of Japanese companies changed over the 1990s. In this context, it addresses a relatively narrow

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[2] See, for example, Botosan (1997), Drake and Peavy (1995), Krishnan, Sankaraguruswamy, and Shin (1996), and Sengupta (1998). For a contradictory argument, see Penno (1997).

[3] In this regard, Botosan (1997) finds for a sample of US companies that there is no association between her measure of disclosure level and the cost of equity capital for firms with high analyst following.

aspect of a much broader issue: how have Japanese institutions changed over recent years in the face of increased global competition for final outputs, as well as for inputs such as skilled labor and financial capital? For several samples of Tokyo Stock Exchange (TSE)-listed companies, we evaluate, using statistical analyses, whether voluntary-disclosure practices changed systematically from the late-1980s to the late-1990s. Our evidence supports the conclusion that voluntary disclosure increased when comparing the later period to the earlier period.

This finding is a contribution to the literature, which currently provides relatively little evidence on the stability of disclosure practices over time. Moreover, our finding contradicts assertions in the literature that Japanese disclosure practices are relatively rigid and insensitive to capital market pressures. A broader inference suggested is that economic circumstances can influence financial "reforms" in Japan.

The paper proceeds as follows. Section 2 offers a brief overview of corporate disclosure practices in Japan, including a review of academic research on those practices. Section 3 describes the approach we have taken to identify changes in disclosure practice during the 1990s. Section 4 analyzes the data described in the preceding section to determine whether voluntary-disclosure practices of Japanese firms have changed over time. Section 5 offers a summary and conclusion.

2. Disclosure practices in Japan

A number of studies have directly or indirectly focused on accounting and related disclosure practices of Japanese companies. Most notably, Cooke (1991, 1992) examines firm-specific characteristics of disclosure among survey samples of Japanese companies. In the process, he notes earlier studies that point to a strong resistance among Japanese companies toward disclosure, per se. He ascribes his own relatively low-survey response rates to the fact that "...the Japanese are inherently secretive and corporations are unwilling to supply accounts to non-shareholders..."[4] Conversely, Choi, Frost, and Meek (1999), while agreeing that Japanese companies are generally reluctant to disclose information, argue that the traditionally low disclosure levels of Japanese firms are due to managers' perceptions that the costs of additional disclosure are greater than the benefits. In this regard, they are proposing the hypothesis that cultural influences can be significantly modified by economic incentives.

Several features of Japanese culture have been cited in the literature as contributing to limited disclosure. One is the keiretsu ownership structure of Japanese industry. In this structure, "insiders" are major sources of financing and are well informed about the earnings prospects of keiretsu partners. Hence, a strong linkage between public disclosure and favorable access to capital allegedly does not exist (Morck, Nakamura, & Shivdasani,

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[4] See Cooke (1991, p. 178). For an earlier study pointing to the reluctance of Japanese companies to disclose information, see McKinnon and Harrison (1985).

2000). However, Cooke (1996) finds that companies within a keiretsu with a main bank or main company monitor do not disclose less information than other companies in their annual reports. A second feature discussed in the literature is the alleged reluctance of Japanese borrowers to disclose negative information to outside lenders and investors (Lincoln, 1999). A third is an allegedly less-demanding attitude toward corporate financial reporting on the part of Japanese shareholders as compared to, say, Western shareholders (Haskins et al., 2000, p. 339).

To the extent that "inherent" secrecy of Japanese managers is a durable determinant of corporate disclosure practices in Japan, the dramatic change in that country's economic environment over the 1990s, as described above, might be expected to have little impact on the voluntary-disclosure practices of Japanese businesses. On the other hand, to the extent that segmented and wealthy domestic capital markets shielded Japanese companies from the need for large-scale involvement with international lenders and investors, disclosure practices may not have been so much culturally based, as tied to a relatively small estimated payoff to disclosing more information.[5]

In fact, research efforts examining specific determinants of disclosure behavior of Japanese companies obtain results that are not substantially different from those obtained for companies headquartered in other countries. For example, the single most important determinant of variations in voluntary disclosure among Japanese companies is size (Cooke, 1991, 1992). This is a ubiquitous finding in the disclosure literature.[6] Another finding is that Japanese companies listed on multiple stock exchanges disclose more information than companies listed only on the TSE (Cooke, 1992). This relationship has also been identified for non-Japanese companies. For example, Gray, Meek, and Roberts (1995) find that internationally listed US and UK multinational companies voluntarily disclose more information in their annual reports than domestically listed multinational companies, ceteris paribus.

This similarity between Japanese and non-Japanese companies in terms of the main determinants of disclosure practice belies the notion that cultural differences render Japanese disclosure practices completely idiosyncratic; however, cultural differences discussed earlier could still result in generally lower levels of disclosure in Japan, other things being constant.[7] A focus on whether and how Japanese corporate disclosure practices changed over the 1990s would provide an additional perspective on the strength of cultural influences. In particular, an indirect finding that pressures to integrate more closely into world capital markets were associated with increased information disclosure would be consistent with an interpretation that accounting practices are influenced by global economic imperatives, insofar as Japanese management is concerned.

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[5] There is abundant evidence that companies using international capital markets engage in significantly more voluntary disclosure than their counterparts that raise capital primarily in domestic markets (see, for example, Choi & Levich, 1991; Cooke, 1991; Meek, Roberts, & Gray, 1995; Meek & Saudagaran, 1990; Saudagaran & Meek, 1997). A number of these studies point out that participation in international capital markets encourages increased disclosure, primarily of financial information.

[6] See, for example, Foster (1986), Frost and Pownall (1994a), and the studies reviewed in Meek et al. (1995).

[7] See Lincoln (1999) for examples of culturally specific disclosure practices in Japan.

In fact, there have been few studies examining the stability of disclosure behavior over time, particularly for Japan. Botosan (1997) references several non-Japanese studies and concludes that firms' disclosure policies appear to remain constant over time. Cooke (1991) suggests that the need for Japanese companies to raise considerable sums of money from international capital markets in the late 1980s may have encouraged increased disclosure, but he does not formally test this hypothesis. Our study differs from previous studies in its focus on the stability of Japanese company disclosure practices over time. Given the significant change in Japan's economic environment over the 1990s, a focus on this period provides a relatively strong test of the temporal stability of disclosure practices in Japan.

In the following section, we describe our sample selection and the methodology employed to test whether Japanese companies did, in fact, significantly alter their disclosure practices in response to the economic pressures of the 1990s.

3. Sample selection and methodology

3.1. Disclosure instrument and scores

Various methods have been used in the literature to measure the extent of a firm's disclosure.[8] For purposes of this study, the disclosure index developed by Botosan (1997) is used. It was chosen principally because the measurement categories more closely reflect voluntary-disclosure behavior for the sample firms of this study than do the instruments in other studies. For example, the focus of Botosan's index is on voluntarily disclosed information with high predictive value as opposed to disclosure of various historical accounting issues for regulatory purposes. In addition to the focus on voluntary disclosure, the reliability and validity of Botosan's disclosure instrument is the most rigorously tested of those cited in the literature. A copy of the instrument used to measure the disclosure score for each firm is attached as Appendix A.

The major components of the index are classified into the following five categories: background information, 10- or 5-year summary of historical results, key nonfinancial statistics, projected information, and management discussion and analysis of operations. Disclosure items can be both quantitative and qualitative. Points for each individual firm (j) are awarded for specific disclosure items within each category (i) for a given sample year (t). Hence, the final disclosure score ($DISC_{jt}$) measures the total points awarded for disclosure by the (j) firm in time period (t).[9] The maximum DISC score using this instrument is 127 — the total value of the disclosure items.

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[8] See, for example, Botosan (1997), Cooke (1991, 1992), Frost and Pownall (1994a), Gray et al. (1995), Sengupta (1998). Also, Marston and Shrives (1991) provide an extensive analysis and discussion of the limitations and use of disclosure indices.

[9] The points and scores assigned treat each disclosure item equally; i.e., they are unweighted. However, since there are more disclosure items for some categories of information than for others, Botosan's (1997) instrument implicitly weights information categories differently.

The disclosure index score is based upon information in each firm's annual report to shareholders. Specifically, annual reports were reviewed to determine whether or not to award points for the disclosure items identified in Appendix A. Although the annual report is not the only source or means of disclosure, as noted by Knutson (1992), it is typically the most important source of information for most analysts. In addition, Lang and Lundholm (1993) noted a high, positive correlation between annual-report disclosure and disclosure in other sources (such as press releases or regulatory filings). The annual reports for our sample of firms are the English-language version for each firm. Disclosure by Japanese firms in the English language further qualifies the revealed disclosure as "voluntary," since Japanese firms do not have to translate materials into English for Japanese regulatory purposes. Moreover, reporting in English might be seen as a direct attempt to reduce asymmetric information problems with potential foreign investors and/ or customers.

The annual reports for each sample firm were obtained from the TSE. Each annual report was analyzed and assigned points by one of the authors. The same author assigned scores for all firms for internal consistency. The scores from each annual report constituted the disclosure score ($DISC_{jt}$) for each firm for a given year.

3.2. Sample firms

Our sample firms were randomly selected from a stratified sample of firms listed in the Nikkei 225 Index. The Nikkei 225 Index includes 225 of the major firms listed on the "first section" of the TSE. We excluded firms in industries that are highly regulated, for example, banking, insurance, and securities, since their levels of disclosure will be primarily conditioned by regulatory practices. We also excluded service-related firms that are less likely than their manufacturing counterparts to compete in international input and output markets. The sample firms are therefore drawn primarily from manufacturing-related industries.

Three overlapping, albeit not identical, initial samples were created. Their characteristics are summarized in Table 1, and encompass 109 firms for 1996–1998, 113 for 1993–1995, and 48 for 1989.[10] These sample sizes are comparable to those of other disclosure studies.[11] Since these samples are not identical in terms of the identities of the included firms, changes in the calculated disclosure indices over time may reflect changes in the composition of firms across the samples, rather than any "uniform" influence of time, per se, on disclosure behavior. This would be true if individual firms differ in their disclosure practices for reasons unrelated to characteristics "held constant" by our statistical analysis, described below.

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[10] While admittedly somewhat arbitrary, we select 1989 as a year representative of Japan's financial and economic bubbles encompassing the second half of the 1980s.

[11] Sample sizes of firms for related studies are as follows: Botosan (1997), 122; Cooke (1991), 48; Cooke (1992), 35; Frost and Pownall (1994b), 93; Gray et al. (1995), 116 US, 64 UK; Sengupta (1998), 103.

Table 1
Summary of sample selection procedures

	Time period		
	1996–1998	1993–1995	Pre-1990
Firms in Nikkei Index	225	225	225
Less firms in regulated, specialized, or service-related	78	78	78
Available for selection	147	147	147
English-language annual report not issued or incomplete	38	34	99
Total	109	113	48
Sample classified by industry:[a]			
Chemicals (4)	15	16	5
Electrical machinery (11)	16	16	11
Foods (1)	10	10	1
Glass and ceramics (2)	8	7	3
Machinery (8)	13	14	9
Nonferrous metals (2)	8	9	3
Pharmaceuticals (4)	5	5	4
Precision instruments	3	3	0
Pulp and paper	4	3	1
Rubber	1	2	1
Steel	4	5	1
Textiles (2)	9	10	2
Transportation equipment (7)	13	13	7
Total sample	109	113	48

[a] The number of firms in the homogeneous sample is parenthetically noted for each industry.

We attempt to hold constant the influence of the identities of firms in our time-series panel, at least in part, by developing an identical sample of firms for each of the three periods. This sample consists of the subset of firms for which annual reports were available for each time period. Focusing on this sample implicitly holds constant interfirm differences that may influence disclosure behavior. That is, it implicitly holds constant the influences of differences in disclosure behavior that are related to a firm's identity and that do not change over time. Forty-one firms had annual reports available for each of the three time periods. The sample of 41 firms is henceforth referred to as the "homogeneous sample."

For the overlapping samples of nonidentical firms (henceforth, "heterogeneous samples"), changing industry mixes might influence overall disclosure behavior to the extent that propensities to disclose differ across industries.[12] A number of studies have identified industry disclosure effects (Botosan, 1997; Cooke, 1992; Sengupta, 1998).[13] If the industrial

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[12] The homogeneous sample implicitly holds constant the influences of "industry mix," since no firm's industrial classification changed over the sample period.

[13] In a (unreported) statistical analysis, we also identified differences in the propensities of firms in different industries to disclose for any given time-period sample. These unreported results are available from the authors upon request.

mix of firms varied across our three sample periods (for the heterogeneous samples), we would presumably need to account explicitly for industry affiliation in our subsequent analysis. However, any such analysis is unnecessary, since the industrial compositions of our heterogeneous samples did not change across our three time-period samples.[14] Put in other words, the unchanged industrial mix of firms for our three time-period samples ensures that industry mix does not affect the *change* in disclosure behavior *over time*, which is our focus of interest.

3.3. Time periods

Analysis of the question of the temporal stability of firms' disclosure practices requires a sample time period. Given the time consuming and costly nature of the data collection process, the sample consisted of discrete years instead of a continuous time series. Our implicit assumption is that changes in disclosure are not reversible and proceed relatively deliberately, such that the observed changes between discontinuous years do not mask significant (and possibly contradictory) unobserved changes between nonsample years. Partitioned time periods to capture disclosure behavior have been used in related studies (e.g., Sengupta, 1998) of the incentive effects of disclosure on the firm's cost of capital.

Three specific time periods are selected to represent different economic environments in Japan: 1996–1998, 1993–1995, and 1985–1990. The pre-1990 period was characterized as the "Bubble" economy and was represented by relatively high economic and asset–price growth rates compared with the rest of the decade, as well as relatively abundant domestic sources of capital. The 1993–1995 period saw an "Adjustment" in Japan's economy as it began to experience bankruptcies, business failures, and extensive losses in the stock and real estate markets. For example, bankruptcies in the Tokyo area increased 106% between 1989 and 1995 (source of calculations, Teikoku Data Bank, 1998). A major recession and economic restructuring marked the 1996–1998 period, referred to as the "Current" period. Firms faced increasingly competitive global-product markets, while a banking crisis forced many firms to seek capital outside Japan. The three time periods arguably reflect three distinctive economic environments faced by Japanese firms, although the trend over the entire period was arguably one of Japanese companies facing stronger incentives to integrate into global financial markets, as well as to increase sales in foreign markets.[15] To the extent that increased disclosure improves access to foreign capital, Japanese companies' incentive to disclose information could be expected to increase over the 1990s.

A finding would provide further support for our hypothesis that increased disclosure by Japanese companies did indeed lower their cost of capital. We are unaware of any specific

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[14] Using chi-square tests, we cannot reject the hypothesis that the distribution of sample firms by industrial classification is identical when comparing each paired time period.

[15] These periods were also convenient in the sense that the pre-1990 period is comparable with Cooke (1991) and the 1993–1995 relatively comparable with Botosan (1997); thus, the sample has benchmark studies for comparative purposes.

studies providing such a link.[16] However, there is anecdotal evidence supporting the existence of a linkage between disclosure and the cost of capital. For example, one article discusses the experience of Fuji Bank. Executives at Fuji Bank had long insisted that their bank's problems were not as bad as critics suggested. Nevertheless, the media seemed convinced it was hiding problems, and its shares were leading the market down. In late September 1998, the bank decided that it needed to be more forthcoming in its disclosures. In particular, it disclosed that it had US$19.3 billion in "gray area" loans, i.e., assets that did not fit the narrow regulatory definition of bad loans but were ones that prudent investors would want to know about. The bank hired the US accounting firm, Ernst & Young, to check its books and vouch for the accuracy of the bank's accounting. Fears of hidden losses seemed to vanish. Its shares recovered and the premium paid over other banks for funding all but disappeared (Sapsford, 1999).

Data were collected for one year for each time period. The specific years selected were 1989 (for the "Bubble" period), 1994 (for the "Adjustment" period), and 1998 (for the "Current" period). When annual reports for specific companies were not available for the specific year, the next closest preceding year was used, with 1987 as a cut-off year. While it is possible that the use of average-disclosure-index values for two or more years of any subperiod might eliminate purely transitory variations in "equilibrium" disclosure behavior, the individual years chosen are sufficiently separated in time as to capture meaningful changes in disclosure behavior over the decade of the 1990s.

4. Disclosure behavior and determinants

In this section, we report observed changes in disclosure behavior over time for our heterogeneous and homogeneous samples. We also identify the factors that seem to be associated with any observed changes.

4.1. Temporal shifts in levels of disclosure

Table 2 reports mean disclosure scores in each period for the heterogeneous samples, where the sample firms are stratified by industry. Simple comparisons of the average disclosure index values of the heterogeneous samples across the various time periods (the first row in Table 2) suggest that voluntary disclosure increased consistently over time. Specifically, the average value for $DISC_{jt}$ increased from 22.3 (the "Bubble" years) to 23.8 (the "Adjustment" period) to 28.6 ("Current" period). The increase in disclosure values between the first two time periods (Bubble and Adjustment) is modest, and a difference of means test indicates that the average disclosure index values are not significantly different from each other. However, the differences between the average disclosure index values in

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[16] We are currently examining the statistical relationship between disclosure and the cost of capital for our sample of Japanese companies.

Table 2
Mean disclosure scores by industry classification (standard deviations in parenthesis)

Industry	n	Time period 1996–1998	n	1993–1995	n	Pre-1993
Heterogeneous samples	109	28.6 (10.2)	113	23.8 (7.3)	48	22.3 (7.0)
Chemicals	15	27.3 (11.2)	16	20.8 (6.4)	5	19.6 (4.4)
Electrical machinery	16	31.8 (8.6)	16	26.4 (6.7)	11	27.2 (6.2)
Foods	10	33.5 (9.5)	10	24.1 (7.8)	1	33.0 (−)
Glass and ceramics	8	23.1 (11.3)	7	18.4 (6.1)	3	19.3 (1.5)
Machinery	13	22.5 (6.4)	14	21.6 (5.1)	9	16.3 (6.2)
Nonferrous metals	8	33.8 (12.6)	9	25.6 (7.0)	3	20.7 (3.1)
Pharmaceuticals	5	35.4 (7.2)	5	27.4 (5.7)	4	27.0 (5.6)
Pulp and paper	4	26.8 (6.3)	3	17.7 (8.7)	1	18.0 (−)
Steel	4	24.8 (7.9)	5	30.4 (5.0)	1	11.0 (−)
Textiles	9	27.9 (12.3)	10	24.1 (6.0)	2	20.5 (9.2)
Transportation equipment	13	28.1 (11.5)	13	24.9 (9.5)	7	23.6 (5.4)
Homogeneous sample	41	30.9 (9.2)		25.8 (6.9)		22.8 (7.0)

The samples for precision instruments and rubber are not reported as they were comprised of three or fewer firms.

the Current period and both prior periods are significantly different at conventional significance levels.[17] These observations are further illustrated by the pattern for individual industries. In most cases, disclosure scores in the current period are higher than in the two preceding periods. Disclosure behavior change is somewhat less consistent industry-by-industry between the Bubble and Adjustment periods, although, the small sample sizes for many of the industries make it difficult to infer whether the observed differences are statistically significant.[18]

The average $DISC_{jt}$ values for each time period for the homogeneous sample is reported at the bottom of Table 2. The results again indicate consistently increasing disclosure over time similar to the sample results reported for the heterogeneous samples. Paired sample comparisons of the mean disclosure scores (for the identical 41 firms) indicate significant differences between successive paired time periods. Thus, the average disclosure scores for all firms in the homogeneous sample indicate significant increases in disclosure over the selected time periods.

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[17] Strictly speaking, the use of a parametric difference of means test may not be appropriate as the three panels are not strictly independent. Specifically, there are some identical firms in each panel. Nevertheless, the disclosure index for any firm is a random variable over time. Moreover, the disclosure index values are normally distributed in each sample year. The results of relaxing the assumptions for parametric tests and using a Wilcoxon signed ranks nonparametric test are that the relative ranks of all time periods were significantly different from each other (including the first two periods).

[18] As discussed above, since the industry mix of firms is relatively constant over time, our conclusions with respect to overall changes in disclosure behavior should not be sensitive to differences in the disclosure practices of specific industries.

4.2. Analysis of temporal shifts holding determinants constant

The summary evidence presented to this point suggests that voluntary disclosure increased over time for various subsets of Japanese manufacturing companies, as well as across the Japanese manufacturing sector as a whole. A remaining issue to consider is whether the change in disclosure behavior reflects changes in underlying "determinants" of disclosure not implicitly held constant by the composition of our samples, or whether disclosure behavior increases even after the underlying determinants are held constant. Even within the homogeneous sample, the characteristics of firms may be changing in a way that "encourages" increased mean disclosure. For example, it has been widely observed that larger firms disclose more information than their smaller counterparts. Therefore, if our sample of homogeneous firms grew larger, on average, over our sample time period, disclosure could be expected to increase independently of any hypothesized pressures related to changing economic conditions in Japan.

The determinants of voluntary disclosure most often and consistently identified in the literature are firm size, equity market listing, and category of industry. Assets are usually the best indicator of firm size in empirical studies. Hence, we use asset size as a measure of changing firm size over time. Since all firms in both the homogeneous and heterogeneous samples were selected from the Nikkei 225, market listing in the home country is implicitly held constant over time. Moreover, none of the sample firms that were listed (or unlisted) on US stock exchanges changed their foreign-listing status over the sample period. Thus, market listing was effectively held constant through sample selection. Since firms were consistently classified to a given manufacturing industry over the time period considered, industry effects are also effectively held constant.

In other studies, the ownership structure of Japanese companies has been found to influence investment behavior and stock-price valuations in complex ways (Morck et al., 2000). However, as noted earlier, Cooke (1996) found that main company ownership within a keiretsu has no influence on a company's disclosure practices. Moreover, it is likely that ownership structure was relatively stable over time for our sample of large companies. In the event, we did not collect sufficiently detailed data on ownership to permit us to incorporate an ownership variable into our statistical analysis.

To hold firm size constant while examining changes in disclosure behavior over time, we rely upon regression analysis (ordinary least squares). Specifically, we employ two pooled (over time) cross-sections: the 41-firm (homogeneous) sample and the heterogeneous sample of Japanese manufacturing companies. The cross-sections are pooled for the three sample time periods for each sample. The estimating equation is given as Eq. (1):

$$DISC_{jt} = a + b_1 \ln ASSET_{jt} + b_2 TIME_t + e_{jt} \qquad (1)$$

The dependent variable is defined as above. Values for ASSET are from each company's annual report or from the Japan Company Handbook (various years). The natural log specification is used to mitigate potential problems of heteroscedasticity. The TIME variable is a dummy variable taking a value of zero for our first time period, a value of unity for the

second time period, and a value of two for the third time period. This specification embodies the assumption that incentives to disclose increased in a linear fashion over our three time periods. Hence, the dummy variable should have a positive sign.

Since the summary data reported in Table 2 suggest that incentives to disclose may not have increased in a uniform fashion over the sample period, we also use an alternative specification for the TIME variable. Specifically, separate time regimes are identified. One dummy variable ($TIME_2$) takes a value of unity for all sample observations in Period 2 and zero otherwise. A second ($TIME_3$) takes a value of unity for all sample observations in Period 3 and zero otherwise. The base period is therefore the "Bubble" period whose influence is

Table 3
Regression results

Panel A : Heterogeneous sample

$$DISC_{jt} = a + b_1 \ln ASSET_{jt} + b_2 TIME_t + e_{jt} \quad (1)$$

	a	$b_1 \ln ASSET_{jt}$	$b_2 TIME_t$
Coefficients	23.9	3.40	3.17
Standard error	0.3	39	0.63
t statistic	-4.55	8.75	5.03
P value	.000	.000	.000

Adj. $R^2 = .277$ $F = 52.25$ (prob. .000)   Durbin–Watson statistic = 1.77
No. of observations = 128

$$DISC_{jt} = a + b_1 \ln ASSET_{jt} + b_2 TIME_2 + b_3 TIME_3 + e_{jt} \quad (2)$$

	a	$b_1 \ln ASSET_{jt}$	$b_2 TIME_2$	$b_3 TIME_3$
Coefficients	-22.6	3.40	1.14	5.72
Standard error	5.3	0.39	1.30	1.31
t statistic	-4.28	8.74	0.88	4.38
P value	.000	.000	.380	.000

Adj. $R^2 = .283$ $F = 36.18$ (prob. .000)   Durbin–Watson statistic = 1.79
No. of observations = 128

Panel B: Homogeneous sample

$$DISC_{jt} = a + b_1 \ln ASSET_{jt} + b_2 TIME_t + e_{jt} \quad (1)$$

	a	$b_1 \ln ASSET_{jt}$	$b_2 TIME_t$
Coefficients	-19.4	3.11	3.06
Standard error	8.1	0.59	0.78
t statistic	-2.39	5.24	3.95
P value	.019	.000	.00

Adj. $R^2 = .297$ $F = 26.39$ (prob. .000)   Durbin–Watson statistic = 1.94
No. of observations = 121

$$DISC_{jt} = a + b_1 \ln ASSET_{jt} + b_2 TIME_2 + b_3 TIME_3 + e_{jt} \quad (2)$$

	a	$b_1 \ln ASSET_{jt}$	$b_2 TIME_2$	$b_3 TIME_3$
Coefficients	-19.5	3.16	1.67	6.09
Standard error	8.13	0.60	1.56	1.56
t statistic	-2.40	5.30	1.08	3.93
P value	.018	.000	.283	.000

Adj. $R^2 = .298$ $F = 17.97$ (prob. .000)   Durbin–Watson statistic = 1.96
No. of observations = 121

implicit in the constant term. If disclosure does increase uniformly over time, the coefficients of $TIME_2$ and $TIME_3$ should be positive. The estimating equation is therefore:

$$DISC_{jt} = a + b_1 \ln ASSET_{jt} + b_2 TIME_2 + b_3 TIME_3 + e_{jt} \qquad (2)$$

The results of estimating Eqs. (1) and (2) for both the heterogeneous and homogeneous samples are presented in Table 3. The results are fairly robust, with a similar general story to tell across the samples. Namely, voluntary disclosure increased significantly over time. More specifically, the insignificant t statistics for the $TIME_2$ coefficients in both the homogeneous and heterogeneous samples corroborate our earlier inference that there was a modest increase in disclosure comparing the Bubble and Adjustment periods, with the main increase in disclosure coming after the adjustment period. It is noteworthy that the regression coefficients are virtually identical in the homogeneous and heterogeneous samples. This result suggests that firm-specific influences, such as ownership differences, are not exerting a significant influence over time on the disclosure behavior of our heterogeneous sample of firms.

5. Summary and conclusion

This study examines whether disclosure on the part of Japanese firms increased over the 1990s. For three specific time periods, disclosure indices are constructed for different samples of TSE-listed firms. Statistical analysis indicates that average voluntary disclosure increases for our samples when comparing the initial and end time periods. This finding is statistically significant for both our heterogeneous sample and our homogeneous sample of firms. While disclosure is also modestly higher in the middle time period compared to the initial time period, the difference is not statistically significant in either the heterogeneous or the homogeneous sample.

Our basic findings are consistent with suggestions found in the literature that economic incentives tied to changing capital-market conditions will alter traditional disclosure practices, even in Japan. Specifically, they are consistent with the notion that cultural factors contributing to relatively limited voluntary disclosure on the part of Japanese companies are mutable in the face of economic incentives.

Whether the return of more robust economic conditions in Japan will stall or even reverse the trend towards more disclosure is an open question; however, policymakers in other countries might draw some comfort from the fact that large Japanese firms apparently acknowledge the managerial imperatives created by global competition for customers and financial capital.

Acknowledgments

Appendix A. Disclosure index scoring sheet

Disclosure level and the cost of equity capital (Christine A. Botosan, *Accounting Review*, vol. 72, no. 3, July 1997)

Company Name:
Report Type: Annual report/10-k/Summary annual report
Year end:

Background Information:	**Qual.**	**Quan.**
a. A statement of corporate goals or objectives is provided.		
b. A general statement of corporate strategy is provided.		
c. Actions taken during the year to achieve the corporate goal is discussed.		
d. Planned actions to be taken in future years are discussed.		
e. A time frame for achieving corporate goals is provided.		
f. Barriers to entry are discussed.		
g. Impact of barriers to entry on current profits is discussed.		
h. Impact of barriers to entry on future profits is discussed.		
i. The competitive environment is discussed.		
j. The impact of competition on current profits is discussed.		
k. The impact of competition on future profits is discussed.		
l. A general description of the business is provided.		
m. The principal products produced are identified.		
n. Specific characteristics of these products are described.		
o. The principal markets are identified.		
Specific characteristics of these markets are described.		

Summary of historical results:	**10 or more years**	**Fewer than 10 years**
a. Return-on-assets or sufficient information to compute return-on-assets (i.e. net income, tax rate, interest expense and total assets) is provided.		
b. Net profit margin or sufficient information to compute net profit margin (i.e. net income, tax rate, interest expense and sales) is provided.		

c.   Asset turnover or sufficient information to
     compute asset turnover (i.e. sales and total assets)
     is provided.
d.   Return-on-equity or sufficient information to
     compute return-on-equity (i.e. net income and
     stockholders equity) is provided.

	Yes	No

e.   A summary of sales and net income for at least
     the most recent eight quarters is provided.

Key nonfinancial statistics: Amount
a.   Number of employees.
b.   Average compensation per employee.
c.   Order backlog.
d.   Percentage of order backlog to be shipped next year.
e.   Percentage of sales in products designed in the
     last five years.
f.   Market share.
g.   Dollar amount of new orders laced this year.
h.   Units sold.
i.   Unit selling price.
j.   Growth in units sold.
k.   Rejection/defect rates.
l.   Production lead-time.
m.   Age of key employees.
n.   Sales growth in key regions not reported as
     geographic segments.
o.   Break-even sales US$.
p.   Volume of materials consumed.
q.   Prices of materials consumed.
r.   Ratio of inputs to outputs.
s.   Average age of key employees.
t.   Growth in sales of key products not reported as
     product segments.

Projected information:

	Pos., Neg. or Neutral	Qual. or Quan.

a.   A comparison of previous earnings projections to
     actual earnings is provided.
b.   A comparison of previous sales projections to
     actual sales is provided.
c.   The impact of opportunities available to the firm
     on future sales or profits is discussed.
d.   The impact of risks facing the firm on future sales
     or profits is discussed.

e. A forecast of market share is provided.
f. A cash flow projection is provided.
g. A projection of capital expenditures or R&D
    is provided.

	Pos., Neg. or Neutral	**Qual. or Quan.**	**Wgt.**

h. A projection of future profits is provided.
i. A projection of future sales is provided.

Management discussion and analysis: (explanations for changes must be provided)	**Qual. or Quan.**	**Prod seg.**	**Tot. firm**

a. Change in sales.
b. Change in operating income.

	Qual. or Quan.	**Total firm**	

c. Change in cost of goods sold.
d. Change in cost of goods sold as a percentage
    of sales.
e. Change in gross profit.
f. Change in gross profit as a percentage of sales.
g. Change in selling and administrative expenses.
h. Change in interest or interest income.
i. Change in net income.
j. Change in inventory.
k. Change in accounts receivable.
l. Change in capital expenditures or R&D.
m. Change in market share.

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Discussion of "The changing nature of financial disclosure in Japan"

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1. Introduction

This study examines recent changes in levels of voluntary disclosures of certain large Japanese corporations. The authors selected those firms on the Nikkei 225 Index that are also listed on the First Section of the Tokyo Stock Exchange and examine voluntary disclosures of these firms over three time periods: (1) 1985–1990, (2) 1993–1995, and (3) 1996–1998. They found that voluntary disclosures of the Japanese firms sampled generally increase over the three time periods and concluded that changing market conditions alter traditional disclosure practices in Japan. Their findings contradict some claims that Japanese disclosure practices are unaffected by pressures from capital markets.

2. Contribution of the paper

In the 1990s, Japan began to experience a long and severe recession. Prior to the 1990s, Japan had only experienced a few short recessions in the early 1970s and 1980s that were related to global oil crises. When confronted with a long recession of extreme magnitude in the 1990s, Japanese managers were forced to adopt new strategies to cope with the economic turmoil affecting their firms. There was enormous pressure on Japanese managers from capital markets and the domestic press to provide more information about their firms. Prior to the 1990s, Japan was known for its secretive culture (Cooke, 1991). As a result, Japanese financial reporting generally lacked transparency. Popular belief was that Japanese firms were

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more concerned with and operated for the benefit of their employees and creditors and not their stockholders (Aoki, 1994). Given this situation, an interesting question was how Japanese firms would respond to the dramatic changes in economic conditions in the 1990s. The authors explored this question and demonstrated that Japanese managers responded positively to pressures from capital markets by voluntarily disclosing more information about their firm. This finding is of great interest to policy-makers and global stockholders, despite the fact that out of a possible 127 points, Japanese firms only scored about 28 points, which indicates that Japanese managers are still not forthcoming in disclosing significant value-relevant information to investors.

3. Evaluation

3.1. Culture versus changing economic conditions affecting voluntary disclosures

The authors correctly argued that levels of voluntary disclosures are influenced by: (1) country-specific cultural forces and (2) prevailing economic conditions. It follows that changes in country-specific culture and/or changes in economic conditions can cause changes in levels of voluntary disclosures. The authors, however, argued that their results showed that increases in voluntary disclosures by Japanese firms are only due to changes in Japan's economic conditions and *not* due to changes in culture. This assertion by the authors was not supported by their study for the following reasons. First, the authors did not examine whether in fact Japanese culture has remained unchanged over their sample period. Given that their sample spans 13 years (1985–1998), it is unlikely that there have been no changes in Japan's business culture. Second, changes in economic conditions in turn affect and cause changes in country-specific culture. For this reason, it would be difficult, if not impossible, to separately evaluate the effects of changes in culture and economic conditions on levels of voluntary disclosures. For example, a cultural feature cited by the authors as contributing to limited disclosures is *keiretsu* ownership.

In recent years, however, there has been a gradual erosion of the relationship between *keiretsu* partners due to pressures from Japanese capital markets, which goes to show how changing economic conditions can also affect culture.

3.2. Increases in voluntary versus mandatory disclosures

The authors used a survey instrument that was designed by Botosan (1997) to measure the extent of voluntary disclosures of US firms. There are at least two related concerns here. One is whether a survey instrument designed for US firms by Botosan is best suited for use in Japan. Given that there are significant differences in cultural and institutional arrangements between the two countries, it seems unlikely that this would be the case. The authors' contribution to the literature would have been more significant had they designed an instrument that took into account the uniqueness of Japan's business environment. Two, in the 1990s, the Ministry of Finance issued mandates at an unprecedented rate. For example, since April 1, 1990, Japanese

firms have been required to disclose business segment data (Mande & Ortman, in press). After 1997, geographical segment data were required. With these new mandates, one should expect more disclosures in annual reports about gross margins according to lines of business, revenues by product, and according to region. Since Botosan's instrument contains questions about these disclosures, it is not clear whether the increased scores found by the authors are due to increases in voluntary or mandated disclosures. Similarly, a question relating to profit forecasts by Japanese firms could provide skewed results. In recent years, all Japanese firms on the First Section have been required to provide profit forecasts. Here again using Botosan's survey instrument in Japan would result in biasing voluntary-disclosure scores upwards.

3.3. Methodology

The authors used a regression model that allows them to measure shifts in the average level of voluntary disclosures over the three time periods using intercept dummies for each time period. However, the authors only obtained data on voluntary disclosures for 1 year in each of the three time periods. The authors could have reduced measurement error in their voluntary disclosure metric by obtaining several years of data for each time period and by averaging the disclosure scores over those years. By using only 1 year of data in each time period, noise in the voluntary disclosure metric increases and reduces our confidence in the authors' results.

4. Future research and conclusion

The authors argued that Japanese firms have increased the amount of voluntary disclosures in financial reports because of their increased reliance on foreign capital.

The authors could have supported their conjecture by examining whether firms with high levels of voluntary disclosures in the 1990s were indeed more successful in raising equity or debt capital in foreign markets whether the percentage of foreign ownership in Japanese firms had increased and whether the number of exchange listings on foreign stock markets had increased in recent years. The authors could also have explained voluntary disclosures of Japanese firms that experienced losses during the 1990s. Roughly 15% of firms on the First Section of the Tokyo Stock Exchange experienced losses in the 1990s (Mande, Wohar, & Ortman, 2001). Clearly, firms experiencing losses face different economic incentives compared to other firms and one would expect significant differences in both the quantity and quality of voluntary disclosures across these groups of firms (Brown & Higgins, 1999). These additional tests would have provided additional insights and increased confidence in the authors' assertions that changes in economic incentives altered disclosure strategies of Japanese managers.

Overall, this paper makes a significant contribution to the literature on Japanese financial reporting. It documents that in recent years Japanese managers responded positively to changes in the economic environment and to pressures from capital markets by voluntarily disclosing more information about their firm. These findings will undoubtedly be of great interest to policy-makers such as the SEC and the IASC, as well as to foreign investors.

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Discussion of "The changing nature of financial disclosure in Japan"

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1. Introduction

This paper investigates the evolution of voluntary accounting-disclosure behavior of Japanese firms listed on the Tokyo Stock Exchange over three specific time periods, representing different economic environments: (a) 1985–1990 (labeled the "Bubble" period), (b) 1993– 1995 (labeled the "Adjustment" period), and (c) 1996–1998 (labeled the "Current" period). The average voluntary disclosure increased when comparing the "Bubble" to the "Current" periods. These results are interpreted as consistent with the notion that cultural factors hindering voluntary disclosure by Japanese firms are in fact mutable in the face of economic incentives. The results are in line with an economic, rather than a cultural relativism, theory of disclosure in Japan. Basically, as argued in the international business literature (Basu & Miroshnik, 2000), cultural relativism is not to be taken as a fixed phenomenon. In the long run, people and countries, irrespective of their culture, are compelled to adopt similar industrial attitudes and behaviors in order to comply with the imperatives of industrialization, economic growth, and globalization (Kelly et al., 1987; Riahi-Belkaoui, 1994). This competing hypothesis, known as the convergence hypothesis, maintains that basically, managerial beliefs are correlated with stages of industrial development (Harbison & Myers, 1959). The results of this study on the changing nature of financial reporting in Japan appear to be in support of the convergence hypothesis. The three periods chosen in this study represent different stages of industrial development, economic growth, and globalization, leading the disclosure practices in Japan to converge to disclosure practices in the US and similar developed economics.

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The discussion of the merits of the paper focuses on two main issues: (a) the choice of an efic rather than an emic approach to the study of disclosure behavior in Japan, and (b) the lessons and suggestions for future research on the subject.

2. Etic versus emic approach

The etic approach takes the perspective of the researcher as the important factor for the production of scientifically positive theories about the causes of sociocultural differences and similarities. Basically, it examines behavior from outside the system, using a structure created by the analyst and criteria considered absolute or universal (Berry, 1969, 1980).

The emic approach studies behavior and practices from within the cultural system, centering on the native, that is, the insider's view of reality and using criteria relative to internal characteristics (Berry, 1969). Pelto (1970) indicates that there is an "embedded emicism" in most cross-cultural research with a focus on creative viewpoints, meanings, and interpretation.

This study of the changing nature of disclosure in Japan relies on an etic approach. The authors rely on a disclosure index developed for the US environment by Botosan (1997) to measure the voluntary disclosure changes of Japanese firms and to infer from the results a proof of the economic-relativism theory of disclosure or, as suggested here, the "convergence" hypothesis.

An emic approach to the same research question would require the development of a disclosure index from within the Japanese disclosure environment, using criteria relative to the Japanese disclosure philosophies to measure voluntary disclosure in Japan.

Under the emic approach, the disclosure index would have included information and innovations dictated by the specific Japanese environment and disclosure philosophies. For example, a resource-based view of the firm, prevalent in the Japanese view of the world, favors the disclosure of information on strategic intangible assets. Similarly, a stakeholder view of the firm would favor the disclosure of information that can be used for the determination of the net value added—the wealth created by the firm before distribution to the various stakeholders (Riahi-Belkaoui, 1999).

3. Lessons and suggestions for future research

In addition to the adoption of the emic approach, future research on the subject may benefit from the following lessons and suggestions:

1. The present study does not test the *exclusionary* theory of corporate disclosure, in which information is disseminated within a group but specifically excludes those outside the group (Cooke, 1993). Basically, whether there is association between *keiretsu* classification and the changing nature of disclosure by Japanese firms is an interesting

research question. Previous research made a distinction between horizontal and vertical keiretsu. It may be easily hypothesized that the increase in disclosure observed in this study is much lower for firms belonging to a horizontal keiretsu.

2. The present study investigates size as a possible determinant of the changing disclosure score, which is consistent with international accounting research on the subject. Other determinants that have not been included in this study and may need to be considered in future research on the subject include: leverage, industry, type, level of multinationality, and type of diversification strategy, to name only a few (Belkaoui & Kahl, 1978; Wallace & Gernon, 1991).

3. The study tests the changing nature of financial disclosure in Japan by examining disclosure practices during and following the "Bubble" period. It implicitly tests whether the collapse of Japan's "Financial Bubble" in the late 1980s altered the incentives of Japanese managers to be forthcoming about corporate information. A true test is to measure the disclosure score prior to the "Bubble" period. A lower pre-"Bubble" disclosure score will be indicative of an improvement in financial disclosure in Japan, which is independent of the effects of the "Bubble."

4. The items included in Botosan's (1997) index do indeed reflect voluntary information with high predictive value. Yet, they do not reflect the new scope of international accounting disclosure with experimental and innovative disclosures in the areas of value-added reporting, employee reporting resource-based view of reporting, and social accounting, to name only a few. Inclusion of items reflecting this new scope of international disclosure would provide for a stronger test of the changing nature of disclosure in Japan.

5. The use of the English rather than the *Japanese language version of the annual report* may have introduced a disclosure bias. Japanese firms may have tried in their English version to comply with conventional reporting and disclosure, leaving innovative Japanese disclosures in the Japanese language version. A comparison of the contents of a sample of English and Japanese language reports is needed to investigate the potential existence of a disclosure bias.

6. The study selected one year for each time period rather than relying on an average disclosure score for each period. The individual years chosen are sufficiently separated in time as to capture meaningful changes in disclosure behavior. A replication of the study with the choice of a different year for each period (from the one chosen in the study) would provide a control test. Even then, it is hard to justify that a single year is a reasonable proxy for the whole period. There may be other factors at work in that one year that make it fundamentally different from the rest of the period.

4. Conclusion

This study shows an evolution of voluntary disclosure by Japanese firms following the collapse of Japan's "Financial Bubble" in the late 1980s. The results are viewed as being in

line with the economic theory of disclosure. In my comments, the results are instead viewed as supportive of the convergence hypothesis. An emic approach to the same research question is also viewed as preferable to the etic approach adopted in the study. In addition, some suggestions are made to serve as a guide to future research on the same subject.

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Reply to "The changing nature of financial disclosure in Japan"

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In responding to the comments of our reviewers, we will first focus on several points that both reviewers touch upon, and then consider some points that were made separately. First, both reviewers criticize our use of Botosan's well-known disclosure instrument and suggest that a more "uniquely Japanese-specific" instrument would have been preferable. Clearly, the design of any such instrument is problematic, since even specific Japanese companies are likely to be characterized by "uniqueness" in certain meaningful dimensions. Perhaps more to the point, if increased disclosure on the part of Japanese companies is motivated to a significant extent by a greater perceived need to access global sources of capital, then the use of a disclosure instrument that is more "international" in its context is arguably more appropriate. As a practical matter, Japanese companies increasingly are raising financial capital in Anglo-American capital markets—the largest capital markets outside of Tokyo. In this context, it is precisely increased disclosure of information targeted to investors and lenders in those markets, and in their language, that is to be expected. Botosan's disclosure instrument is still, arguably, the preferred tool for assessing disclosure designed to influence international investors and lenders.

Both reviewers also criticize the use of a single year's data to measure disclosure in each of our three time periods. While we can readily agree that the use of a disclosure index averaged over several years would reduce the likelihood of measurement error, it is less clear that measurement errors are contributing to any bias in our results. Indeed, if measurement errors are random from year-to-year, they should not systematically bias our disclosure values either upward or downward. We have no reason to believe that measurement errors are systematically related to time.

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Professor Mande argues that we are not entitled to conclude that increases in voluntary disclosure by Japanese companies are *only* due to changes in Japan's economic conditions and *not* due to changes in culture. In fact, we would agree had we claimed what Professor Mande suggests we claimed. However, our conclusion was more modest and is summarized quite accurately by Professor Riahi-Belkaoui. Namely, cultural factors hindering voluntary disclosure by Japanese firms are, apparently, mutable. Certainly we cannot claim that economic changes are *solely* responsible for changes in disclosure behavior. We infer that economic factors likely played a role, given that there were dramatic changes in Japan's economic environment, and that those changes are coincident in time with changes in disclosure. Certainly cultural characteristics of the environment may also have changed. Indeed, as Professor Mande notes, economic changes may have even contributed to cultural changes. In which case, of course, separate identification of economic and cultural influences on disclosure behavior would be impossible as a practical matter. Our relatively modest inference does not discount the role of culture. It merely suggests that Japanese business behavior is not predestined by corporate culture at any point in time.

Professor Mande also argues that disclosure in our sample might not be purely voluntary since at least two new accounting mandates were issued during the time period of our sample that may have affected disclosure practices. One such change required Japanese companies to disclose geographical segment data after 1997. Another required Japanese companies to disclose business segment data after April 1, 1990. In fact, neither change should be expected to affect disclosure behavior using the Botosan index, since none of the disclosure items in the index are directly related to line-of-business or line-of-country disaggregation. In a related comment, the time frame of the mandated disclosure of projected information does not coincide with the voluntary disclosure items in the Botosan instrument, thus a bias is not introduced. Also, as noted by Choi, Frost, and Meek (2002), the projection information is provided to regulators but rarely disclosed to shareholders. Thus any disclosure would still be considered as voluntary in nature.

Finally, both reviewers make a number of valuable suggestions for future research. In particular, Professor Riahi-Belkaoui suggests that a review of Botosan's instrument in light of recent innovations in accounting practices would be useful. Indeed, such a review would be useful not only for studies focusing on Japan but also for cross-country comparisons of disclosure behavior more generally. Professor Mande suggests that a follow-up focus on whether changes in disclosure enhanced the ability of our sample firms to raise international capital would strengthen our basic conclusions. We agree and indicated in our paper that this issue is, indeed, a focus of our future research.

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The effects of country and industry on implementing value chain cost analysis

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Abstract

This study provides evidence based on data collected from 65 US and 34 Hong Kong companies regarding current implementation of value chain cost analysis. The findings indicate significant differences in cost systems of companies in these two regions under value chain framework. The US manufacturing firms have invested more of their resources in upstream activities than have their Hong Kong counterparts, but this observation did not hold in the service industry. Overall, however, the results support a positive link between the percentages of cost and degrees of cost tracing, particularly for upstream activities, for firms in both regions. Implications of this study in cost management for the US and Hong Kong companies are also discussed. © 2002 University of Illinois. All rights reserved.

Keywords: Value chain analysis; Cost management; Global competition; Hong Kong; Cost tracing; Upstream and downstream activities

1. Introduction

In today's global business environment, companies face significant competition and are under tremendous pressure to improve their productivity. To cope with these challenges, corporate managers have gradually become customer-driven and have focused on delivering quality products at competitive prices. In the past decade, many management tools have been introduced and implemented to improve operational efficiency and to enhance corporate

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competitiveness. Of these tools, Porter (1985, p. 33) suggests that the value chain analysis, which involves "disaggregating a firm's operations into strategically relevant activities in order to understand the behavior of costs and potential sources of differentiation," can be an effective means of optimizing the use of limited resources. Many researchers have expanded upon Porter's framework to explain how value chain analysis can be an important managerial tool (e.g., Hergert & Morris, 1989; Shank & Govindarajan, 1992, 1993; SMAC, 1996). Using field research, Shank and Govindarajan (1993) conclude that value chain analysis is useful in understanding how a firm is positioned in its industry. Once the value chain is fully articulated, strategic decisions can be made more easily based on a clear understanding of the firm's competitive advantages as shown by the factors in the chain.

The value chain is a sequence of business activities that add value (utility) to the products or services provided by an organization to its customers.[1] How a firm undertakes these value chain activities can affect its profit in two ways. First, managing these activities effectively may improve the firm's cost structure and profitability (Gadiesh & Gilbert, 1998). Second, the mix of value chain activities could affect customers' satisfaction with the products and/or services provided by the firm (Artto, 1994; Boer, 1996; Shields & Young, 1991; Susman, 1989) and, hence, indirectly increase the firm's revenues and profit. Thus, the first step in managing value chain activities is to understand how a firm allocates its resources to value chain activities. This information is crucial, because a proper mix of activities (i.e., trading off across activities) could affect a firm's total revenues and costs. For example, more emphasis on research and design could increase the cost at an early stage of the product. On the other hand, it may reduce the costs of downstream activities,[2] such as marketing and customer services. Based on the distribution of costs among different activities, managers can then determine the optimal mix of value chain activities and evaluate whether they are allocated properly to support different products and customers (Boer, 1996; Foster, 1996; Foster & Gupta, 1994; Foster, Gupta, & Sjoblom, 1996; Innes & Mitchell, 1995). A cost structure that is well managed through value chain analysis can also enhance customers' satisfaction. Through a detailed articulation of the company's important activities, value chain analysis provides managers with valuable insights into the company's competitive advantages and disadvantages, enabling them to develop strategies to enhance customer satisfaction.

There are reasons why we conduct a comparative study of value chain implementation between the US and Hong Kong companies. According to Whitley (1992), many changes in the United States economy since 1970, coupled with the rise of the economy in many Asian sectors of the world economy, have encouraged a growing interest in conducting comparative studies of business organizations in US and Asia. Since management accounting practices could vary significantly among countries and can be society dependent (Kristensen, 1997),

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[1] Seven value chain activities are used in this study. Six of these value chain activities (research and development, design, production, marketing, distribution, and customer service) are categorized based on the literature of Horngren, Foster, and Datar (1997, p. 3) and SMAC (1996, p. 4). The last activity, namely "overall administration," is added based on Porter's (1985) discussion.

[2] In this study, we define upstream activities as activities from the initiation of R&D to the completion of manufacturing processes. Activities after production are defined as downstream activities.

there is increasing recognition of the importance of carefully investigating management accounting and control systems in different economies/regions. Moreover, the predominant management tools that are being applied in the West may not necessarily fit well into the business models followed by companies in the East. For example, Whitley (1999) argues that management control systems may be closely associated with cultural norms. This is an important factor to be considered, since managers with different cultural backgrounds may have different values and approaches in dealing with trust and authority, and these mores may drive owner–manager relations, commitment, and risk sharing. Since most empirical cost management studies have been focused on US companies (e.g., Magretta, 1998), a comparative study would help both academicians and practitioners to gain in-depth understanding of how value chain practices are implemented in a developed country vs. in a newly industrialized economy.

The remainder of this paper is organized as follows. Background information related to the Hong Kong business system and its national firm characteristics is provided in the next section, followed by a literature review and hypotheses development. Next, we discuss the research design and data collection processes before presenting research findings. The last section summarizes and concludes the study.

2. Hong Kong business system and society

As one of four little Asian dragons and a newly industrialized economy (NIE), Hong Kong has experienced substantial economic prosperity since the late 1970s. During this time span, Hong Kong has successfully built itself as the financial and trading center of Southeast Asia. The major portion of Hong Kong's economic growth is derived from real estate, light manufacturing, tourism, entertainment industries, and international trade. While Hong Kong's economy appears to resemble a Western economy in many aspects, it has some unique business characteristics that distinguish it from those of Western countries in today's global economy.

First, the ownership structure in Hong Kong differs significantly from that of US companies. For instance, most Hong Kong companies are controlled by a few major shareholders who are actively involved in their firm's daily operations (Whitley, 1992). On the other hand, major US companies have a broader investor base and are run by professional managers.

The second business characteristic of Hong Kong enterprises is the hands-on management philosophy. Since the size of Hong Kong companies is generally small[3] and the firms are usually under strong family control (Chaessens, Djankow, & Lang, 2000; La Porta, Lopez-de-Silanes, & Shleifer, 1999; Tam, 1990), it is typical for the management to exercise a hands-on management philosophy. As management centralizes the decision-making, non-family

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[3] According to Sit and Wong (1988), small- and medium-sized enterprises employing under 200 people constituted 98.9% of manufacturing firms in Hong Kong and employed 73.4% of total manufacturing labor force.

managers have limited impact on major decisions, particularly those decisions with financial implications. According to Redding (1990), the owners/managers often maintain a high level of secrecy and tend to distance themselves from employees. On the other hand, US management professionals tend to rely on established goals, policies, and procedures of their firms. Delegation of power is very much a norm, and managers are held accountable for the success, as well as the failure, of the firm's operations.

The third attribute of the Hong Kong business system relates to management's risk attitude. As part of Chinese society, the cultural roots of Hong Kong managers are close to those of traditional Chinese. In general, Hong Kong managers are more risk averse than US managers (Chow, Kato, & Shields, 1994; Chow, Shields, & Chan, 1991; Hofstede, 1980, 1991). Therefore, the concerns, strategies, and solutions to business problems, including whether to adopt a management control system, which are considered by the Hong Kong corporate management, could differ considerably from those of their US counterparts (Whitley, 1999).

Another aspect related to business operations in Hong Kong is its laws and regulations. Regulation of business in Hong Kong tends to be less extensive and less stringent than in Western countries such as the United States (Whitley, 1992, p. 224). For instance, there are no regulations in Hong Kong that allow regulatory agencies to examine companies' cost structures and to determine whether companies engage in monopoly pricing. Furthermore, Hong Kong's government has not yet established formal policies, as have been implemented in more developed nations, to assure a fair competition among companies in the same industry.

In sum, the aforementioned attributes affect all the relationships within the Hong Kong society — among individuals, institutions, and the social/business structure. They also create a distinctive Hong Kong business system and firm characteristics that are unique within the global economy. As a result, different business strategies could be consciously developed by Hong Kong firms to capitalize on their comparative advantages: service-oriented, transportation-friendly, and relatively inexpensive, skilled labor (Whitley, 1992). While attempting to yield a high level of productivity and stay competitive, Hong Kong managers may want to consider new management tools that can help their firms achieve operational goals. Of these tools, we have chosen to examine how value chain analysis is currently implemented in major Hong Kong enterprises.

3. Literature review and hypothesis development

Several recent studies have addressed the importance of value chain analysis in management accounting practices. For instance, Boer (1996) emphasizes the significance of developing models that maximize firm value by incorporating all the costs of product development, production, and marketing that add value to the firm's products or services. Booth (1997) also points out the usefulness of value chain analysis in providing crucial insight into a company's competitive position. In addition, Shank and Govindarajan (1992) stress that the starting point for cost analysis is to define an industry's value chain activities and then to assign costs, revenues, and assets to the various value-adding activities. They

believe that such activities are the building blocks with which firms in an industry can create products that buyers find valuable. Therefore, Shank and Govindarajan conclude that implementing value chain analysis would assist firms in reaching decisions that achieve better product differentiation and create price leadership. Clearly articulating upstream and downstream value chain activities would help the management better understand the strengths and weaknesses of their company's operations.

Recently, Donelan and Kaplan (1998) have also indicated that whether a firm can sustain and strengthen its competitiveness depends on the ability of its managers to differentiate the firm's products/services from those of its competitors. Accordingly, it is desirable for corporate managers to fully apply value chain analysis to assist their companies in differentiating their products and achieving a high level of customer satisfaction. To expand upon these earlier studies, we examine and compare the value chain analysis implementation related to the operating costs distribution in each value chain activity/category, then explore the relationships between value chain costs and degree of cost tracing in the US and Hong Kong companies.

3.1. Cost structure by value chain activities

In general, before establishing a cost structure and allocating resources to value chain activities, managers need to explicitly consider the business environment and the firm's position among local and international competitors (Gadiesh & Gilbert, 1998). Some managers may find it beneficial for the firm to focus on product design, while others may strengthen their competitive edge by emphasizing marketing and customer services (Carr & Tomkins, 1996; Cooper, 1996). As Boer states in his 1996 study, it would be favorable for firms that operate in a rapidly changing environment to shift their attention more toward upstream activities to gain advantages in product differentiation. In addition, Whitley (1992, 1999) indicates that the applications of management accounting systems and controls may vary due to differences in the societies. These differences may derive from the overall business environments. For example, companies in a developed country, such as the United States, possess more advanced technologies and also pay higher levels of compensation than companies in a newly industrialized economy. Concerning the US companies, product differentiation appears to be a valuable strategy to sustain competition and maintain profitability. On the other hand, companies in a newly industrialized country, such as Hong Kong, are well situated in an environment that relies on import and export business, and they usually focus more on product distribution and customer service than on product differentiation (Wallace, 1990). Therefore, it is likely that firms in an advanced economy, such as US, would invest more resources in upstream activities such as research and development and/or product design. On the other hand, companies in a newly industrialized market, such as Hong Kong, could adopt a strategy that focuses more on the downstream activities. Accordingly, we hypothesize a main effect of business environment (i.e., country):

Hypothesis 1a: US companies allocate more operating costs to the upstream value chain activities than Hong Kong companies do.

Hypothesis 1b: Hong Kong companies allocate more operating costs to the downstream value chain activities than US companies do.

In addition to the effects of overall business environments on the choice of value chain analysis implementation, we also predict a potential industry effect. As suggested by Whitley (1992, 1999), the selection of management control systems may depend on differences among industries, not just among societies. For distinct industries, the level of competition, specific comparative advantages, and the nature of operations could differ significantly. Given their limited resources, one would expect corporate management to evaluate carefully its own operation before committing to any new management system. Therefore, compared to companies in the manufacturing industry, service firms may place less emphasis on upstream activities, such as research and development, product design, and production. Since companies in the service industry are, in general, concerned about providing valuable services to customers to maintain their comparative advantages, they may pay more attention to downstream activities, including establishing marketing channel, developing product distribution logistics, and providing high-quality customer services. Thus, we hypothesize an industry effect:

Hypothesis 2a: Firms in the manufacturing industry allocate more operating costs to upstream value chain activities than those in the service industry would allocate.

Hypothesis 2b: Firms in the service industry allocate more operating costs to downstream value chain activities than those in the manufacturing industry would allocate.

3.2. Relationships between value chain costs and degree of cost tracing

Managers could design a cost system that allows them to trace actual costs incurred among the value chain categories. Since establishing such a cost-tracing system can be expensive, it is reasonable to assume that a firm would explicitly consider both costs and benefits before designing such a system. In other words, if a particular value chain cost is high, a firm may find it beneficial to engage in a detailed cost-tracing exercise, and if the cost is low, less detailed cost tracing may be required. Thus, if the cost-tracing system were properly managed, one would expect a positive correlation between the percentage of operating cost in each category and the degree of cost tracing for that category. To test this line of thought, we explore both the direction and the magnitude of the relationship between these two components in the studied firms.

Two statistics are worth examining regarding the degree of cost tracing. A positive correlation between the magnitude of operating costs and the degree of cost tracing in the category indicates a possible causal relationship between these two elements, while a significant correlation coefficient supports the notion that management probably should explicitly consider a cost–benefit relationship when designing a cost system. Since US companies in our study are professionally managed and operate in a much more competitive

business environment, we expect them to focus more on upstream value chain activities.[4] Accordingly, we predict that:

Hypothesis 3a: There is a positive correlation between the magnitude of costs and the degree of cost tracing in **upstream** value chain activities for US companies.

On the other hand, as we discussed in the prior section, most Hong Kong companies are owned by a limited number of shareholders who are also actively involved in the firm's daily operations. These managers tend to be quite sensitive to operational issues, particularly those with financial implications. Due to their hands-on management philosophy, we expect Hong Kong owners/managers to be very interested in establishing a cost system that will allow them to trace all value chain cost categories and assist them in making resource allocation decisions. Therefore, we predict that:

Hypothesis 3b: There is a positive correlation between the magnitude of costs and the degree of cost tracing in value chain activities, **both upstream and downstream**, for Hong Kong companies.

4. Research design and data collection

4.1. Research instrument

The research instrument was adopted and revised from Hwang, Chow, Lin, and Shields (1999). The survey has two sections. The first section contains questions pertaining to the nature of the firm and the annual sales of the responding companies. Additional questions regarding each respondent's current position and years of experience in that position are also included. The second section of the questionnaire makes inquiries about the firm's current value chain cost analysis practices. As stated in the previous section, there are three major points in the study. We first explore whether the business environment (i.e., country) and the industry are important factors in implementing value chain analysis. Then, we examine the respondent firms' cost structures according to value chain activity categories. Finally, we investigate the relationships, both in direction and magnitude, between operating costs and the degrees of cost tracing for each category.

4.2. Data collection processes

Questionnaires were sent to 357 San Diego and 145 Hong Kong companies that had at least US$1 million annual sales for 1996. After identifying the mailing addresses of the firms to be surveyed, the questionnaire was sent to the personal attention of the chief executive

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[4] Since the overall administrative cost is used to support all the activities in the value chain, we do not include this cost in either the upstream or the downstream activities in our analyses.

officer (CEO) of each company, along with a formal letter explaining the purpose and nature of the study. The letter requested the CEO to direct the questionnaire to the person most knowledgeable about the firm's costing system. A postage-paid return envelope addressed directly to one of the authors was enclosed with each questionnaire. A total of 65 (18.21%) San Diego companies and 34 (20.45%) Hong Kong companies returned the questionnaires, giving us a total of 99 companies in the study.[5]

5. Results

In this section, we first present the descriptive information of the responding firms. Then, we conduct multivariate analyses of variance (MANOVA) to test the population means of all value chain activities concurrently. The purpose of conducting MANOVA is to divulge the main effects of the business environment (i.e., country) and industry on the value chain analysis implementation in the United States and Hong Kong. Then, we report the distribution of annual operating cost across value chain activities by country (United States vs. Hong Kong) and by industry (manufacturing vs. service). Furthermore, according to the classification of value chain activities into upstream and downstream activities, we then investigate whether the companies in the United States have allocated more resources to upstream activities than were allocated by their Hong Kong counterparts. Finally, the correlation between percentage of operational costs and the degree of cost tracing in each category are presented.

5.1. Descriptive information

Industries represented by the responding companies include manufacturing, construction and design, communications, financial services, health care, hospitality/travel, accounting and legal services, retail, and software. The average annual sales of US and Hong Kong companies are US$115.6 million (ranging from US$1 million to US$2 billion with a standard deviation of US$273 million) and US$66.4 million (ranging from US$10 million to US$535 million with a standard deviation of US$101 million), respectively. Most of the individuals who completed the survey hold relatively high positions in their companies. Among the US respondents, 29 (44.6%) are chief financial officers, 21 (32.3%) are controllers, and 15 (23.1%) hold other high-level positions. For Hong Kong companies, the respondents include one chief financial officer (2.9%), 13 (38.2%) controllers, and 20 (58.8%) others in high-level positions. On average, respondents from both countries have similar longevity in their companies, with 7.1 years (standard deviation is 7.4 years) for US participants and 6.9 years (standard deviation is 3.6 years) for their Hong Kong counterparts. Thus, we expect that the

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[5] Whenever responses are obtained from only part of the sample, there is the potential for the respondents to be nonrepresentative of the sample as a whole. Survey studies often assess the severity of this problem by comparing the answers in early vs. late responses. We did not conduct such a comparison because all of the responses were received within a 3-week window.

Table 1
Overall MANOVA results

Source	Mean square	F value	P value
Country (C)	0.795	3.285	.004
Industry (I)	0.694	5.599	.001
Country × Industry (C × I)	0.795	3.271	.004

respondents have sufficient knowledge of their firms' current costing practices to provide informative answers.

5.2. Overall results

Since our interest is to understand how US and Hong Kong companies implement value chain analysis, we first explore the resource allocation issue by examining all seven cost categories concurrently using MANOVA with the business environment (i.e., country) and industry[6] as the independent variables. In Table 1, the overall results of MANOVA indicate that both country and industry are important factors affecting how resources were allocated among value chain activity categories ($F = 3.285$, $P < .004$; $F = 5.599$, $P < .001$, respectively). In addition, we found a significant interaction in effect between country and industry variables (see Table 1).[7]

MANOVA results in Table 2 provide detailed information regarding the resource allocation among different value chain activities. As shown in Table 2, concerning the country factor, the results indicate that costs distributed were significantly different in US and Hong Kong companies for research and development, production, marketing, and overall administration cost ($F = 5.359$, 3.991, 4.352, 6.470; $P < .023$, .049, .040, .013, respectively). Regarding the industry effect, the costs distributed to research and development, production, customer service, and overall administration cost were significantly different between the manufacturing and the service companies (respectively, $F = 10.417$, 5.117, 4.354, 11.847; $P < .002$, .026, .040, .001). Both analyses indicate that there are significant differences in the cost allocations among value chain activities of companies in the two economies.

5.3. Cost distribution among value chain activities

In this section, we report descriptive findings on cost distribution among value chain activities by dividing the responded companies, first based on country, and then on industry. The details of the cost distribution among value chain activities for US and Hong Kong companies are listed in Panel A of Table 3. The means (standard deviations) of cost distribution among the value chain activities are as follows for US companies: research

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[6] Due to the small sample size of this study, we divided the responding firms into service and nonservice (e.g., manufacturing) categories to test the industry effect.

[7] In a later section, we will discuss this interaction effect based on additional data analyses.

Table 2
MANOVA results by country and industry

Source	Country			Industry		
Value chain activity	Mean square	F value	P value	Mean square	F value	P value
1 Research and development	1505.11	5.359	.023	2926.04	10.417	.002
2 Design	5.46	0.050	.823	109.56	1.009	.318
3 Production	2248.38	3.991	.049	2883.06	5.117	.026
4 Marketing	317.90	4.352	.040	245.27	3.357	.070
5 Distribution	32.51	0.319	.573	8.17	0.080	.778
6 Customer service	358.31	2.481	.119	628.40	4.354	.040
7 Overall administration	2377.64	6.470	.013	4353.28	11.847	.001

and development, 14.05% (24.32%); design, 6.52% (12.63%); production, 36.67% (26.69%); marketing, 8.58% (7.72%); distribution, 6.17% (12.11%); customer services, 6.93% (13.02%); and overall administration, 21.18% (22.33%). On the other hand, for Hong Kong companies, they were as follows: research and development, 6.25% (5.31%); design, 6.04% (4.76%); production, 33.16% (20.68%); marketing, 11.69% (10.27%); distribution, 5.91% (4.50%); customer services, 9.66% (10.75%); and overall administration, 26.47% (14.97%).

Referring to Panel B of Table 3, we examine the firms' operating-cost distribution across value chain activities by industry (manufacturing vs. service). The results show that

Table 3
Distribution of annual operating costs across value chain activities

Panel A: By country

Country	United States (%)			Hong Kong (%)		
Value chain activity	Range	Mean	S.D.	Range	Mean	S.D.
1 Research and development	0–95	14.05	24.32	0–20	6.25	5.31
2 Design	0–80	6.52	12.63	0–15	6.04	4.76
3 Production	0–84	36.67	26.69	0–84	33.16	20.68
4 Marketing	0–30	8.58	7.72	1–50	11.69	10.27
5 Distribution	0–80	6.17	12.11	0–15	5.91	4.50
6 Customer service	0–85	6.93	13.02	0–60	9.66	10.75
7 Overall administration	1–100	21.18	22.33	6–60	26.47	14.97

Panel B: By industry

Industry	Manufacturing (%)			Service (%)		
Value chain activity	Range	Mean	S.D.	Range	Mean	S.D.
1 Research and development	0–95	18.21	25.21	0–17	3.16	4.47
2 Design	0–80	8.00	13.35	0–20	4.38	5.22
3 Production	0–84	36.94	22.87	0–84	33.70	26.97
4 Marketing	0–50	8.46	8.57	0–30	11.08	8.85
5 Distribution	0–25	5.52	6.11	0–80	6.76	13.51
6 Customer service	0–26	5.61	6.00	0–85	10.58	16.73
7 Overall administration	4–70	18.31	12.85	1–100	28.62	25.49

manufacturing companies in our sample invested more resources in upstream value chain activities. For example, on average, manufacturing companies allocated 18.21% of their annual operating cost in research and development. However, R&D costs service companies only 3.16% of their operating expenditures. Similarly, the manufacturing companies also invested more than the service companies in product design (8.00% vs. 4.38%). Comparing the cost allocations for the downstream activities of companies in the two industries, we found that the service companies focused more on marketing than did the manufacturing firms (11.08% vs. 8.46%). A similar observation can also be made for customer service activities. The results indicate that customer service activities consumed, on average, 10.58% of the service companies' total annual operating cost, while the manufacturing companies spent only 5.61% to provide service to their customers.

5.4. Test of H1

Excluding the overall administration cost category, which provides services to the entire value chain activities, we further group research and development, design, and production activities as the upstream activities, and marketing, distribution, and customer services as the downstream activities. We then analyzed the value chain cost distributions by comparing the US and Hong Kong companies and found some notable differences. Recall that H1a predicts that US companies allocate more resources to upstream activities (i.e., research and development, product design, and production) than their Hong Kong counterparts do. To test H1a, we conduct a t test to compare the means of the two groups' operating costs in the value chain categories. The results indicate that US firms, as a whole, did allocate more resources to the upstream activities than did their counterparts ($t = 2.427$, $P < .017$). Regarding downstream activities, the mean percentage of cost allocated by the Hong Kong companies (27.25%) is greater than that of US companies (21.68%). Although the direction is consistent with our prediction (H1b) that Hong Kong firms usually allocate more resources to downstream activities than US firms, the difference in these two regions is not statistically significant ($t = 1.555$, $P < .124$) (Table 4).

5.5. Test of H2

Recall that in H2a, we predict manufacturing companies will allocate more resources to upstream activities than those companies in the service industry. Using the same grouping method, we conduct a t test to compare the means of the two industries' upstream operating

Table 4
Comparison of upstream vs. downstream operating costs by country

Country	United States (%)		Hong Kong (%)			
Value chain activity	Mean	S.D.	Mean	S.D.	t Statistics	P value
1 Upstream activities	57.23	28.05	45.46	19.72	2.427	.017
2 Downstream activities	21.68	20.60	27.25	14.60	1.555	.124

Table 5
Comparison of upstream vs. downstream operating costs by industry

Country	Manufacturing (%)		Service (%)			
Value chain activity	Mean	S.D.	Mean	S.D.	t Statistics	P value
1 Upstream activities	64.15	19.74	41.23	27.73	4.445	.001
2 Downstream activities	19.58	14.12	28.41	22.56	2.279	.026

costs in the value chain. The results show that the manufacturing firms in our sample allocated more resources to the upstream activities than those companies in the service industry ($t = 4.445$, $P < .001$). Regarding downstream activities, the means (standard deviations) of cost percentage allocated by service-oriented companies and by manufacturing firms are 28.41% (22.56%) and 19.58% (14.12%), respectively. The difference between the two groups' downstream costs is statistically significant ($t = 2.279$, $P < .026$) (Table 5).

5.6. Test of H3

Recall that H3a predicts a positive correlation between the magnitude of costs and degree of cost tracing in upstream value chain activities for US companies. To explore the existence of the relationship, we compute Spearman's correlations between the percentage of operating cost in each value chain category and the degree cost. The results are presented in Panel A of Table 6. They show significant correlations of two elements, R&D and design activities, at a 1% level (respectively, $r = .740$, .533; $P < .001$, .001).[8] These results are consistent with our prediction that there is a significant correspondence between the magnitude of operating costs and degree of cost tracing in upstream value chain activities for US companies.

Using the same analysis, the level of correspondence between costs and cost tracing in each value chain category of the Hong Kong companies is also studied. Panel B of Table 6 illustrates all statistical results and shows significant correlations between magnitude of costs and degrees of cost tracing for R&D, product design, and production (respectively, $r = .576$, .537, .571; $P < .001$, .002, .001) in upstream activities. Furthermore, the results also show positive correlation coefficients (P value) in the following value chain categories for the downstream activities: marketing, .331 ($P < .064$); distribution, .424 ($P < .015$); and customer service, .304 ($P < .091$). The results are consistent with our prediction in H2b. That is, there is a positive correlation between the percentage of cost allocated to value chain activities and cost tracing, both upstream and downstream, for Hong Kong companies.

5.7. Additional analysis on the interaction effect

Given the findings of the significant interaction effect between country and industry (see Table 1), we conduct additional analyses to examine this effect. Table 7 reports the results of cost comparison by country and industry. Before carrying out statistical analyses,

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[8] Pearson correlation analyses provide results similar to those of Spearman correlation tests.

Table 6
The correlation (*P* value) between percentage of operating cost and degree of cost tracing by value chain categories (non-parametric Spearman's correlation)

Panel A: US sample (65 firms)

Value chain activity	Research and development	Design	Production	Marketing	Distribution	Customer service	Overall administration
1 Research and development	.740 (.001)						
2 Design		.533 (.001)					
3 Production			.122 (.359)				
4 Marketing				.077 (.569)			
5 Distribution					.335 (.023)		
6 Customer service						.254 (.064)	
7 Overall administration							− .111 (.381)

Panel B: Hong Kong sample (34 firms)

Value chain activity	Research and development	Design	Production	Marketing	Distribution	Customer service	Overall administration
1 Research and development	.576 (.001)						
2 Design		.537 (.002)					
3 Production			.571 (.001)				
4 Marketing				.331 (.064)			
5 Distribution					.424 (.015)		
6 Customer service						.304 (.091)	
7 Overall administration							.352 (.048)

we calculate the relative proportions of operating cost spent on upstream and downstream activities by excluding overall administration cost from the denominator.[9] Then, we conduct separate *t* tests to examine the difference in cost allocation between manufacturing and service companies. As reported in Table 7, the results indicate that US manufacturing firms

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[9] Relative proportion of annual operating cost spent on upstream activities = (sum of relative cost spent on upstream value chain activities) divided by (total annual operating cost spent minus overall administration cost).

Table 7
Comparison of operating costs by country and industry for upstream activities

Country	United States (%)		Hong Kong (%)			
Industry	Mean	S.D.	Mean	S.D.	t Statistics	P value
Manufacturing	84.17	14.95	65.98	15.99	4.310	.001
Service	59.45	29.33	47.72	32.96	0.927	.377

indeed spent more of their resources for upstream activities than did their Hong Kong counterparts ($t=4.310$, $P<.001$). However, we do not observe a significant difference between service companies in the two regions ($t=0.927$, $P<.377$). An examination of expenditures for downstream activities by manufacturing and service companies yields, as expected, identical statistical results to what we found for upstream activities, so they are not repeated in Table 7. In addition, ANOVA results using the relative expenditure in upstream activities as the dependent variable also reveal significant main effects of country and industry ($F=7.442$, $P<.008$; $F=15.32$, $P<.0001$, respectively). Thus, the results for the main effects confirm the analyses performed above. However, the interaction effect is not significant ($F=0.346$, $P<.558$).

Three points regarding these research findings are worth noting. First, a wide range of cost distribution (with a rather large standard deviation) within each value chain activity suggests that the sampled firms face different circumstances and/or have elected to emphasize different segments of their value chains. This observation is consistent with the notion that different firms in different countries and industries may decide to focus on different aspects of their operations. Second, it appears that US manufacturing firms in our sample tend to allocate more resources to upstream value chain activities, while the Hong Kong companies may have chosen to focus on downstream activities. Finally, corporate managers in both the United States and Hong Kong seem to understand the distribution of their operating costs to the various value chain activities and have paid considerable attention to tracing them.

6. Summary and conclusion

Whether a firm has competitive advantages depends on how it generates revenues and controls costs (i.e., improves its profitability) while enhancing its customers' satisfaction. During the past two decades, many cost-management techniques have been introduced to domestic and foreign corporate managers. Industries are beginning to acknowledge the benefits of value chain cost analysis in strengthening a company's competitive position. To manage value chain activities effectively, corporate managers must be thoroughly familiar with the firm's cost structure and need to analyze the relationship of its value chain costs to the degree of cost tracing.

Survey findings from 65 US and 34 Hong Kong firms indicate that the degree of value chain implementation may be contingent upon the country and industry of the studied company. Overall, companies operating in an advanced economy, such as the United States,

may invest more resources in upstream activities than are invested by companies in a newly industrialized economy, such as Hong Kong. However, this significant difference in cost allocation between the United States and Hong Kong is found in upstream, not downstream, activities. Further analyses suggest that this difference exists only in the manufacturing industry. Regarding the service industry, US and Hong Kong companies allocate similar percentages of costs to operate their value chain activities.

The observation of a significant industry effect is just as we expected. Manufacturing firms in both the United States and Hong Kong allocate more funds to their upstream activities than service firms do. Similarly, service firms allocate more funds to downstream activities than their counterparts do. Furthermore, empirical evidence indicates that there is a relationship between percentages of operating costs for each activity and the degree of cost tracing for that activity within firms' existing cost structures, particularly for upstream activities, among companies in both economies.

As with other empirical studies, our study leaves several questions unanswered. First, the nature of the business environment in which the firm operates is likely to determine how it can compete. For example, companies that produce products with relatively short lives (e.g., telecommunication equipment) may be more willing to allocate a large portion of their resources to research and development than are those firms that primarily supply a commodity for other companies. Therefore, it would be meaningful to examine this issue and to investigate whether the industry and/or product type contributes to the adoption of value chain analysis implementation.

Second, it is important to determine whether implementing value chain activity analysis would enhance corporate profits short term and/or long term. As we discussed in the prior sections, the value chain analysis could be used as a strategic tool in cost management. The benefits of its implementation to the corporate bottom line, however, may not be immediately available. Therefore, it would be beneficial to conduct future studies of firms in different regions to examine the relationship between the level of value chain analysis implementation and its impacts on companies' short-term and long-term profitability.

Third, the smaller firm size and a higher level involvement in daily operations by owners/managers of Hong Kong companies, compared to US companies, may affect the adoption of new management-control systems. According to our empirical results, Hong Kong managers appear to be actively pursuing new tools to assist them in strengthening their competitive position. Although this finding is consistent with the competitive nature of the Hong Kong business environment, readers need to be cautious in interpreting this finding. Since this is one of the earliest studies to relate the business environment to the adoption of management-control systems, more research needs to be conducted before conclusions are drawn.

Fourth, the levels at which companies in the United States and Hong Kong adopt value chain analysis may be driven by some unidentified factors. While there is no obvious link between the adoption of value chain analysis and firm culture factors, studies to determine whether such a link exists could yield additional insights into why managers adopt/do not adopt value chain analysis as part of their management practices.

Fifth, the survey questionnaire first asks the respondents to indicate the proportion of expenditures applied to each value chain component, followed by the degree of cost tracing

for these components. Due to the nature of the research inquiries, a potential demand effect may exist. While there was no direct indication of such an effect or of how a demand effect may affect our research findings, readers need to be aware of this potential limitation and to interpret the research findings carefully.

Finally, the level of correlation between the percentage of operating cost and the level of tracing in the value chain activity category should be carefully interpreted. For instance, the degree of cost tracing may result in different levels of controllable expenditures or in different numbers of products/clients manufactured/serviced among companies. Since we did not ask the respondents to specify the controllability of cost in each value chain category or what management systems (e.g., JIT or ABC) their firm has adopted, it is somewhat unclear whether these factors may have affected the company's rationality in allocating their resources in tracing operating costs.

In sum, the research findings of this study sheds light on how US and Hong Kong firms that responded to our questionnaire are currently implementing value chain analyses in their cost-management systems. Based on the results of this study, two observations, in particular, deserve more attention. As companies analyze their value chain costs, it is important to examine the entire value chain activities rather than to focus on a particular component. This analysis approach would help management better allocate limited resources. The other observation is that it may be necessary for firms to make a concerted effort to discover how to take full advantage of value chain analysis to gain competitive advantages. As stated by Kaplan (1995), the rapidly changing environment creates ample opportunities for management accountants to make contributions to their companies. Since corporate managers are required to deliver quality products and services that meet customers' expectations, an effective design and implementation of value chain analysis would assist management in deciding product mixes, choosing production alternatives, determining prices, selecting distribution channels, and providing services to enhance customer satisfaction. By playing active and leading roles, management accountants can participate in the formulation and implementation of firms' cost management strategies.

Acknowledgments

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Capsule commentaries

Miller European Accounting Guide *edited by David Alexander and Simon Archer, Aspen Law & Business, Gaithersburg, NY, fourth edition 2001, xvii +1,712 pp.; US$159.00*

This valuable reference work, the third edition of which was reviewed in Vol. 35, No. 2 (2000) of this journal, has been revised at a time of fast-moving developments on the international accounting scene. The same 27 countries are covered: the 15 member states of the EU, plus Iceland, Norway, Switzerland, Turkey, the three Baltic states, the Czech Republic, Hungary, Poland, Belarus, and the Russian Federation.

Several new authors appear in this edition, notably the new authors of the chapters and appendix on the UK and Ireland. The chapters on these two countries are now placed next to each other, out of alphabetical order, and are followed by a lengthy appendix that reviews the similar stock exchange regulations and accounting pronouncements in the two countries. All told, some 14% of the volume is taken up by the treatment of the many regulations and standards in the UK and Ireland.

The allocation of space to cover some of the countries is unexpected. France requires only 31 pages of text, which is less than the number of pages devoted to Hungary (51) and the Netherlands (73).

Most of the chapters are usefully illustrated with a reprinted company annual report, rendered both in the country's language and in English.

In their introductory chapter, the authors provide some insightful perspective. One remark is worth quoting: "The impression created by [the SEC's predominant role in IOSCO's 'endorsement' of the IASC's core standards] and the SEC's *Concept Release* is that, in effect, the SEC has taken the IASC firmly under its wing…" (p. 13).

This volume continues to justify its cost.

Significant differences in GAAP in Canada, Chile, Mexico, and the United States:
An analysis of accounting pronouncements as of January 2001 *Canadian Institute of Chartered Accountants, Toronto, 2000, v+ 150 pp.*

This is the third edition of a useful guide to the differences in GAAP among the NAFTA countries and Chile, which is in line to join NAFTA. It has been published on behalf of the AFTA Committee for Cooperation on Financial Reporting Matters.

It begins by highlighting the major areas of difference and then traces the recent progress in eliminating differences. A major section is devoted to a comprehensive survey of the major differences in GAAP among the four countries, which is complemented by sections that focus on the differences that affect the income statement and the balance sheet.

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Book Review Section

The book review section is interested in works published in any language, as long as they are comparative or international in character. The author or publisher of such works should furnish the book review editor with two (2) copies of the work, including information about its price and the address where readers may write for copies. Reviews will be assigned by the book review editor. No unsolicited reviews will be accepted. Suggestions of works that might be reviewed are welcomed.

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Book reviews

The ValueReporting Revolution: Moving Beyond the Earnings Game
by Robert G. Eccles, Robert H. Herz, E. Mary Keegan and David M.H. Phillips, Wiley,
New York, 2001, xvii +349 pp.

The ValueReporting^{TM} Revolution is the product of a team effort. Heading the team are the authors who, as the Foreword explains, are "three accountants and a former professor," Robert Eccles, who "is not a trained accountant but a bit of a closet one." All are associated in one way or another with PricewaterhouseCoopers, owner of the ValueReporting trademark and the copyright to the book. The authors are generous in their praise of the many supporting team members — the "action guys," other "extremely talented people" (of both sexes) with "many ideas," all mentioned in the Foreword and credited with helping make the book what it is.

The Structure. The book has six parts, comprising a prologue, 16 chapters and an epilogue. The titles are worth spelling out because they encapsulate the contents and the message. Part 1, titled Preparing for the Revolution, consists of the prologue, "A Manifesto for the Second Revolution" and Chapter 1, "Common Sense." (We are told on page 5 that the First Revolution was in performance measurement.) Part 2, A Survey of the Battlefield, contains Chapters 2–6: "Where Has All the Value Gone?", "Analyze This," "The Earnings Game," "The False Prophet of Earnings" and "Inside the Exciting World of Accounting Standards." Part 3, Battles that Must Be Won, contains Chapters 7–9: "Out, Out Damned Gap!", "Risky Business" and "There Is No Alternative: The Story of Shell." Part 4, How Sweet It Is, comprises Chapters 10 and 11, "To the Victor Go the Spoils" and "Can You See Clearly Now?" Part 5, Part of the Solution or Part of the Problem?, comprises chapters titled, "Get on Board", "Standard Setters" and "Should You See an Analyst?" Part 6, Nothing Can Stop Us Now, rounds out the book. It contains the 15th and final chapter, "Send Lawyers, Guns, and Money" plus the Epilogue, fittingly titled "A Call to Arms."

The message. Corporate financial reporting is broken. "The corporate reporting model has failed" (opening phrase, p. 3.) It has not kept pace "with extraordinary changes in how executives manage their companies — in strategy, organization, technology, and human resources" (p. 3). The market is obsessed (p. 69) with accounting earnings to the point where "managers, analysts and shareholders ... are trapped in a short-term earnings game" (p. 4). Managers' efforts are misdirected toward the earnings game when they should be creating value. The obsession with earnings is dysfunctional because financial information, particularly the bottom line, is increasingly irrelevant in today's economy. The accounting

model, which produces most of the financial information, copes poorly with intangibles — US balance sheets, for example, omit intangible assets created by "R&D, information technology, marketing, branding, and customer loyalty programs" (p. 55) — yet their importance is growing. Neither does the reporting model cope at all well with risk, focusing, if at all, on the downside when there is an upside to risk as well. Managers "manage" their firms' earnings to report as favorably as they can. Sell-side analysts do not say clearly what they believe, although for now they might whisper it for the benefit of the favored few within earshot. And analysts and managers interact in a way that distorts whatever value an earnings signal may have contained in the first place. Pity the poor investors. They get garbled signals, at best. In any event, they do not get the information about value drivers and risk, which they need and want (see especially Chapters 7 and 8). The stock market suffers from short term-ism and excessive volatility. Companies do not drive their assets as hard as they might, and they pay too much for their capital. Ultimately, the cost is borne by the community.

What's to be done? Revamp performance reporting. Managers must embrace a "new philosophy of performance measurement based on integrating leading indicator nonfinancial measures with financial ones" (p. 5). They should focus on the really key (equals "few," p. 18) drivers of value, those for which a cause–effect relationship can be demonstrated and which can be measured meaningfully. Managers should use the drivers to create value and to collect data on their experience. The data should be analyzed to "prove [to the managers] that they have identified all of their key performance measures ... and most important, that they've actually created real value" (p. 6). Shareholders are major stakeholders but there are others, too. Reports should address social and environmental responsibilities, as well as the economic ones. In a nutshell, insofar as it is feasibly possible, all of the key drivers and performance measures that are used internally to manage a company should be reported publicly, comprehensively, transparently and truthfully in real time, so that the market can properly price listed stocks. Managers should interact continuously with the market and other stakeholders to ensure they have got their reporting right and that the public does not suffer from a distorted view of the company's activities and affairs. It is not a quick fix. But substantial benefits can be won, especially by those who move first.

What are those benefits? Chapter 10 lists five: "increased management credibility, more long-term investors, greater analyst following, improved access to new capital, and higher share values." Walter Kielholz of Swiss Re adds a sixth: "if more members of his senior management team committed to targets and reported on results to the market, Swiss Re would produce a higher shareholder value" (p. 200), which we would expect if companies were to achieve higher returns from better management (through improved strategic focus and control, and improved operational control; p. 13), and if better information and greater credibility lead to lower investment risk. Surveys of US executives, sell-side analysts and institutional investors, and across 14 countries, revealed a great deal of consensus about the relative importance of the benefits of greater disclosure (see Chapter 7).

So what are we waiting for? Why does it not all happen now? Much of the responsibility for any inertia is said to lie with company executives, and sell-side analysts and their employers, the investment banks. Company executives "instinctively oppose reporting on new dimensions of performance. They feel the costs outweigh the benefits" (p. 103). They

"don't want to start a new game until all the players agree" (p. 104). Chapter 10 deals with 10 common reasons (excuses?) that executives give for not disclosing more: "the market cares only about earnings" (but the evidence indicates the market wants far more than it gets); "we already report a lot of information" (but is it the right information?); "once we start reporting something, we can't stop" (yes, you can, but you will need to explain why); information is costly (but you need the information to manage your business anyway; how much more does it cost to tell others?); "the market always wants more" ("simply not true"); "bad numbers will hurt our stock price" (yes, but better numbers will have a positive effect); some measures are unreliable (look for others that are); our competitors will learn too much (maybe they know already; and if they do not, they cannot adapt their own strategies overnight just to benefit from your own disclosures); our customers and suppliers will hold us to ransom (but if they benefit from the relationship, they will stay); and "we'll get sued" (yes, that is a risk, and the regulators need to look at it.) Sell-side analysts have no incentive to change because they are locked into the earnings game. Institutional investors help preserve the status quo because, while they "want more information ... they want it all to themselves" (p. 104). Information of the kind advocated in this book is irrelevant to day traders because of their short-term horizon, and to momentum investors because they trade on the past rather than on the future. The big picture looks to me like a systemic problem, and we need a circuit breaker. Enter the executives.

The "success of the ValueReporting Revolution depends on ... executives taking the initiative" (p. 110). And where better to start than the top? "[T]op executives must take the primary responsibility. They must insist that senior business unit managers clearly articulate their business models and define the measures that will be used to evaluate performance ... Corporate executives should assess business unit performance against them. The board of directors ... should ensure that investors get the information on these measures ... the board must make sure it has the information it needs" (p. 239).

Chapter 11 sketches out this latter part of the process in the form of a simplified model of how firms can develop the content of their disclosures. It will require leadership, but first movers will gain a competitive edge. How reporting standards for an industry could evolve from a market-driven process is summarized on page 257. A company-led, industry-based consortium of companies, consultants and other interested parties is the key. "Real regulators" would ensure that all companies eventually adopt the standards. Professional accounting firms can help develop (and later, audit) the key nonfinancial performance measures, but if they do not adjust to the new order, their future is so bleak it could take the government to bail them out (p. 272)! Security analysts will need to be transparent about relationships with the companies they analyze. Company-generated information that is more value-relevant and equally accessible to all stakeholders will make the analysts' role as information intermediary less necessary and allow them to concentrate on more accurately pricing the stock.

Impressions. The style is unashamedly and appropriately populist. It is an easy read, with few blemishes. I did find that the self-congratulatory tone of the introduction wore a bit thin, as did the hyperbole and word play in places. But that is personal. There is a handy selection of references to the accounting research literature on the declining value relevance of

earnings, nonfinancial indicators of value, bias in sell-side analysts' forecasts and recommendations, and the balanced scorecard approach to management and reporting. Do not look for references that question the book's foundation, namely, the alleged declining relevance of financial reporting: Why mute the sound of the clarion? It is not particularly deep on analysis. For instance, while it acknowledges that proprietary costs limit voluntary disclosure, essentially they are dismissed. Some questions go begging. If feedback from users is important to the disclosure process, does it matter if they do not agree on whether a particular item of information is best generated by the company or by the users themselves? What about the rogues, rascals, storytellers and plain liars who exploit the information disadvantage of the "great unwashed," who then turn to the politicians and regulators to "do something"? And it states (p. 78): "For the spirit to change, The Earnings Game will have to become The Value Game" — but that is the last sentence of the section, and the reader is left wondering just how the two games will differ.

What, then, is the book's contribution? Apart from the matters already discussed, it certainly raises the awareness of serious external reporting issues. An example is Chapter 7's informative analysis of communication gaps between the views of companies, analysts and investors about which performance measures are "particularly important in making sound investment decisions." There are some excellent illustrations of good corporate practice, such as Metapraxis' business driver analysis, Swiss Re's search for more effective performance measures (such as "embedded value"), Cisco System's analysis of the upside as well as the downside dimensions of risk, the development of the Sears Phoenix Team's business model and what to me was a very interesting chapter on Royal Dutch Shell's efforts to practice "sustainability" and to report transparently on outcomes ("to create long-term economic value ... sustainability says that companies must also create social and environmental value" (p. 163). Finally, it speculates on future developments and delivery systems, such as the Internet and XBRL.

The market? Anyone concerned with corporate reporting to financial (primarily equity) markets — public company directors, CEOs, CFOs, CIOs, executives, investment bankers, portfolio managers, financial analysts, investors, professional accounting firms, information intermediaries and regulators — will find this book to be provocative. As J. Frank Brown claims in his preface, "if it succeeds in stirring further thought and action, it will have served a good purpose."

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Corporate Financial Accounting and Reporting

by Tim Sutton, Financial Times/Prentice Hall, Harlow, Essex, England, 2000, xiii+754 pp.

The harmonization of accounting standards is one of the most significant accounting issues that researchers and practitioners will discuss in this millennium. The globalization of business affects our comprehension of what should be considered as relevant accounting knowledge today. As part of the globalization movement, increasing focus is placed today on the international aspects of accounting. As physical and economic boundaries between countries disappear, enterprises will need more people possessing a broader view on accounting practices. Consequently, in deciding on the content of a program in international accounting for future managers and accountants, one of the main questions for professors and instructors is how the diversity related to international accounting issues should be taught. Evidently, the relevant questions are usually like these: What topics should be included, and what kind of course textbook is needed? There are probably many right answers to these questions, and there are many ways of organizing international accounting courses. Tim Sutton provides his version of a textbook for an international accounting course in his *Corporate Financial Accounting and Reporting*. In his choice of topics, he gives advice on what should be the focus for an introductory accounting course.

The textbook is usually an important element in an accounting course. It should therefore be carefully selected based on judgments of both the book's objectives and its content. The objectives of Sutton's book are clearly stated and well communicated to the readers. The book is presented as an introductory financial accounting textbook that aims at universal applications in business administration courses at a variety of levels offered by European universities and business schools. Postgraduate and undergraduate students studying inter- national business and finance are listed among potential readers. The book is, however, not explicitly oriented to future professional accountants but rather to future managers. Thus, by taking the user approach, the author intends to provide students with an understanding of companies' published financial statements. The book also aims to give a comprehensive coverage by including a wider international approach to accounting issues.

The book consists of 20 chapters grouped into three main parts. Part 1 covers the "foundations of accounting." In this part, the author makes extensive use of a pedagogical "trick" that may contribute to a better understanding of accounting by students, i.e., examining typical "accounting fallacies" associated with both particular accounting concepts and accounting in general. Students for whom accounting is a relatively new subject can thus learn how to grasp important accounting concepts as well as comprehend the content of financial statements and annual reports. Numerous examples and exercises help the student gradually build up an understanding of the double-entry technique, as two of the six chapters in this part are devoted to the topic of handling accounting entries and accrual adjustments. Students who have previously taken accounting courses may use Part 1 not only as a reinforcement but also as a means of learning more about the peculiarities of financial statements in some European countries.

Part 2 is the longest and examines "the house of accounting." This part is oriented to advanced students, and in 11 chapters the main components of financial statements are

discussed and analyzed quite deeply. The focus is on assets, liabilities, and equity; revenues and expenses; and taxes and employment costs. In this part, the author adopts another pedagogical approach to present and discuss accounting issues. In each chapter, readers are introduced to the most common accounting practices that they, as future managers, may encounter in companies drawn from different European and non-European countries. This is often illustrated by references to a European country's specific accounting practices. Because many internationally oriented companies are required to follow European Union Directives or international accounting standards (IAS), several of the chapters in the second part refer to accounting solutions grounded in the relevant European Directives or IAS. Significant differences between US GAAP and IAS are also pointed out. Different accounting practices related to accounting disclosures and financial statement analyses are also illustrated by including figures from actual companies.

The final part is entitled "Perspectives." This part consists of three chapters that focus on cash flow statements and on ways of analyzing financial statements. Readers are provided with examples and illustrations to learn more about the relationship between profitability, earnings, and cash flow. The last two chapters of the book synthesize knowledge about financial statements gained during the course. The focus is on the context of the statements as represented by the interaction between the company and its competitive environment. The author's presentation and explanation of financial statement analysis is richly illustrated by the inclusion of real-world data from the financial statements of the Carlsberg Group, a major European beer producer based in Denmark. Practical problems that investors certainly will face when analyzing financial statements are extensively treated.

In my judgment, the language used in this book is easy to understand for readers who do not have English as their native language. The presentations are clearly developed. Together with the glossary of accounting terms and concepts, the book will certainly help a non-Anglophone audience understand both the fundamentals of accounting and, in addition, some of the more complicated issues in accounting. Readers will also benefit from the mostly up-to-date references to accounting standards and some of the recent, relevant accounting literature. The author has also opted to treat some interesting specialized topics in several of the chapters, e.g., accounting for foreign operations (pp. 467–477). Many examples and the end-of-the-chapter problems also provide opportunities for students' self-study.

Any textbook writer is confronted with the dilemma of achieving comprehensive coverage of the subject matter, while at the same time keeping the volume to a reasonable length. The modular design of Sutton's book might be a solution to some aspects of this dilemma, but there can be a limit. By dividing several of the chapters into both "core issues" and "specialized topics," he has enabled the teacher and class to select the desired course content. Based on the balance between the depth of issues presented and the range of topics covered, the book seems to be most suited for introductory or even specialized courses in international accounting at the graduate level. In particular, international MBA students at the graduate level may benefit considerably from the way in which the accounting topics are presented in this book. I fear, however, that undergraduate students would be intimidated by the girth of the book. And even if they were required to read only half of book, they would certainly, and quite fairly, question why they have to buy the entire book.

Even though the book is heavily driven by the needs of financial statement users in its focus on interpreting and understanding companies' financial statements, its methodological premises are quite mainstream. The book gives fruitful insights into the problems of accounting harmonization, but it builds on a regulatory accounting model and has a positivist orientation. It lacks a broader perspective on international accounting issues highlighted from alternative accounting schools of thought, such as the interpretative paradigm of accounting (e.g., accounting as a social construction) or even the critical perspective on accounting. It is, therefore, in my opinion, not especially suitable for postgraduate accounting courses. Such perspectives could have been introduced in Part 3, "Perspectives." Even for a textbook for the graduate level, I think it would have been advantageous to include discussion of the political dilemmas in setting accounting standards, and of the tensions and conflicts between the several interest groups. I would have much appreciated a discussion of how standards are developed and of the factors that influence this development.

In sum, the book is well worth reading, and undoubtedly, the author has extensive experience working on the subjects presented. The book lives up to its stated objectives, perhaps with the exception of its suitability to undergraduates. This book will undoubtedly make its readers sensitive to the diversity in financial reporting practices, and that there are no universal solutions to accounting problems but rather some accepted ways of dealing with them. This book ably provides its main intended audience, the future managers, with the opportunity to learn in depth about both the evident and hidden problems of accounting harmonization. One hopes that such knowledge will make them more aware of accounting "problems" when engaging in international business.

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Contemporary Issues in Accounting Regulation
Edited by Stuart McLeay and Angelo Riccaboni, Kluwer, Norwell, MA, 2001, xii+211 pp.

Contemporary Issues in Accounting Regulation is a further contribution to the literature on accounting regulation from the productive group of researchers connected to the University of Siena and Stuart McLeay. There are 11 papers, 3 of them having already been published elsewhere when the book went to press. The authors come from seven European countries.

The first paper, by Colasse and Standish, concerns the struggle between the state and the market to control French accounting. The authors see accounting as part of the property arrangements in a society; they identify the "Versailles syndrome" of extensive consultation, and they comment on the particularities of the French approach to standardization. There are extensive details of government bodies founded from 1941 to 1997; and post-war standardization is examined after dividing it into four periods. As usual for these authors, there are many details and a clear theme, and the whole makes a good read.

The second paper focuses on accounting regulation in Greece. It is not made clear why the four pages of noncommercial history are relevant, but the following pages on state and private capital provide helpful background. There is a Delphic reference (p. 51) to the translation into Greek of Australian accounting rules, and some other statements are also hard to fathom. For example, there are two references (pp. 49 and 52) to the adoption of the accounting plan in 1980 being related to Greek entry to the EC, although there is of course no EC requirement on plans. Indeed, the authors later suggest (p. 54) that the first Greek attempt at the plan was in 1954, well before the Common Market existed. Again, the main British influence on Greece is said in Table 2.1 to relate to audit, but in the section on audit (p. 55) there *is* mention of the US but not of Britain.

The third paper is on the process of accounting regulation in Italy. It will be useful to some because it is a detailed (and apparently authoritative) description of the several sources of Italian rules related to accounting.

The next paper looks at the regulatory context of standard setting. It contains facts on the UK and US, although the greatest detail concerns the old UK Accounting Standards Committee (ASC). I have not seen elsewhere such a detailed analysis of certain aspects of the ASC, e.g., the members appointed to it.

The fifth paper has a clearer focus than the fourth: submissions to exposure drafts of the Accounting Standards Board. It is found that they are dominated by submissions from preparers working for large companies. Incidentally, the text of Chapter 5 refers erroneously to Table 6.1 etc., whereas the text of Chapter 4 refers to Table 5.1 etc., and the text of Chapter 6 to Table 4.1 etc.

The next paper is even more defined in scope: the development over 15 years of the UK's standard on related party transactions. This study is well grounded in theory and rests on much careful and detailed work. One reason for the long delay on this topic was that there was always something more exciting for the standard setters to do. The authors do not dispel this notion.

The seventh paper compares three harmonization régimes based on the amount of information about a firm that is successfully transmitted. The régimes are strong harmonization (same mandated rules for a company reporting in two countries), weak harmonization (same rules used for both countries but company chooses which), and mutual recognition (company chooses one or more sets of rules for the two countries). I am not convinced by the author's conclusion against strong harmonization. This could be because I do not believe that the purpose of accounting information is to signal the "true value of the firm" (p. 131), and it could be because the author leaves out the need to compare the company with others. I agree that it is sensible to take account of "the way in which information is to be processed by

potential users" (p. 132). This may mean that it is useful to mandate one GAAP for users in one country and to mandate another GAAP for users in a different country, but this was not one of the author's three régimes.

Next Schredelseker gives an interesting and well-written analysis of the relationships between public information and the quality of investment decisions by using a simulation approach.

Blake and Amat then provide data on the views of Spanish auditors on creative accounting. This is compared to a prior UK paper, and similarities are found. They precede this with a helpful summary on creative accounting. However, I am not sure that we should still believe the conventional comparison (pp. 156–59) of flexible/judgmental Anglo-American accounting with detailed continental Europe prescription. Surely, UK standards are now much more detailed than Spanish rules on many financial reporting issues.

The tenth paper takes a look at deregulation for small- and medium-sized companies in the UK. This includes a survey of the users and usefulness of annual reports. It confirms earlier results that showed use by bankers and tax authorities, but notes that customers are also users. Particularly for the smallest companies, management is a user.

Lastly, there is a paper on the international difference in depreciation methods used in the electricity industry. It is odd that the authors (from a Scottish university) make no reference to the papers by McInnes on accounting policy choice in the gas industry that were published in *Accounting and Business Research* in 1990. What is odder still is that the authors do not consider tax regulations and motivations as a factor influencing international differences in depreciation policies. The authors find that "depreciable life. . .does not appear to be linked to any of the variables being considered" (p. 195). This is not surprising if one leaves out the obvious explanation.

All in all, this book is interesting and enjoyable.

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Reporting on solvency and cash condition
By Janice A. Loftus and Malcolm C. Miller, Australian Accounting Research Foundation, Caulfield, Victoria, 2000, Australia, xii+327 pp.

This monograph is the 11th in a series published by the Australian Accounting Research Foundation that deals with conceptual matters that are considered to be relevant to the development of Statements of Accounting Concepts and Accounting Standards.

The objective of the monograph is stated as being "to identify the information relevant to the users of financial reports for the evaluation of solvency and cash condition" (p. 1), and it sets about this in a logical manner. Chapter 1 deals mostly with the justification for the study and explains the Australian Conceptual Framework in order to provide a context for it.

Chapter 2 deals with key concepts focusing on solvency and liquidity. It is particularly valuable in introducing and discussing the concepts of financial flexibility, financial vulnerability, and cash condition — the last relating to an enterprise's ability to meet its long-term cash needs, including those required to implement its operating and strategic plans. The authors endeavor to distinguish between liquidity and solvency before investigating the time dimension of solvency. The end result of these efforts is inconclusive and is not entirely satisfactory; this chapter ends somewhat incompletely — a clear summary would have been helpful.

Chapter 3 discusses the information needed to evaluate solvency and cash condition. This chapter contains a useful diagram in an attempt to assist readers in gaining a perspective regarding where the book is headed (p. 41). This chapter, more than the others, suffers from extensive verbatim quotes — some lengthy — which are liable to distract the reader. It is possible that an understandable desire on the part of the authors to ensure a comprehensive overview may cause irritation on the part of some readers who might wish to get to the key issues earlier. For example, on page 47, they deal with something as basic as the relationship between accrual and cash flow information. As there is so much at the heart of this monograph that is of value, it is a pity that "preliminary" matters were not dealt with more crisply.

Chapter 4, which deals with the reporting of cash flows, gives a much firmer sense of finally coming to grips with the issues. The section on the choice between the direct and indirect method of displaying operating cash flows is of particular interest and lends support to the IAS 7's preference for the direct method. This chapter also treats specific issues relating to the reporting of components of cash flows, notably segmental cash flows, and cash flows of an irregular nature. The question of distinguishing between cash flows on capital expenditure to maintain operating activities, and for expansion, is also examined. With respect to segmental cash flows, it is a little surprising that no reference was made to IAS 14 and the failure of that statement to require the disclosure of cash flow information on a segmental basis, despite the IASC's acknowledgment in IAS 7 of the relevance of such information, in relation to both industry and geographical segments (IAS 14:62) (A discussion of IAS 14 in Chapter 6 simply sets forth the disclosure requirements in the context of reporting on risk.) This, however, is a minor criticism of a chapter that is clearly set out and well illustrated with suggested formats for disclosure.

In Chapter 5, we encounter a concise overview of empirical research on cash-based and other funds flow measures. The authors frequently refer to "working capital from operations" without defining the term; it is, however, evident that they have used the definition of Beaver and Dukes (1972), which treats this simply as income plus depreciation. This chapter will prove useful not only in providing a focused review of empirical research, but also in the manner in which it deals clearly, but gently, with the limitations of the various types of study; it would form a useful component of a course on research methods for accounting students.

The issue of reporting on financial position, i.e., the balance sheet, is thoroughly examined in Chapter 6. A discussion of current Australian reporting requirements (both public and private sector) and those of the IASC, US, and EU precedes a detailed evaluation of the current/noncurrent distinction, pointing out the limitations of this approach, and also the difficulties with using an "operating cycle" approach as an alternative. The weaknesses of IAS 1 are identified, and the authors put forward a strong suggestion that detailed maturity profiles should be disclosed. Here, as well as at one or two other places in the monograph, circumstances are identified where harmonization with international accounting standards by a developed nation has had a retrogressive effect; in this instance, the explicit requirements of Schedule 5 to the Australian Corporations Law were replaced by a generalized requirement to disclose "the extent and nature of the underlying financial instruments, including significant terms and conditions that may affect the amount, timing and certainty of future cash flows," now incorporated in the revised Australian statement, which follows the wording of IAS 32 almost verbatim (IAS 32:47(a)). The authors then proceed to deal with the mechanisms encountered for keeping items off the balance sheet, notably the use of derivatives and unconsolidated entities and agreements equally proportionately unperformed (AEPUs). In contrast to their approach to the current/noncurrent extension, where the authors take a very firm view, they avoid taking a position on the issue of whether proportionate consolidation or equity accounting is preferable for joint ventures, contenting themselves with the comment that condensed financial information of such investments would be necessary to permit adequate analysis (p. 142).

The problems of (AEPUs) are related specifically to leases and project financing arrangements. The authors see this as a worldwide problem that needs to be addressed. There is a minor omission in that their discussion does not specifically refer to the disclosures relating to noncancellable operating leases in the revised IAS 17 (1997), which go part of the distance toward addressing this problem in the leasing environment.

In dealing with risks and uncertainties, Chapter 7 has relevance to financial reporting generally, and not merely to the question of solvency and cash condition, on which this book has focused. The authors point out that risk disclosures in relation to products, services, and concentrations of risk required in the US, notably by SOP 94-6, are in advance of the rest of the world. Similarly, North America leads in disclosing information as to estimates that are susceptible to material changes, as a result of an expected change of circumstances in the near future. The chapter concludes with a section on treasury risks, including cross-border risk.

The financial flexibility of enterprises in terms of their ability to adjust to unexpected needs for cash is discussed in Chapter 8. The authors acknowledge that unexpected cash needs may relate to new investment opportunities, but, submitted correctly, focus on the "defensive" need, where deficiencies arise in liquid resources needed for operations. The authors identify a number of factors influencing financial flexibility and identify the very limited disclosure requirements that exist currently in this regard. This is clearly an area where there is much less depth of empirical research. Accordingly, the authors' suggestions are normative in nature and tentatively put forward.

Chapter 9 takes up disclosures where cash conditions are poor or doubtful. This chapter includes a detailed, and revealing, discussion of attempts in the US and Canada in the mid-

1990s to introduce financial flexibility disclosures when there was a reasonable possibility that actions would be needed to remedy a near-term deficiency in liquidity. The arguments of objectors are dealt with. Recommendations are necessarily couched in fairly general terms.

This monograph deals with solvency and cash condition in the environment of a manufacturing or commercial enterprise. It would have been interesting to have encountered some observations in relation to financial institutions and technology enterprises, but this would have added to the length of what is already a fairly extensive publication. The monograph is written with the thoroughness that one would expect from academics at the University of New South Wales. This does, however, make it somewhat less accessible to accounting professionals, who should be acting upon many of the recommendations that it contains. An executive summary at the beginning of the monograph tends to overcome this; it would, perhaps, have been more useful had the authors provided a summary in point form of the major suggestions for disclosures that would improve the quality of reporting on solvency and cash condition.

Finally, the monograph contains an extensive appendix, divided into nine categories, setting forth the empirical research dealing with cash and other concepts of funds. Each section is prefaced by a summary tabulating the major research studies. Not only is this an invaluable resource, but its inclusion in the appendix, rather than within the text, assists in making the text much more readable.

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CAPSULE COMMENTARY

BOOK REVIEWS

A test of the Ohlson (1995) model:
Empirical evidence from Japan

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Abstract

This paper investigates the validity of the Ohlson [Contemp. Account. Res. 11 (1995) 661] information dynamics (Linear Information Model: LIM) and attempts to improve the LIM. The difficulty concerning the empirical tests of the LIM lies in identifying ν_t, which denotes information other than abnormal earnings. Recent papers, such as those of Myers [Account. Rev. 74 (1999) 1], Hand and Landsman [The pricing of dividends in equity valuation. Working paper, University of North Carolina, 1999], and Barth et al. [Accruals, cash flows, and equity values. Working paper (January) (July), Stanford University, 1999], all try to specify ν_t by using various accounting information. Instead of tackling this difficult task, this paper focuses on serial correlation in the error terms caused by omitting the necessary variable ν_t from the regression equation. The results indicate that adjustment for serial correlation leads to an improvement of the LIM. © 2002 University of Illinois. All rights reserved.

Keywords: Ohlson (1995) model; Information dynamics; Other information ν_t; Serial correlation; Durbin's alternative test; GLS

1. Introduction

The work of Ohlson (1995) has attracted considerable attention among accounting researchers since its publication. This seminal paper consists of two main parts: the residual

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income valuation model (RIV) and the linear information dynamics. The RIV expresses firm value as the sum of the book value of equity and the present value of future abnormal earnings.[1] However, the RIV is an application of the Dividend Discount Model and its development cannot be attributed to Ohlson (1995).[2] Both Dechow, Hutton, and Sloan (1999) and Lo and Lys (2000) point out that the real contribution of Ohlson comes from his modeling of the linear information dynamics.

The linear information dynamics attempts to identify the mechanism of abnormal earnings and links current information to future abnormal earnings, which allows the development of a valuation model of a firm. However, empirical testing of the Ohlson (1995) linear information dynamics (the Linear Information Model: hereafter LIM) is not easy, because the LIM contains the troublesome variable v_t. This variable denotes information other than abnormal earnings that has yet to be captured in current financial statements but affects future abnormal earnings. It is often unobservable or very difficult to observe because of its inherent properties. However, v_t plays an integral role in the LIM and seems to hold the key to the improvement of the LIM. Recent papers, therefore, attempt to specify v_t by using a number of accounting variables (e.g., Barth, Beaver, Hand, & Landsman, 1999; Dechow et al., 1999; Hand & Landsman, 1998, 1999; Myers, 1999).

This paper tries to improve the Ohlson (1995) LIM without tackling the difficult task of specifying other information v_t. The Ohlson (1995) LIM assumes that v_t follows a first-order autoregressive process, AR(1). Omitting this AR(1) variable, v_t, from regression equations will cause serial correlation in the regression error terms. Based on this presumption, the error-term serial correlation is tested using Durbin's alternative statistics. Serial correlation is detected in about 40% of the sample. The problem of serial correlation in the error terms is rectified by using generalized least squares (GLS). The results generate some improvement in the Ohlson (1995) LIM. This modified LIM is also tested using stock market data. The results of the tests generally support the superiority of the modified LIM over other LIMs that omit the other information term, v_t.

In addition, the results of this research reveal some interesting similarities to those reported in Barth et al. (1999), Dechow et al. (1999), and Hand and Landsman (1998, 1999). The persistence coefficient of abnormal earnings has almost the same value for each of the prior studies and this paper. Further, the coefficient on book value of equity is negative in this study, which is consistent with previous studies.

The remainder of this paper proceeds as follows. Section 2 reviews the RIV and the LIM. Section 3 conducts empirical tests on the LIM. Section 4 derives the valuation models of the LIMs with testing based on stock market data, and Section 5 concludes the paper.

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[1] Abnormal earnings are defined as accounting earnings minus a charge for the cost of capital.
[2] See Lo and Lys (2000) and Palepu, Bernard, and Healy (1996, chap. 7-17) for the historic details of the model.

2. Background

2.1. Residual income valuation model

The Dividend Discount Model defines the value of a firm as the present value of the expected future dividends.

$$V_t = \sum_{i=1}^{\infty} E_t \left[\frac{d_{t+i}}{(1+r)^i} \right], \tag{1}$$

where V_t = value of a firm at date t; $E_t[d_{t+i}]$ = the expected dividends received at date $t+i$; r = the discount rate that is assumed to be constant.

The clean surplus concept dictates that entries to retained earnings are limited to record only periodic earnings and dividends. Then, the relation between book value of equity, earnings, and dividends can be expressed as follows.

$$b_t = b_{t-1} + x_t - d_t, \tag{2}$$

where b_t = book value of equity at date t; x_t = earnings for period t; d_t = dividends paid at date t.

Book value of equity at date $t-1$ multiplied by the capital cost is considered "normal earnings" of the firm. Then, earnings for the period t minus "normal earnings" can be defined as "abnormal earnings."[3]

$$x_t^a \equiv x_t - rb_{t-1}, \tag{3}$$

where x_t^a = abnormal earnings for period t.

Simple algebraic manipulation allows Eqs. (2) and (3) to be rewritten as:

$$d_t = x_t^a + (1+r)b_{t-1} - b_t.$$

Using this expression to replace d_{t+i} in Eq. (1) yields the RIV,

$$V_t = b_t + \sum_{i=1}^{\infty} E_t \left[\frac{x_{t+i}^a}{(1+r)^i} \right]. \tag{4}$$

The RIV implies that a firm's value equals its book value of equity and the present value of anticipated abnormal earnings. One of the interesting properties of the RIV is that a firm's value based on the RIV will not be affected by accounting choices.[4]

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[3] The terminology is confusing. When it is incorporated into the valuation model, it is usually "residual income," such as "residual income valuation model". But, when it is referred to as earnings, it is either "residual income" or "abnormal earnings". It seems that the term "abnormal earnings" is more commonly used. The terms "residual income valuation model" and "abnormal earnings" are used in this paper.

[4] See Lundholm (1995) and Palepu et al. (1996, chap. 7-5) for the details of this particular property of RIV.

2.2. Linear information model

The LIM was originally proposed in Feltham and Ohlson (1995) and Ohlson (1995). The LIM is an information dynamics model that describes the time-series behavior of abnormal earnings. Dechow et al. (1999) emphasize that the real achievement of Feltham and Ohlson (1995) and Ohlson (1995) is that the LIM creates a link between current information and a firm's intrinsic value.

2.2.1. Ohlson (1995) LIM

The Ohlson (1995) LIM assumes that the time-series behavior of abnormal earnings follows:

$$x^a_{t+1} = \omega_{11}x^a_t + v_t + \varepsilon_{1t+1},$$ (5a)

$$v_{t+1} = \gamma v_t + \varepsilon_{2t+1},$$ (5b)

where x^a_t = abnormal earnings for period t $(x^a_t \equiv x_t - rb_{t-1})$; v_t = information other than abnormal earnings; ω_{11} = persistence parameter of abnormal earnings x^a_t $(0 \leq \omega_{11} < 1)$; γ = persistence parameter of other information v_t $(0 \leq \gamma < 1)$; ε_{1t}, ε_{2t} = error terms.

The Ohlson (1995) LIM assumes that the source of abnormal earnings is monopoly rents. Although monopoly rents may persist for some time, market competition will force returns toward the cost of capital in the long run. Therefore, the persistence parameter ω_{11} is predicted to lie in the range $0 \leq \omega_{11} < 1$.

Combining the RIV in Eq. (4) with the Ohlson (1995) LIM in Eqs. (5a) and (5b) yields the following valuation function:[5]

$$V_t = b_t + \alpha_1 x^a_t + \beta_1 v_t,$$

where

$$\alpha_1 = \frac{\omega_{11}}{1 + r - \omega_{11}}$$

$$\beta_1 = \frac{1 + r}{(1 + r - \omega_{11})(1 + r - \gamma)}.$$

2.2.2. Feltham and Ohlson (1995) LIM

Feltham and Ohlson (1995) assume the following four equations with some relabeling for simplicity.[6]

$$x^a_{t+1} = \omega_{11}x^a_t + \omega_{12}b_t + v_{1t} + \varepsilon_{1t+1},$$ (6a)

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[5] See Ohlson (1995), Appendix 1, for the demonstration of this result.

[6] Although Feltham and Ohlson (1995) use operating assets and operating earnings instead of book value of equity and earnings, both result in the same abnormal earnings. For further details, see Myers (1999, Note 6) and Penman and Sougiannis (1998, pp. 350–351).

$$b_{t+1} = \omega_{22}b_t + v_{2t} + \varepsilon_{2t+1}, \tag{6b}$$

$$v_{1t+1} = \gamma_1 v_{1t} + \varepsilon_{3t+1}, \tag{6c}$$

$$v_{2t+1} = \gamma_2 v_{2t} + \varepsilon_{4t+1}, \tag{6d}$$

where ω_{11} = persistence parameter of abnormal earnings x_t^a; $(0 \leq \omega_{11} < 1)$; ω_{12} = conservatism parameter $(0 \leq \omega_{12})$; ω_{22} = growth parameter of book value of equity $(0 \leq \omega_{22} < 1 + r)$; v_{1t}, v_{2t} = information other than abnormal earnings; γ_1, γ_2 = persistence parameter of v_{1t} and v_{2t}, respectively $(0 \leq \gamma_1, \gamma_2 < 1)$; ε_{1t}, ε_{2t}, ε_{3t}, ε_{4t} = error terms.

The Feltham and Ohlson (1995) LIM assumes that abnormal earnings are generated from two sources. The first source is monopoly rents. Since market competition is expected to force returns toward the cost of capital in the long run, ω_{11} is predicted to lie in the range $0 \leq \omega_{11} < 1$. The second source is accounting conservatism. Accounting conservatism generally depresses the valuation of assets below their market value, which generates abnormal earnings that can be calculated by multiplying the difference between market value and book value of equity by the cost of capital. Therefore, under conservative accounting, ω_{12} is predicted to be $0 \leq \omega_{12}$.[7]

Combining the RIV in Eq. (4) with the Feltham and Ohlson (1995) LIM in Eqs. (6a)–(6d) yields the following valuation function:[8]

$$V_t = b_t + \alpha_1 x_t^a + \alpha_2 b_t + \beta_1 v_{1t} + \beta_2 v_{2t},$$

where

$$\alpha_1 = \frac{\omega_{11}}{1 + r - \omega_{11}}, \quad \alpha_2 = \frac{(1 + r)\omega_{12}}{(1 + r - \omega_{11})(1 + r - \omega_{22})},$$

$$\beta_1 = \frac{1 + r}{(1 + r - \omega_{11})(1 + r - \gamma_1)}, \quad \beta_2 = \frac{(1 + r)\omega_{12}}{(1 + r - \omega_{11})(1 + r - \omega_{22})(1 + r - \gamma_2)}.$$

Thus, the Feltham and Ohlson (1995) LIM and the Ohlson (1995) LIM allow us to obtain the valuation functions of a firm without requiring either explicit forecasts of future dividends or additional assumptions about the calculation of terminal value. However, whether or not the LIM characterizes reality with reasonable accuracy is purely an empirical matter.

In the next section, I test the validity of the Ohlson (1995) LIM and the Feltham and Ohlson (1995) LIM after transforming them to empirically testable forms.

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[7] Feltham and Ohlson (1995) characterize $(0 < \omega_{12})$ as conservative accounting, $(0 = \omega_{12})$ as unbiased accounting, and $(0 > \omega_{12})$ as aggressive accounting.

[8] See appendix in Feltham and Ohlson (1995) for the demonstration of this result.

3. Empirical tests on LIM

3.1. Model development

3.1.1. LIM1 and LIM2: based on the Ohlson (1995) model

It is challenging to test the Ohlson (1995) LIM in Eqs. (5a) and (5b) without any modification, because other information ν_t is unobservable or difficult to measure. Therefore, LIM1 assumes ν_t to be zero and omits it from the model. However, omitting a relevant variable, just because it is unobservable, leads to model misspecification. Therefore, LIM2 assumes ν_t to be a constant. The parameters of the models LIM1 and LIM2 are estimated using OLS regression.

$$\text{LIM1}: \ x_{t+1}^a = \omega_{11}x_t^a + \varepsilon_{t+1}$$

$$\text{LIM2}: \ x_{t+1}^a = \omega_{10} + \omega_{11}x_t^a + \varepsilon_{t+1}$$

3.1.2. LIM3 and LIM4: based on the Feltham and Ohlson (1995) model

Again, estimating the Feltham and Ohlson (1995) LIM in Eqs. (6a)–(6d) without any modification is difficult, because it contains other information ν_{1t}, which is unobservable. Therefore, LIM3 assumes ν_{1t} to be zero, and LIM4 assumes ν_{1t} to be a constant. The parameters of LIM3 and LIM4 are estimated by OLS using the following forms:

$$\text{LIM3}: \ x_{t+1}^a = \omega_{11}x_t^a + \omega_{22}b_t + \varepsilon_{t+1}$$

$$\text{LIM4}: \ x_{t+1}^a = \omega_{10} + \omega_{11}x_t^a + \omega_{22}b_t + \varepsilon_{t+1}$$

3.1.3. LIM5 and LIM6: higher-order autoregression of x_t^a

The Ohlson (1995) LIM assumes that abnormal earnings x_t^a is the first-order autoregressive process AR(1). However, in reality, abnormal earnings x_t^a might follow a higher-order autoregressive process AR(p). It is possible that the next-period abnormal earnings are affected not only by current-period abnormal earnings but also by past-period abnormal earnings. Therefore, LIM5 examines the second-order autoregressive process of abnormal earnings AR(2), and LIM6 examines the third-order autoregressive process of abnormal earnings AR(3). The parameters of LIM5 and LIM6 are estimated by OLS.

$$\text{LIM5}: \ x_{t+1}^a = \omega_{11}x_t^a + \omega_{12}x_{t-1}^a + \varepsilon_{t+1}$$

$$\text{LIM6}: \ x_{t+1}^a = \omega_{11}x_t^a + \omega_{12}x_{t-1}^a + \omega_{13}x_{t-2}^a + \varepsilon_{t+1}$$

3.1.4. LIM7: serial correlation in the error terms

The models, LIM1–6, are all based on the assumption of ν_t being zero or a constant because of the difficulty in specifying ν_t. However, omitting a necessary variable just because it is unobservable may lead to misspecification of the LIM causing ν_t to be absorbed in the error term. As can be seen in Eqs. (5b) and (6c), both Ohlson (1995) and Feltham and Ohlson (1995) assume that ν_t follows a first-order autoregressive process with $0 \le \gamma < 1$. If this assumption is true, the residuals of LIM1–6 would show positive serial correlation.

The Durbin–Watson (DW) test is employed to examine serial correlation in the error terms of LIM1–6. However, the DW test should not be used when there is no constant term in the model, and its statistic is known to exhibit a bias toward 2 when lagged dependent variables are included as regressors (Johnston & DiNardo, 1997, pp. 178–184). To guard against these problems, the Durbin's alternative test is primarily used.

Hypothesis testing for serial correlation in the error terms is:

$$H_0 : \; u_{t+1} = \rho u_t + \varepsilon_{t+1} \qquad \rho = 0$$

$$H_1 : \; u_{t+1} = \rho u_t + \varepsilon_{t+1} \qquad \rho > 0.$$

The null hypothesis is that there is no serial correlation in the error terms and the alternative hypothesis is that there is positive serial correlation in the error terms.

LIM7 is a modified version of LIM1 and corrects serially correlated errors. Therefore, only a portion of the LIM1 sample, the part significant under the Durbin's alternative test, comprises the sample for LIM7. The parameters of LIM7 are estimated using a generalized least squares grid-search method (GLS-GRID).[9]

$$\text{LIM7} : \; x_{t+1}^a = \omega_{11} x_t^a + u_{t+1} \text{ and } u_{t+1} = \rho u_t + \varepsilon_{t+1}.$$

3.2. Data

3.2.1. Sample selection

The sample selection requirements are as follows:

(i) the firms are listed on the Tokyo Stock Exchange (TSE) or Osaka Stock Exchange (OSE),
(ii) the accounting period ends in March,
(iii) banks, securities firms, and insurance firms are excluded,
(iv) a minimum of 27 consecutive years of accounting data is available for each firm included in the sample, and
(v) book value of equity is not negative in any year.

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[9] The maximum likelihood method (ML) is commonly used to deal with the problem of serial correlation in the error terms. However, ML is known to have a small sample bias when lagged endogenous variables are included in the model. Therefore, GLS is used in this paper.

Table 1
Sample firms

Panel A: Data years of sample firms[a]

Available data years	No. of firms	%
27 years	6	0.9
28 years	46	6.8
29 years	30	4.5
30 years	9	1.3
31 years	3	0.4
32 years	5	0.7
33 years	7	1.0
34 years	294	43.6
35 years	274	40.7
Total	674	100.0

Panel B: Stock markets listed[b]

Stock Market	No. of firms	%
TSE, first section	503	74.6
TSE, second section	116	17.2
OSE, first section	18	2.7
OSE, second section	37	5.5
Total	674	100.0

[a] Available data years for 674 sample firms. Data source is NIKKEI-ZAIMU DATA.

[b] TSE and OSE stand for Tokyo Stock Exchange and Osaka Stock Exchange. The first section has more stringent criteria for listing than the second section. Therefore, the first section usually lists bigger firms than the second section.

The data source is NIKKEI-ZAIMU DATA. As of March 1998, there were 1705 firms that met requirements (i), (ii), and (iii), of which 750 firms also satisfy requirement (iv). Requirement (v) reduces the sample to 674 firms.[10]

The parameters for each of the LIMs for each firm are estimated from the earliest year in which data are available to years ending 1991 to 1998. For example, Fujitsu's accounting data are available for 35 years since 1964. First, the parameters of LIM1–7 are estimated using data from 1964 to 1991. Next, the parameters of LIM1–7 are estimated using data from 1964 to 1992, then from 1964 to 1993, and so on, until 1998. Thus, eight sets of parameters of LIM1–7 are estimated for the periods 1964–1991, 1964–1992, 1964–1993, 1964–1994, 1964–1995, 1964–1996, 1964–1997, and 1964–1998. Requirement (iv) guarantees that the parameters are estimated using at least 18 years of necessary data. Requirement (v) is necessary because firms with negative book value of equity generate negative normal earnings.

Panel A of Table 1 presents the number of years of historical accounting data available. The weighted average is 33.6 years. Panel B of Table 1 presents the stock markets on which

[10] This 27-year requirement limits the generality of this paper because of potential survivorship bias. There is a tradeoff between stable parameters and survivorship bias. This problem is discussed in Morel (1999, Note 7).

sample firms are listed as of March 1998. About three-quarters of the sample firms are listed on the TSE first section. Thus, the sample firms for which the LIM is appropriate are likely to be large firms. The question of whether the selected sample represents a fair cross-section of Japanese firms remains unsolved, though the study certainly provides insight into the impact on large Japanese firms.

3.2.2. Estimating the cost of capital and the computation of abnormal earnings

In defining abnormal earnings, most prior research uses a constant discount rate of 12% or an industry risk premium estimated by using methods similar to those reported in Fama and French (1997). One of the few exceptions is Abarbanell and Bernard (2000) in which beta (CAPM) is used to allow for the time-varying and firm-specific discount rate. Following Abarbanell and Bernard, the discount rate is estimated for each firm-year.

$$r_{jt} = rf_t + \beta_{jt}[0.02],$$

where r_{jt} = estimated cost of capital for firm j in May of year t; rf_t = an interest rate of long-term national bonds (10 years) in May of year t;[11] β_{jt} = estimated CAPM beta for firm j in May of year t.

The CAPM beta is estimated using a rolling regression procedure with a 60-month window against the NIKKEI 225 Index.[12] The market risk premium is assumed to be 2%. The results presented later are qualitatively similar when market risk premium is assumed to be 4% and 6%.

The computation of abnormal earnings is as follows. (After this subsection, subscript j, which denotes a sample firm, will be omitted for ease of exposition.)

$$x_{jt}^{a} \equiv x_{jt} - r_{jt}b_{jt-1},$$

where x_{jt} = income before extraordinary items, net of tax, for firm j for period t; r_{jt} = estimated cost of capital for firm j in May of year t; b_{jt} = book value of equity for firm j at date t.

Strictly speaking, excluding extraordinary items from net income violates the clean surplus relation that underlies the theoretical development of RIV. However, including extraordinary items in the calculation of abnormal earnings makes the estimation of the LIM unstable due to their nonrecurring nature. Therefore, consistent with many prior studies in the United States, income before extraordinary items, net of tax, is used instead of net income.[13] Moreover, tax applicable to extraordinary items is not reported in the income statement in Japan, so income before extraordinary items, net of tax, is estimated using the formula below.

$$\text{ECO (net of tax)}_t = \text{ECO}_t \times \{1 - (\text{CorpTR}_t + \text{ResidentTR}_t)\} \quad (t = 1964 - 1998),$$

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[11] Since 10-year national bonds are not available before 1971, 7-year national bonds are used before 1971 and government-guaranteed bonds are used before 1965.

[12] Where monthly returns are not available for 60 months, due to the lack of stock price data, the beta is assumed to be equal to one.

[13] See Barth et al. (1999), Dechow et al. (1999), Hand and Landsman (1998, 1999), and Myers (1999) for further discussion.

where ECO_t = earnings from continuing operations for year t; $CorpTR_t$ = corporation tax rate for year t; $ResidentTR_t$ = residents' tax rate for year t.[14]

3.3. Results of LIM1–7

3.3.1. Descriptive statistics

Table 2 presents descriptive statistics for each of the variables used in estimating LIM1–7. The mean (median) abnormal earnings over the sample period is ¥37.1 (31.9) million given an assumed market risk premium of 2%. When the 4% and the 6% market risk premium are used, abnormal earnings become predominantly negative with the mean (median) of −¥669.5 (−44.9) million and −¥1376.1 (−137.1) million, respectively. Table 2 also reveals that the mean (median) estimated cost of capital over the sample period is 7.95% (8.80%).

3.3.2. Results of LIM1–6

Panels A and B of Table 3 report the results for LIM1 and LIM2, respectively. As predicted, the persistence coefficients on abnormal earnings, ω_{11}, are positive and their t statistics are statistically significant in both LIM1 and LIM2. The estimates of ω_{11} for LIM1 and LIM2 are 0.73 and 0.67, respectively, both of which are comparable with prior research in the US.[15] The coefficient, ω_{10}, is a constant in LIM2 and it is not statistically significant. The assumption of LIM2 that other information ν_t is a constant, does not seem to be appropriate. The fact that both DW statistics and Durbin's alternative statistics calculated with LIM2 are worse than those of LIM1 supports this view. Other information ν_t does not appear to be absorbed in a constant. The Adj. R^2 for LIM1 and LIM2 is .43 and .41, respectively. These values, however, cannot be compared unconditionally, because LIM1 is the regression equation with no constant term. Still, there does not seem to be much difference between LIM1 and LIM2 in terms of Adj. R^2.[16]

Panels C and D of Table 3 report the results of LIM3 and LIM4, respectively. Both Panels C and D reveal negative coefficients on book value of equity, ω_{22}, though they are not statistically significant. As explained in Section 2.2, the coefficient on book value of equity ω_{22} is predicted to take a positive value under conservative accounting. The finding in this

[14] Residents' tax is levied by local municipalities. The rate differs across regions. The standard tax rate is used in this study. Corporation business tax is ignored, because it was included in general and administrative expenses until 1999.

[15] The persistence parameter ω_{11} in LIM2 is 0.62 in Dechow et al. (1999) and 0.66 in Barth et al. (1999). The Adj. R^2 is .34 and .40, respectively.

[16] In estimating the regression equation with no constant term, R^2 requires special attention. In the case of LIM1, R^2 can be defined as either $\sum \hat{x}_t^{a^2} / \sum x_t^{a^2}$ or the correlation coefficient of x_t^a and $\hat{x}_t^a$. The latter definition of R^2 is used in this paper, because R^2 is the correlation coefficient of x_t^a and $\hat{x}_t^a$ with or without a constant term. Therefore, the comparison of the competing models is possible at least from this perspective. The meaning of the Adj. R^2 in regression equations will vary depending on whether the model includes a constant term or not.

Table 2
Descriptive statistics on variables, 1965–1998 (in ¥ millions)[a]

Description	Variable	Mean	Standard deviation	1Q	Median	3Q
Book value of equity	b	38,482	105,153	2603	8426	29,404
Net income	x	2840	8497	180	666	2171
Abnormal earnings	x^a	37.1	4964.0	− 339.9	31.9	399.0
Cost of capital (%)	r	7.95	1.95	6.42	8.80	9.13

[a] Each variable has a total of 21,986 firm-year observations.

paper is not consistent with current conservative accounting practice. Similar results are reported in prior US research and they are statistically significant.[17]

The sample used in this study is limited to large firms that have been in operation for a long time. Since large Japanese firms tend to possess land and securities that were acquired a long time ago, these assets are recorded at historical costs and should depress the book value of equity, which generates abnormal earnings. Therefore, ω_{22} is predicted to be positive in this study in contrast to the US studies that reports a negative coefficient. However, the finding here does not support this theory.

The coefficient on abnormal earnings, ω_{11}, is positive in both LIM3 and LIM4 and their t statistics are statistically significant. The coefficient ω_{10} is a constant in LIM4 and is not statistically significant. The Adj. R^2 for LIM3 and LIM4 is .47, which indicates a slight improvement compared with the Adj. R^2 of LIM1 and LIM2. However, considering that the number of explanatory variables is increased in LIM3 and LIM4, the difference is statistically small. After all, no improvement is observed by adding book value of equity, b_t, to LIM1 and LIM2 as an explanatory variable.

Panels E and F of Table 3 indicate that the results for LIM5 and LIM6 are similar to those for LIM1–4, which show that only ω_{11} is statistically significant. Still, one noticeable finding is that both DW statistics and Durbin's alternative statistics show no evidence of statistically significant serial correlation in the error terms in LIM5 and LIM6. The negative sign of ω_{12} is also noteworthy. An explanation for these findings is as follows.

The Ohlson (1995) model assumes

$$x^a_{t+1} = \omega_{11}x^a_t + \nu_t + \varepsilon_{1t+1} \qquad (0 \leq \omega_{11} < 1), \tag{5a}$$

$$\nu_{t+1} = \gamma\nu_t + \varepsilon_{2t+1} \qquad (0 \leq \gamma < 1). \tag{5b}$$

---

[17] In this study, the estimate of ω_{22} and its (t statistic) in LIM4 are − 0.03 (− 1.54). Hand and Landsman (1998) report − 0.02 (− 2.6), Myers (1999) reports − 0.005 (t statistic unknown), Dechow et al. (1999) report − 0.09 (− 77.64), Hand and Landsman (1999) report − 0.006 (− 1.4), and Barth et al. (1999) report − 0.07 (− 7.81).

Table 3
Results of LIM1–6 estimation[a]

(Panel A) LIM1: $x_{t+1}^a = \omega_{11}x_t^a + \varepsilon_{t+1}$

	ω_{11}				DW	D-alt	Adj. R^2
Mean	0.73				1.62	1.28	.43
(t-stat)	(6.06)						

(Panel B) LIM2: $x_{t+1}^a = \omega_{10} + \omega_{11}x_t^a + \varepsilon_{t+1}$

	ω_{10}	ω_{11}			DW	D-alt	Adj. R^2
Mean	12.9	0.67			1.61	1.46	.41
(t-stat)	(−0.09)	(4.95)					

(Panel C) LIM3: $x_{t+1}^a = \omega_{11}x_t^a + \omega_{22}b_t + \varepsilon_{t+1}$

	ω_{11}	ω_{22}			DW	D-alt	Adj. R^2
Mean	0.63	−0.01			1.63	1.44	.47
(t-stat)	(4.34)	(−1.04)					

(Panel D) LIM4: $x_{t+1}^a = \omega_{10} + \omega_{11}x_t^a + \omega_{22}b_t + \varepsilon_{t+1}$

	ω_{10}	ω_{11}	ω_{22}		DW	D-alt	Adj. R^2
Mean	445.6	0.58	−0.03		1.64	1.49	.47
(t-stat)	(1.20)	(3.79)	(−1.54)				

(Panel E) LIM5: $x_{t+1}^a = \omega_{11}x_t^a + \omega_{12}x_{t-1}^a + \varepsilon_{t+1}$

	ω_{11}	ω_{12}			DW	D-alt	Adj. R^2
Mean	0.90	−0.26			1.92	0.06	.47
(t-stat)	(4.63)	(−1.28)					

(Panel F) LIM6: $x_{t+1}^a = \omega_{11}x_t^a + \omega_{12}x_{t-1}^a + \omega_{13}x_{t-2}^a + \varepsilon_{t+1}$

	ω_{11}	ω_{12}	ω_{13}		DW	D-alt	Adj. R^2
Mean	0.90	−0.28	0.04		1.93	0.00	.47
(t-stat)	(4.24)	(−0.93)	(0.18)				

[a] A total of 5392 estimated parameters and t statistics are obtained from 674 sample firms for 8 years from 1991 to 1998. Figures in the table are the mean of the 5392 estimated parameters and t statistics. DW and D-alt. denote the Durbin–Watson statistic and Durbin's alternative statistic.

However, ν_t is ignored in LIM1: $x_{t+1}^a = \omega_{11}x_t^a + \varepsilon_{t+1}$ because it is unobservable. Then, ν_t will be absorbed in the error term in LIM1. Since ν_t is assumed to be the first-order autoregressive process, the error terms in LIM1 would be serially correlated as follows:

$$x_{t+1}^a = \omega_{11}x_t^a + u_{t+1}, \tag{7a}$$

$$u_{t+1} = \rho u_t + \varepsilon_{t+1} \qquad (0 \le \rho < 1). \tag{7b}$$

Rewriting Eq. (7a) at date $t-1$ as

$$x_t^a = \omega_{11}x_{t-1}^a + u_t. \tag{7c}$$

Multiplying Eq. (7c) by ρ, then subtracting the equation from Eq. (7a) yields

$$x_{t+1}^a - \rho x_t^a = \omega_{11}(x_t^a - \rho x_{t-1}^a) + u_{t+1} - \rho u_t. \tag{7d}$$

Substituting Eq. (7b) into Eq. (7d) and rearranging the equation results in

$$x_{t+1}^a = (\omega_{11} + \rho)x_t^a - \rho\omega_{11}x_{t-1}^a + \varepsilon_{t+1}. \tag{8}$$

Since both ρ and ω_{11} are assumed to take positive values, the coefficient on x_{t-1}^a is expected to be negative.

Thus, first-order serial correlation in the error terms is removed in LIM5 and LIM6 by adding an additional lagged variable x_{t-1}^a to LIM1. The results of LIM5 and LIM6 show much improvement in both DW statistics and Durbin's alternative statistics over the earlier models, and the coefficients on x_{t-1}^a are negative. These findings appear to reinforce the validity of the Ohlson (1995) model.

Finally, the difference from the results reported in prior research in the US for LIM5 and LIM6 should be noted. While the results of LIM1–4 are similar to those of the US research, the results of LIM5–6 are not. To highlight the difference, the results of LIM5–6 are compared with those reported in the US in Table 4.

Table 4 reveals that the coefficient on x_{t-1}^a, ω_{12}, is negative in both LIM5 and LIM6. On the other hand, in the US research, the ω_{12} coefficients are positive and their t statistics show that they are all statistically significant. However, as explained previously, ω_{12} may take a negative value when other information ν_t is omitted from the regression equation.

3.3.3. Results of LIM7

The Ohlson (1995) LIM attempts to model the mechanism of abnormal earnings. LIM1 is the simplest form of all and assumes the first-order autoregressive process of abnormal earnings. LIM2–6 are all attempts to improve on LIM1, but they do not perform well in general. It is presumed that the poor performance may be attributed to the omission of ν_t. This variable plays an integral part in the Ohlson (1995) model, but it is often omitted in empirical research because of the difficulty of the observation.

Table 4
Comparison of LIM5–6 and US results[a]

Regression model: $x_{t+1}^a = \omega_{10} + \omega_{11}x_t^a + \omega_{12}x_{t-1}^a + \omega_{13}x_{t-2}^a + \omega_{14}x_{t-3}^a + \varepsilon_{t+1}$

	ω_{10}	ω_{11}	ω_{12}	ω_{13}	ω_{14}	Adj. R^2
LIM5		0.90	− 0.26			.47
		(4.63)	(− 1.28)			
LIM6		0.90	− 0.28	0.04		.47
		(4.24)	(− 0.93)	(0.18)		
Hand and	n/a	0.55	0.04			.32
Landsman (1998)		(8.8)	(2.1)			
Dechow et al. (1999)	− 0.01	0.59	0.07	0.01	0.01	.35
	(− 12.36)	(68.31)	(7.50)	(0.86)	(1.59)	
Hand and	n/a	0.61	0.14			.45
Landsman (1999)		(10.0)	(3.0)			

Sources: Dechow et al. (1999, p. 17), Hand and Landsman (1998, p. 37, 1999, p. 30).

[a] The coefficient on each variable appears in the top row, and the corresponding t statistic appears in parentheses in the bottom row.

Table 5
Number of LIM1 observations that are significant in tests of serial correlation in the errors[a]

Estimation years	No. of observations	No. of AR(1) observations	%
1965–1991	674	188	27.9
1965–1992	674	253	37.5
1965–1993	674	272	40.4
1965–1994	674	274	40.7
1965–1995	674	272	40.4
1965–1996	674	286	42.4
1965–1997	674	285	42.3
1965–1998	674	272	40.4
Total	5392	2102	39.0

[a] Durbin's alternative statistic is used to test for serial correlation in LIM1 errors. The number of degrees of freedom = the number of observations − 2, and the significance level is 5% using a one-tailed test.

However, as ν_t does seem to hold the key to the improvement of the LIM, recent research in the US attempts to specify ν_t. Myers (1999) uses order backlog, Hand and Landsman (1998, 1999) use dividends, Barth et al. (1999) use accruals and cash flows, and Dechow et al. (1999) use the absolute value of abnormal earnings, the absolute value of special accounting items, the absolute value of accounting accruals, dividends, an industry-specific variable, and analysts' earnings forecasts as proxies for ν_t. In this paper, LIM1 is adjusted to remove serial correlation from the residuals. In effect, LIM7 tries to circumvent the difficulty of specifying ν_t by correcting serial correlation in the error terms in LIM1 that could arise from the omission of ν_t.

Durbin's alternative statistic is used to test for serial correlation in the errors. The significance level is 5% using a one-tailed test.[18] Table 5 shows that, of the entire sample of 5392 firm-year observations in LIM1, 2102 observations are significant in the test for serial correlation, which is about 40% of the entire sample.[19] Panel A of Table 6 shows the results of estimating the parameters of LIM7 by GLS-GRID using the 2102 observations. To highlight the difference between LIM7 and LIM1, the results of LIM1 estimation using the same 2102 observations are shown in Panel B of Table 6. The Adj. R^2 increases from .48 in LIM1 to .53 in LIM7, and Durbin's alternative statistic also improves from 2.71 in LIM1 to 0.09 in LIM7 indicating that serial correlation is removed from the error terms.

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[18] The Durbin's alternative test is a test of the coefficient β_1 in $\hat{u}_{t+1} = \beta_1 \hat{u}_t + \beta_2 x_{t-1}^a + \varepsilon_{t+1}$ in the case of LIM1. Therefore, the number of degrees of freedom is the number of observations minus two.

[19] Myers (1999) notes that the mean (median) DW statistic for LIM2 and LIM4 is 1.895 (1.942) and 1.937 (1.958), respectively, and there are few firms with DW statistics far from 2. These results are inconsistent with the findings in this paper. One possible explanation for this inconsistency is that Myers used the DW statistic to test for serial correlation in the error terms, which is known to have a bias toward 2 when lagged endogenous variables are included in the models.

Table 6
Results of LIM7 estimation[a]

(Panel A) LIM7: $x_{t+1}^a = \omega_{11} x_t^a + u_{t+1}$, $u_{t+1} = \rho u_t + \varepsilon_{t+1}$

	ω_{11}	ρ	DW	D-alt	Adj. R^2
Mean	0.52	0.50	1.72	0.09	.53
(*t*-stat)	(2.04)	(1.88)			

(Panel B) LIM1: $x_{t+1}^a = \omega_{11} x_t^a + \varepsilon_{t+1}$

	ω_{11}		DW	D-alt	Adj. R^2
Mean	0.75		1.31	2.71	.48
(*t*-stat)	(6.27)				

[a] The comparison of the parameters between LIM1 and LIM7 with regard to the 2102 firm-year observations in Table 5 is reported. Figures in the table are the mean of the 2102 estimated parameters and *t* statistics. DW and D-alt denote the Durbin–Watson statistic and the Durbin's alternative statistic.

3.4. Stationarity of abnormal earnings

Tests of the stationarity of abnormal earnings are of particular interest in the investigation of the validity of the Ohlson (1995) model. The Ohlson (1995) model assumes that abnormal earnings converge eventually due to market competition. If abnormal earnings follow a random-walk process, the validity of the Ohlson (1995) model is in doubt. Therefore, the stationarity of abnormal earnings for the 674 firms is investigated using the Augmented Dickey–Fuller (hereafter ADF) test. The problem of the ADF test is that the actual data-generating process is unknown. Therefore, three types of unit root tests are conducted in this paper:

$$\text{(No Constant or Trend)} \quad \Delta x_t^a = \gamma x_{t-1}^a + \sum_{p=2}^{4} \beta_p \Delta x_{t-p+1}^a + \varepsilon_t,$$

$$\text{(With Constant)} \quad \Delta x_t^a = \alpha_0 + \gamma x_{t-1}^a + \sum_{p=2}^{4} \beta_p \Delta x_{t-p+1}^a + \varepsilon_t,$$

$$\text{(With Constant and Trend)} \quad \Delta x_t^a = \alpha_0 + \alpha_1 t + \gamma x_{t-1}^a + \sum_{p=2}^{4} \beta_p \Delta x_{t-p+1}^a + \varepsilon_t.$$

Column (i) of Table 7 shows the results of the ADF test on the stationarity of abnormal earnings x_t^a. Maximum lags are set at 3 and optimal lags are chosen using the AIC. The column reveals that 61.7% of the sample firms reject the null hypothesis of a unit root at the 10% level when neither constant nor time trend is added. However, when both a constant and a time trend are added to the model, only 28.9% of the sample firms reject the null of a unit root. This may be due to misspecification of the simpler model or it may be

Table 7
Stationarity of abnormal earnings using the ADF test[a]

Model[b]	(i) x_t^a [c]		(ii) Δx_t^a [c]	
	Percentage of observations rejected at the		Percentage of observations rejected at the	
	10% level	5% level	10% level	5% level
τ (No Constant or Trend)	61.7	44.5	96.7	93.6
τ_μ (With Constant)	34.3	22.7	87.1	79.1
τ_τ (With Constant and Trend)	28.9	19.7	71.2	54.2

Maximum lags are set at three and optimal lags are chosen using the AIC.

[a] A total of 674 firms are used to test the stationarity of their abnormal earnings.

[b] Three types of unit root tests are performed:

(No Constant or Trend) $\Delta x_t^a = \gamma x_{t-1}^a + \sum_{p=2}^{4} \beta_p \Delta x_{t-p+1}^a + \varepsilon_t,$

(With Constant) $\Delta x_t^a = \alpha_0 + \gamma x_{t-1}^a + \sum_{p=2}^{4} \beta_p \Delta x_{t-p+1}^a + \varepsilon_t,$

(With Constant and Trend) $\Delta x_t^a = \alpha_0 + \alpha_1 t + \gamma x_{t-1}^a + \sum_{p=2}^{4} \beta_p \Delta x_{t-p+1}^a + \varepsilon_t.$

[c] (i) x_t^a tests the stationarity of abnormal earnings.
(ii) Δx_t^a tests the stationarity of first-differenced abnormal earnings.

due to the decrease in the degrees of freedom caused by adding extra regressors to the model.[20]

First-differenced abnormal earnings Δx_t^a are also tested for stationarity and the results are shown in Column (ii) of Table 7. This reveals that 96.7% of the sample firms reject the null hypothesis of a unit root at the 10% level when neither constant nor time trend is added. Even when these are added, 71.2% of the sample firms reject the null hypothesis.

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[20] Qi, Wu, and Xiang (2000) conduct Phillips–Perron unit root test for abnormal earnings without a time trend using 95 firms as a sample. They report that 78.9% of their sample firms reject the null of a unit root. However, when a time trend is added to the model, they report that the rejection rate drops to 66%.

These results are difficult to interpret. However, for some firms, the possibility of their abnormal earnings following a random-walk process appears reasonable.[21,22]

4. Empirical tests of the valuation models using stock market data

The time-series behavior of abnormal earnings was investigated in the previous section. LIM1 assumes the first-order autoregressive process of abnormal earnings, and adding extra regressors to the model, such as book value of equity and additional lags of abnormal earnings, does not lead to the improvement over what is obtained by LIM1. However, when serial correlation in the error terms of LIM1 is corrected in LIM7, some improvement in explanatory power is observed.

In this section, the theoretical values for LIM1, LIM2, and LIM7 are derived and these competing models are evaluated by comparing their theoretical values to the stock market values in Japan. In assessing the competing models, certain criteria are required. This paper uses two criteria for the assessment of the models based on the two-dimensional framework suggested by Lee, Myers, and Swaminathan (1999).[23] The first criterion is the models' ability

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[21] Although it is often argued that heteroskedasticity is less of a concern in time-series data than in cross-sectional data (Gujarati, 1995, p.359), there are some studies in which deflated variables are used in time-series regressions to mitigate heteroskedasticity (e.g., Bar-Yosef, Callen, & Livnat, 1996; Dechow et al., 1999; Morel, 1999). Therefore, LIM1–7 are tested for heteroskedasticity in the errors using the Lagrangian Multiplier heteroskedasticity test. The results show that, of the total 37,744 observations, 5554 reject the null hypothesis of homoskedasticity in the errors at the 5% level, which is one seventh of the total sample. Thus, heteroskedasticity in the errors does not appear to pose a material problem in the estimation of LIM1–7.

[22] In choosing the order p in an autoregressive model AR(p), which is exactly the case of LIM1, LIM5, and LIM6, it is much more common to use the Final Prediction Error (FPE) (Akaike, 1969, 1970) or the Akaike Information Criteria (AIC) (Akaike, 1973) than R^2 and Adj. R^2. Therefore, LIM1–7 are evaluated using the AIC. The results indicate that there is not much difference in the mean AIC between the models LIM1–4, which implies that adding a constant term and/or book value of equity to LIM1 does not enhance LIM1. LIM7 appears to be better than LIM1 in terms of the AIC with a difference of 6.8 in the mean AIC. The most noticeable finding, however, is the difference between LIM1, LIM5, and LIM6. LIM1, LIM5, and LIM6 assume that abnormal earnings follow the AR(1), AR(2), and AR(3) processes, respectively, and their mean AIC is 438.1, 422.1, and 408.3, respectively. The mean AIC becomes smaller as the order of autoregressive process becomes higher. This implies that a multilagged formulation is more appropriate than the single lagged formulation of the Ohlson (1995) information dynamics. Similar findings are reported in Bar-Yosef et al. (1996), Morel (1999), and O'Hanlon (1994, 1995). Bar-Yosef et al. and Morel test the lag structure of the Ohlson (1995) information dynamics using the FPE and the AIC$_C$ (Hurvich & Tsai, 1989, 1991), respectively. Their findings support a multilagged information dynamic rather than the single lagged information dynamic of the Ohlson (1995) model. O'Hanlon tries to identify the time-series properties of abnormal earnings using an Autoregressive Integrated Moving Average (ARIMA) process and finds that all firms' abnormal-earnings series cannot be characterized into a particular class of time-series process.

[23] The two dimensions suggested by Lee et al. (1999) are tracking ability and predictive ability. Tracking ability investigates the time-series relation between stock price and estimated value, and predictive ability examines the predictive power for future returns. Although this paper focuses on the cross-sectional relation between stock price and estimated value, the basic idea of the two-dimensional framework is the same.

to explain contemporaneous stock prices. If the stock market in Japan reflects the true value of a firm correctly, the best model will be the one that explains contemporaneous stock prices best. This is accomplished by regressing actual stock prices on theoretical stock prices based on the competing models. The Adj. R^2 values obtained from the models are compared. It is assumed that the higher the Adj. R^2, the more explanatory power the model has over contemporaneous stock prices.

The second criterion is the models' ability to predict future stock returns. The motive behind this is the basic idea of fundamental analysis, that is, the stock market in Japan may not correctly price the intrinsic value of a firm immediately but they will reflect it eventually.[24] First, quintile portfolios are constructed according to the ratio of a model's theoretical stock price to actual stock price. Then, a strategy is set in place where the top quintile portfolio is bought and the bottom quintile portfolio is sold. These portfolios are maintained for a certain period of time and the performance is compared. The top quintile consists of underpriced firms and the bottom quintile consists of overpriced firms relative to their theoretical firm values. The higher the future stock returns, the better the predictive ability of the model.[25]

4.1. Valuation functions of LIM1, LIM2, and LIM7

4.1.1. V_{L1} model

The V_{L1} model is the valuation model of LIM1 ($x_{t+1}^a = \omega_{11}x_t^a + \varepsilon_{t+1}$). Expected future abnormal earnings are $E_t[x_{t+1}^a] = \omega_{11}x_{t+i-1}^a$. The persistence parameter ω_{11} is the estimated coefficient on x_t^a in LIM1. Other information ν_t is ignored by the assumption of LIM1.

The value of a firm is expressed as

$$V_{L1} = b_t + \sum_{i=1}^{\infty} \frac{\omega_{11}x_{t+i-1}^a}{(1+r)^i}.$$

Simplifying this equation yields

$$V_{L1} = b_t + \frac{\omega_{11}}{(1+r-\omega_{11})}x_t^a.$$

The condition for convergence is $|\omega_{11}| < 1 + r$.

4.1.2. V_{L2} model

The V_{L2} model is the valuation model of LIM2 ($x_{t+1}^a = \omega_{10} + \omega_{11}x_t^a + \varepsilon_{t+1}$). Expected future abnormal earnings are $E_t[x_{t+1}^a] = \omega_{10} + \omega_{11}x_{t+i-1}^a$. The parameters ω_{10}, ω_{11} are the estimated

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[24] See Malkiel (1999, p. 119) and Palepu et al. (1996, chap. 8-5) for further detail on fundamental analysis.
[25] See Frankel and Lee (1998) for further detail on this strategy.

constant and coefficient on x_t^a in LIM2. LIM2 assumes that other information ν_t is absorbed in a constant term ω_{10}.

The value of a firm is expressed as

$$V_{L2} = b_t + \sum_{i=1}^{\infty} \frac{\omega_{10} + \omega_{11}x_{t+i-1}^a}{(1+r)^i}.$$

Simplifying this equation yields

$$V_{L2} = b_t + \frac{(1+r)\omega_{10}}{(1+r-\omega_{11})r} + \frac{\omega_{11}}{(1+r-\omega_{11})}x_t^a.$$

The condition for convergence is $|\omega_{11}| < 1 + r$.

4.1.3. V_{L7} model

The V_{L7} model is the valuation model of LIM7 ($x_{t+1}^a = \omega_{11}x_t^a + u_{t+1}$, $u_{t+1} = \rho u_t + \varepsilon_{t+1}$). As can be seen in the demonstration of Eq. (8), expected future abnormal earnings are $E_t[x_{t+1}^a] = (\omega_{11} + \rho)$ $x_{t+i-1}^a - \rho\omega_{11}x_{t+i-2}^a$. The parameters ω_{11} and ρ are the estimated coefficients on x_t^a and u_t in LIM7. LIM7 assumes that other information ν_t is absorbed in the error term u_t. As a result, u_t follows a first-order autoregressive process.

The value of a firm is expressed as

$$V_{L7} = b_t + \sum_{i=1}^{\infty} \frac{(\omega_{11} + \rho)x_{t+i-1}^a - \rho\omega_{11}x_{t+i-2}^a}{(1+r)^i}.$$

Simplifying this equation yields

$$V_{L7} = b_t + \left\{ \frac{(1+r)(\omega_{11} + \rho) - \omega_{11}\rho}{(1+r)^2 - (1+r)(\omega_{11} + \rho) + \omega_{11}\rho} \right\} x_t^a$$

$$- \left\{ \frac{(1+r)\omega_{11}\rho}{(1+r)^2 - (1+r)(\omega_{11} + \rho) + \omega_{11}\rho} \right\} x_{t-1}^a.$$

The conditions for convergence are $|\omega_{11}| < 1 + r$ and $|\rho| < 1 + r$.

It should be noted that computation of V_{L7} is not applicable to the entire sample, because LIM7 is a modified version of LIM1. It is applied only to the portion of the sample exhibiting serial correlation in the LIM1 error terms. Therefore, of the total 5392 firm-year observations, the V_{L7} formula only applies to 2102 firm-year observations in Table 5, while the remainder is computed using the V_{L1} formula.

These three valuation models are summarized in Fig. 1

Valuation Model	Ohlson (1995) Linear Information Model	Expected future abnormal earnings x_{t+i}^a at date t	Theoretical firm value at date t
V_{L1} (LIM1)	Other information v_t is ignored. LIM1: $x_{t+1}^a = \omega_{11}x_t^a + \varepsilon_{t+1}$	$E_t[x_{t+i}^a] = \omega_{11}x_{t+i-1}^a$	$V_{L1} = b_t + \dfrac{\omega_{11}}{(1+r-\omega_{11})}x_t^a$
V_{L2} (LIM2)	Other information v_t is a constant. LIM2: $x_{t+1}^a = \omega_{10} + \omega_{11}x_t^a + \varepsilon_{t+1}$	$E_t[x_{t+i}^a] = \omega_{10} + \omega_{11}x_{t+i-1}^a$	$V_{L2} = b_t + \dfrac{(1+r)\omega_{10}}{(1+r-\omega_{11})r} + \dfrac{\omega_{11}}{(1+r-\omega_{11})}x_t^a$
V_{L7} (LIM7)	Other information v_t is absorbed in the error term u_t, and u_t follows an AR(1) process. LIM7: $x_{t+1}^a = \omega_{11}x_t^a + u_{t+1}$ $u_{t+1} = \rho u_t + \varepsilon_{t+1}$	$E_t[x_{t+i}^a] = (\omega_{11}+\rho)x_{t+i-1}^a - \rho\omega_{11}x_{t+i-2}^a$	$V_{L7} = b_t + \left\{ \dfrac{(1+r)(\omega_{11}+\rho)-\omega_{11}\rho}{(1+r)^2-(1+r)(\omega_{11}+\rho)+\omega_{11}\rho} \right\}x_t^a$ $- \left\{ \dfrac{(1+r)\omega_{11}\rho}{(1+r)^2-(1+r)(\omega_{11}+\rho)+\omega_{11}\rho} \right\}x_{t-1}^a$

Fig. 1. Summary of the LIM1, LIM2, and LIM7 valuation models that are examined in the stock price tests. Abnormal earnings for firm j for period t, x_{jt}^a, is computed as (unless necessary, subscript j is omitted throughout the paper for ease of exposition.)

$$x_{jt}^a = x_{jt} - r_{jt}b_{jt-1},$$

where x_{jt} = income before extraordinary items, net of tax, for firm j for period t; b_{jt} = book value of equity for firm j at date t; r_{jt} = estimated cost of capital for firm j at date t.

Expected future abnormal earnings at date t, $E_t[x_{t+i}^a]$ ($i = 1, 2, 3...$), and the condition for convergence in computing a theoretical firm value.

V_{L1} model: $E_t[x_{t+i}^a] = \omega_{11}x_{t+i-1}^a$, ω_{11} is estimated from the regression of LIM1 ($x_{t+i}^a = \omega_{11}x_t^a + \varepsilon_{t+1}$). The condition for convergence is $|\omega_{11}| < 1 + r$.

V_{L2} model: $E_t[x_{t+i}^a] = \omega_{10} + \omega_{11}x_{t+i-1}^a$, ω_{10} and ω_{11} are estimated from the regression of LIM2 ($x_{t+i}^a = \omega_{10} + \omega_{11}x_t^a + \varepsilon_{t+1}$). The condition for convergence is $|\omega_{11}| < 1 + r$.

V_{L7} model: $E_t[x_{t+i}^a] = (\omega_{11}+\rho)x_{t+i-1}^a - \rho\omega_{11}x_{t+i-2}^a$, ω_{11} and ρ are estimated from the regression of LIM7 ($x_{t+i}^a = \omega_{11}x_t^a + u_{t+1}$; $u_{t+1} = \rho u_t + \varepsilon_{t+1}$). The conditions for convergence are $|\omega_{11}| < 1 + r$ and $|\rho| < 1 + r$.

4.2. Explanatory power of contemporaneous stock prices

The relative ability of the three valuation models in Fig. 1 to explain contemporaneous stock prices is tested in this subsection. Actual stock prices at the end of May are regressed cross-sectionally on theoretical stock prices for 8 years, from 1991 to 1998. The sample consists of the 674 firms selected in Section 3.2.

The theoretical stock price is computed as

$$\text{Theoretical stock price} = \frac{V_{L1}, V_{L2}, V_{L7}}{\text{Number of shares outstanding at the end of May}},$$

and the regression equation takes the form,[26]

$$\text{Actual stock price}_t = \alpha + \beta \text{Theoretical stock price}_t + \varepsilon_t.$$
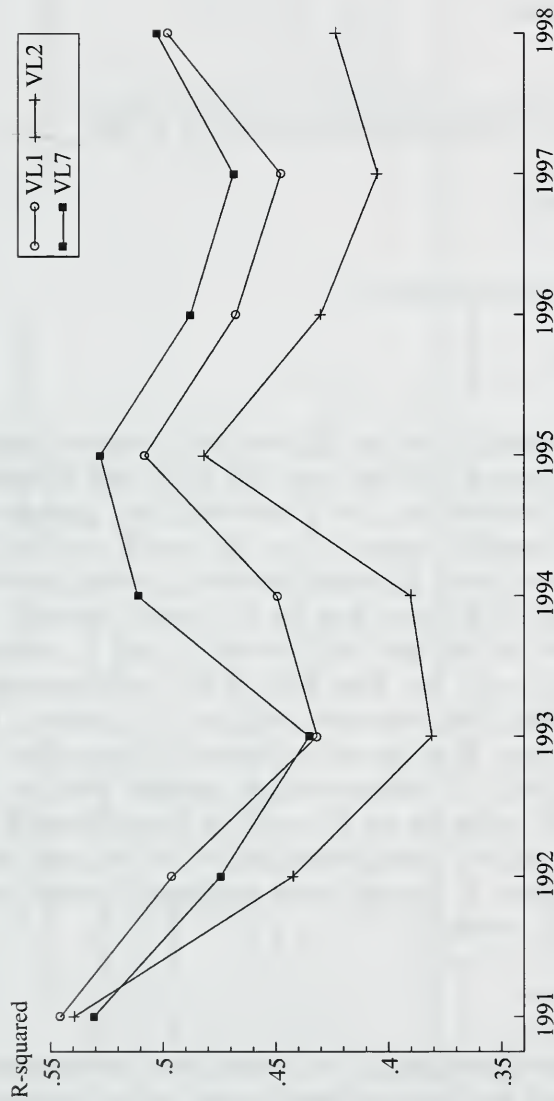
$$(t = \text{the end of May, } 1991 - 1998)$$

Fig. 2 reports the results of the explanatory-power test for the three valuation models. The V_{L2} model has the lowest explanatory power with the mean Adj. R^2 of .444. It appears that the assumption of LIM2 that other information v_t is a constant is not appropriate. Comparing the V_{L1} model and the V_{L7} model in terms of Adj. R^2 reveals that the V_{L7} model excels the V_{L1} model in 6 out of the 8 years. It appears that the V_{L7} model has more explanatory power over contemporaneous stock prices than the V_{L1} model, although the difference is subtle with the mean Adj. R^2 of .494 and .483 for the V_{L7} and V_{L1} models, respectively. However, as explained previously, less than 40% of the entire sample in the V_{L7} model (2102 observations in Table 5) is computed using the V_{L7} formula. The remainder is computed using the V_{L1} formula. Thus, the real explanatory power of the V_{L7} model is somewhat diluted. When the 2102 V_{L7} observations are matched with the V_{L1} observations, the results show that Adj. R^2 values for the V_{L7} model is higher than that for the V_{L1} model in 7 out of the 8 years with the 8-year mean Adj. R^2 of .480 and .401, respectively. Thus, the V_{L7} model appears to possess more explanatory power over contemporaneous stock prices than the V_{L1} model.

4.3. Predictive ability of future stock returns

The relative ability of the three valuation models in Fig. 1 to predict future stock returns is investigated in this subsection. First, quintile portfolios are formed on the basis of the ratio of the model's theoretical stock price to actual stock price at the end of May for 8 years from

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[26] Most sample firms have a par value of ¥50, but there are some sample firms whose par value is not ¥50. With regard to these firms, actual stock prices and the number of shares outstanding are converted to match other sample firms that have the par value of ¥50.

Fig. 2. The Adj. R^2 of V_{L1}, V_{L2}, and V_{L7} by the year. Actual stock prices at the end of May are regressed cross-sectionally on theoretical stock prices of the model for 8 years from 1991 to 1998. The sample consists of 674 firms in Table 1.

Adj.R^2	Mean	1991	1992	1993	1994	1995	1996	1997	1998
V_{L1}	0.483	0.545	0.496	0.432	0.449	0.508	0.467	0.448	0.498
V_{L2}	0.444	0.539	0.443	0.381	0.390	0.528	0.430	0.405	0.423
V_{L7}	0.494	0.531	0.475	0.435	0.511	0.528	0.488	0.469	0.503

$$\text{Theoretical stock price} = \frac{V_{L1}, V_{L2}, V_{L7}}{\text{Number of shares outstanding at the end of May}}.$$

$$\text{Actual stock price}_t = \alpha + \beta \text{Theoretical stock price}_t + \varepsilon_t. \qquad (t = \text{the end of May, 1991} - 1998).$$

Fig. 3. Future stock returns of the V_{L1}/P, V_{L2}/P, and V_{L7}/P strategy. Quintile portfolios are formed according to the ratio of the model's theoretical stock price to actual stock price at the end of May for 8 years from 1991 to 1998. The top quintile portfolio consists of underpriced firms and the bottom quintile portfolio consists of overpriced firms relative to their theoretical firm values. The strategy is to take a long position in the top quintile portfolio and a short position in the bottom quintile portfolio. These portfolios are maintained for up to 50 months. This figure depicts the mean of the 8-year returns produced by the V_{L1}/P, V_{L2}/P, and V_{L7}/P strategy. The sample consists of 674 firms in Table 1.

$$\text{Portfolio construction criterion}_t = \frac{\text{Theoretical stock price of } V_{L1}, V_{L2}, V_{L7} \text{ in year } t}{\text{Actual stock price at the end of May of year } t} \quad (t = \text{year } 1991 - 1998).$$

Return	0M	5M	10M	15M	20M	25M	30M	35M	40M	45M	50M
V_{L1}/P	0.0%	1.2%	2.3%	3.7%	6.1%	7.4%	8.7%	11.2%	12.9%	12.3%	13.0%
V_{L2}/P	0.0%	1.6%	1.7%	2.6%	5.5%	5.5%	7.9%	8.1%	11.3%	9.0%	8.6%
V_{L7}/P	0.0%	1.9%	3.4%	4.9%	7.5%	9.4%	10.6%	13.6%	15.7%	15.8%	17.6%

1991 to 1998. The top quintile portfolio consists of underpriced firms and the bottom quintile portfolio consists of overpriced firms relative to their theoretical firm values. The strategy is to take a long position in the top quintile portfolio and a short position in the bottom quintile portfolio, and maintain these positions for up to 50 months.[27] Higher future stock returns indicate better predictive ability of the model. The sample consists of 674 firms selected in Section 3.2 described earlier.[28]

Portfolio construction criterion$_t$

$$= \frac{\text{Theoretical stock price of } V_{L1}, V_{L2}, V_{L7} \text{ in year } t}{\text{Actual stock price at the end of May of year } t} \quad (t = \text{year } 1991 - 1998)$$

V_{L1}/P denotes the abovementioned trading strategy that is based on the V_{L1} model in Fig. 1. The V_{L2}/P and the V_{L7}/P strategies are formed in the same manner.

Fig. 3 illustrates the results of the V_{L1}/P, the V_{L2}/P, and the V_{L7}/P strategies. It reveals that the V_{L7}/P strategy has the greatest ability to predict future stock returns followed by the V_{L1}/P strategy and the V_{L2}/P strategy. The poor performance of the V_{L2}/P strategy seems to indicate that the assumption of LIM2, which is that other information v_t is a constant, is not appropriate. The V_{L7}/P strategy earns higher returns than the V_{L1}/P strategy, which appears to indicate the superiority of LIM7 over LIM1 with respect to the predictive ability of future stock returns.

Thus, in terms of both explanatory power of contemporaneous stock prices and predictive ability of future stock returns, the V_{L7} model performs better than the V_{L1} model. These findings support the superiority of LIM7 over LIM1 from the perspective of the stock market in Japan.

5. Conclusions

This study examines the validity of the Ohlson (1995) information dynamics model and attempts to improve it. First, the theoretical developments of the RIV and the LIM are discussed. The LIM is then transformed to give seven empirically testable models, namely, LIM1–7. These models are tested using a sample of 674 Japanese firms.

LIM1 assumes that abnormal earnings follow a first-order autoregressive process with other information v_t being ignored, and LIM2–6 attempt to improve on this model. The results of the tests indicate that LIM2–6 basically fail to improve on LIM1. In spite of the failure, the results of LIM2–6 coupled with those of the Durbin's alternative test help to

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[27] The effects of dividends, stock splits, capital reduction, changes in par value, and issuance of new shares on stock prices are adjusted.

[28] Actual stock prices are obtained until the end of 1999. Therefore, the portfolios constructed at the end of May 1996–1998 do not have the complete stock-price data of 50 months. When stock-price data are not available, the mean returns of the month are calculated without those portfolios.

clarify the empirical problem of testing the Ohlson (1995) LIM. Although other information, ν_t, plays an integral role in the Ohlson (1995) LIM, it is often ignored or assumed wrongly to be a constant because it is unobservable. As a result, other information, ν_t, may be absorbed in the error term causing serial correlation in the errors. This suggests the need for LIM7. Instead of focusing on the difficult problem of identifying other information, ν_t, LIM7 tries to circumvent the problem by modeling serial correlation in the error terms using GLS. LIM7 is a modified version of LIM1, and the results for LIM7 indicate that LIM7 improves on LIM1 in terms of both Adj. R^2 and Durbin's alternative statistic.

Moreover, the valuation models of LIM1, LIM2, and LIM7 are derived and they are tested using Japanese stock market data from two perspectives. The first is the models' ability to explain contemporaneous stock prices and the second is the models' ability to predict future stock returns. The results from these tests indicate the superiority of the LIM7-based valuation model over the LIM1-based valuation model.

The findings of this study generally support the validity of the Ohlson (1995) model. They also indicate that the LIM can be improved by tackling the serially correlated error terms that may have been caused by the omission of ν_t.

Acknowledgments

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Global expectations and their association with corporate social disclosure practices in Australia, Singapore, and South Korea

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Abstract

This paper explores the social disclosure policies of large Australian, Singaporean, and South Korean multinational corporations. The researchers advanced arguments about why large multinational corporations respond to "global expectations" rather than simply to the expectations of those people residing in the corporation's "home" country. Two large international surveys conducted in 1998 and 1999 are used to determine global expectations. The results of the testing indicate a minimal association between global expectations, as represented by the two surveys, and social disclosure policies of large multinational corporations. Consistent with previous research, country of origin and industry of operation appear to significantly influence disclosure practices. © 2002 University of Illinois. All rights reserved.

Keywords: Culture; Global; Expectations; Society; Accountability; Legitimacy

1. Introduction

This paper investigates the corporate social disclosure (CSD) practices of large multinational corporations.[1] The corporations we investigate have their "home base" in one of three

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[1] CSD itself can be defined as "...the process of communicating the social and environmental effects of organizations' economic actions to particular interest groups within society and to society at large" (Gray, Owen, & Adams, 1996, p. 3).

countries, Australia, Singapore, or South Korea (ASK), with each of the three countries deemed to be culturally different from one another.[2] We explore whether large multinational corporations, with home bases in culturally different countries, produce CSD that is comparable by theme and by the amount of disclosure. We do this on the basis of a view that large multinational organizations are making their disclosure decisions in response to *global information demands* rather than the demands of citizens in their "home" country. This paper is exploratory in nature, and to our knowledge no published papers have, to date, considered whether, at a global level of operations, corporations adopt similar social disclosure policies.

Motivation for this research originates from ongoing international efforts to explore and understand CSD practices. Research into CSD in the Asia Pacific region (APR) has been varied and incomplete (Andrew, Gul, Guthrie, & Teoh, 1989; Singh & Ahuja, 1983; Teoh & Thong, 1984). Most of the existing studies have generally focused on a single country and they often fail to link empirical results to the political, economic, or cultural characteristics of the country (Gray et al., 1996). Recent studies in the APR suggest that culture and political and civil systems might significantly influence CSD practices (Williams, 1999). There is also a growing body of evidence that suggests that *country of origin* and *industry of operation* significantly influence CSD (see, for example, Adams, Hill, & Roberts, 1998; Hackston & Milne, 1996) but that further work is needed to clarify this.

As an overview, the study proposes two broad research questions:

(1) To what extent does voluntary CSD provided by large multinational organizations align with expectations of a "global society"?
(2) If voluntary CSDs made by multinational corporations from different countries show significant dissimilarity (inconsistent with our "global perspective"), does *country of origin* or *industry of operation* appear to be a significant influence (as has been suggested in other CSD research)?

In undertaking this study, we rely upon the central tenets of legitimacy theory.

2. A brief overview of prior research

Much of the literature on CSD tends to focus on the experience of Europe, the United States, and Australia (see, for example, Adams et al., 1998; Gibson & Guthrie, 1995; Gray, Kouhy, & Lavers, 1995a; Guthrie & Parker, 1990; Kelly, 1981). Some research has also been undertaken in Singapore (Andrew et al., 1989; Foo & Tan, 1988; Low, Koh, & Yeo, 1985; Teoh, Ping, Joo, & Lee, 1998; Tsang, 1998). There is also research on other countries, including Nigeria (Disu & Gray, 1998), South Korea (Choi, 1999), Uganda (Kisenyi & Gray, 1998), South Africa (De Villiers, 1995), and Fiji (Lodhia, 2000). Some studies have only considered environmental themes (see, for example, Deegan & Gordon, 1996; Deegan & Rankin, 1996, 1997; Gibson &

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[2] Our position that Australia, Singapore, and South Korea are "culturally different" is informed by the work of Eddie (1996), Gray (1988), and Hofstede (1980, 1991).

Guthrie, 1995; Tilt, 1998), while others have studied CSD using a broader set of themes, largely based on the work of Ernst & Ernst (1973 et seq.). There are also examples where environment CSD has been examined from a "global" perspective (see, for example, Thomas & Kenny, 1997; United Nations, 1992).

A number of studies have sought to explain the *motivations* for CSD, whilst other studies have been purely descriptive. More often than not, CSDs have been found to be made in a manner consistent with legitimacy theory (see, for example, Adams et al., 1998; Deegan & Rankin, 1996; Gray et al., 1995a; Hogner, 1982; O'Donovan, 1999; Patten, 1992; Tsang, 1998), with results suggesting that CSD practices of corporations within particular countries will be influenced by such factors as changing community concerns, negative media attention, the occurrence of a major social or environmental incident, concerns of lobby groups, or proven environmental prosecutions.

The theoretical basis for this study relies upon *organizational legitimacy*, which is defined as "...a status, which exists when an entity's value system is congruent with the value system of the larger social system of which the entity is a part. When a disparity, actual or potential, exists between the two value systems, there is a threat to the entity's legitimacy" (Lindblom, 1994, p. 2). As such, legitimacy is not necessarily defined or inferred by legality. The legal institutionalization of corporations proscribes only narrow accountabilities and limited responsibilities (Warren, 1999). While the law reinforces changes in social values, it does not necessarily create them.

The concept of a *social contract* is central to organizational legitimacy. Whilst it is not easy to be specific in terms of the contract's actual content (or the "clauses"), the concept is used to represent the multitude of implicit and explicit expectations that society has about how an organization should conduct its operations. It is assumed that society allows the organization to continue operations to the extent that it generally meets their expectations. Legitimacy theory emphasizes that the organization must appear to consider the rights of the public at large, not merely those of its investors. It is also assumed that failure to comply with societal expectations (that is, comply with the terms of the "social contract") may lead to sanctions being imposed by society, for example, in the form of legal restrictions imposed on operations, limited resources (for example, financial capital and labor), and reduced demand for products (Deegan, 2000, p. 254).

Legitimacy itself can be threatened even when an organization's performance is not deviating from society's expectations of appropriate performance. This might be because the organization has failed to make disclosures that show it is complying with society's expectations, which in themselves might be changing across time. That is, legitimacy is assumed to be influenced by disclosures of information and not simply by (undisclosed) changes in corporate actions. If society's expectations about performance change, then arguably an organization will need to show that what it is doing is also changing (or perhaps it will need to communicate and justify why its operations have *not* changed). In relation to the dynamics associated with changing expectations, Lindblom (1994, p. 3) states:

> Legitimacy is dynamic in that the relevant publics continuously evaluate corporate output, methods, and goals against an ever-evolving expectation. The legitimacy gap will fluctuate

without any changes in action on the part of the corporation. Indeed, as expectations of the relevant publics change the corporation must make changes or the legitimacy gap will grow as the level of conflict increases and the levels of positive and passive support decreases.[3]

One issue that appears to be directly relevant to management, when determining whether their actions might be perceived as *legitimate*, is the determination of the "relevant publics" (Lindblom, 1994) or *relevant society* to which the organization is accountable. In the case of a multinational or transnational company,[4] we could reasonably argue that the *relevant society* would be *global* in nature rather than restricted to people within specific "home" countries. Arguably, multinational organizations, the focus of this study, are part of a *global social system* and in turn will direct attention to *global concerns* and not simply the concerns of citizens in its home country (Donaldson & Dunfee, 1994; Kell & Ruggie, 1999; Lewis & Unerman, 1998; World Business Council for Sustainable Development (WBCSD), 1999). That is, if an organization operates in a particular country and within that country there are limited expectations about social responsibilities, and if the organization also relies upon support from consumers, investors, and other parties from other countries, then realistically it must demonstrate that it is exceeding local standards (which perhaps might be low by other countries' standards).[5]

Using the cultural attributes developed by Hofstede (1980) and adapted by Gray (1988), Zarzeski (1996) shows that small local enterprises, in countries that score highly in terms of the cultural attribute *secrecy*, tend to limit their disclosures. By contrast, international enterprises that have a home base in secretive nations tend to depart from the nation's *secretive orientation*. In explaining this, Zarzeski (p. 20) states:

> The global market is just a different "culture" than the one the firm faces at home. When a firm does business in the global market, it is operating in a different "culture" and therefore may need to have different "practices." Higher levels of financial disclosures may be necessary for international survival because disclosure of quality operations should result in lower resource costs. When enterprises from more secretive countries perceive economic gain from increasing their financial disclosures, cultural borrowing may occur. The culture being borrowed will be a "global-market culture" rather than a specific-country culture.

Hence, in summary to this point, we are arguing, consistent with legitimacy theory, that corporations will respond to the expectations of their "relevant publics," else their "license to operate" (or *social contract*) could be revoked. For larger multinational corporations, the

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[3] The "legitimacy gap" refers to the difference between the "relevant publics" expectations relating to how an organization *should act* and the perceptions of how they *do act*.

[4] For the purposes of this study, we use the terms multinational and transnational interchangeably, recognizing that they are both relevant when describing the activities of a "global corporation" (Enderle & Peters, 1998, p. 11; Hopkins, 1997, p. 583; Korten, 1995, p. 125).

[5] There are a number of highly publicized cases where particular corporations failed to consider "global expectations" and instead restricted their consideration to ensuring compliance with local expectations alone. For example, the case of Nike paying low wages in Indonesia, BHP causing environmental damage in Papua New Guinea, Shell's operations in Nigeria, and Disney's use of cheap labor in Haiti. In all cases, no local laws (or perhaps even expectations) might have been breached, yet concerns at a global level caused the organizations concerned to take remedial action.

relevant public is not restricted to people residing in a particular country but rather is more *global* in orientation.

3. Method

3.1. Identifying expectations of a global society

In this study, global expectations are determined by the use of two surveys, one relating to expectations of *global interest groups* within society and the other to a *global society* generally.

Between October 1997 and January 1998, Enderle and Peters (1998, p. 8) surveyed 133 interest groups or nongovernmental organizations (NGOs)[6] across 36 countries[7] in seven regions to determine "...the expectations of NGOs worldwide, as addressed, explicitly or implicitly, to global companies in the late 1990s." Because NGOs represent the views of a broad cross-section of the community, it is generally argued that organizations need to consider the views of such groups.[8]

A survey questionnaire was written in English, Spanish, and Japanese and circulated via local research institutes in the seven regions. Each research institute was asked to review the NGO landscape and establish a list of potential NGOs (as defined by Yamamoto, 1995) operating for at least 3 years and presenting a relatively geographically balanced sample of the region. Respondents were asked to consider the importance of themes relating to global competition, economic and human development, laws and regulations, equity and diversity, work, environment, and illicit operations against a Likert scale of "yes, very important," "yes, important," "yes, less important," "not important," and "no opinion" (1998, pp. 27–31).

Responses were received from NGOs in North America ($n = 31$), Europe ($n = 23$), Japan ($n = 20$), East Asia (except Japan) ($n = 17$), South America ($n = 15$), Indian subcontinent ($n = 14$), and Africa and the Middle East ($n = 13$). In some countries, such as China, the development of NGOs is largely insignificant.[9] The NGOs that participated in the survey

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[6] The term NGO is defined as "...those nonprofit organizations and NGOs that are active in the field of development issues in third world countries, such as rural development, alleviation of poverty, nutrition and health, reproductive biology, and education and global issues such as the environment, human rights, refugees, and the population crisis" (Yamamoto, 1995).

[7] The countries included Japan, Philippines, Indonesia, New Zealand, India, Bangladesh, Pakistan, Kenya, Lebanon, Egypt, Ivory Coast, Zimbabwe, Senegal, South Africa, Morocco, Yemen, Belgium, Italy, Switzerland, United Kingdom, Spain, Sweden, France, Germany, Austria, The Netherlands, Canada, United States, Costa Rica, El Salvador, Peru, Bolivia, Mexico, Ecuador, Nicaragua, and Dominican Republic.

[8] In research that considers the influence of NGOs on corporate disclosure (see Tilt, 1994), Deegan and Blomquist (2000) found that managers from large Australian minerals companies responded to the concerns of one NGO (World Wide Fund for Nature, and their concerns related to the extent of disclosures being made by minerals companies) on the basis that the managers of the minerals companies considered that the concerns of WWF reflected concerns held by the broader community—concerns that could not be ignored if the organizations wanted to comply with their "community license to operate," or *social contract.*

[9] At a regional or country level, empirical results are not available from this survey. Only aggregated results are available.

were principally involved in activities related to education, alleviation of poverty, human rights, policy advocacy, rural development, women, and the environment.

Enderle and Peters (1998) provided two sets of results regarding the expectations of NGOs. The first set included the "most relevant expectations" and included those themes that obtained a cumulative percentage of *affirmative answers* (i.e., "yes, very important," "yes, important," and "yes, less important") from between 90% and 100% of the respondents. The "most relevant expectations" ranged from ". . .respect the laws and regulations of the NGO's country" with a score of 90.2% to ". . .promote equal treatment of men and women" with a score of 98.5%. The second set of results included NGO expectations that were "less emphasized" and obtained a cumulative percentage of *affirmative answers* below 90% of the respondents.[10] The present study adopts the "most relevant expectations" defined by global NGOs because arguably these themes are most relevant to large multinational organizations maintaining their *social contract* with a global community. Table 1 details the expectations used in the present study defined by *global interest groups* within society.

The second study that we rely upon was conducted between March and August 1999 by Environics International (1999) in collaboration with The Prince of Wales Business Leaders Forum in London and The Conference Board in New York. Environics undertook a corporate social responsibility survey to determine ". . .global public opinion on the role of companies in society." Using representative samples of approximately 1000 citizens in 23 countries across six different continents, 25,247 interviews were conducted worldwide using national polls fielded by local research institutes. The countries surveyed were Argentina ($n = 1001$), Australia ($n = 1000$), Canada ($n = 1512$), China ($n = 1817$), Dominican Republic ($n = 501$), Germany ($n = 1000$), Great Britain ($n = 919$), India ($n = 1000$), Indonesia ($n = 1007$), Italy ($n = 1019$), Japan ($n = 1379$), Kazakhstan ($n = 1031$), Malaysia ($n = 1036$), Mexico ($n = 1277$), Nigeria ($n = 1100$), Poland ($n = 994$), Russia ($n = 1054$), Spain ($n = 1000$), South Africa ($n = 2000$), Turkey ($n = 1200$), the United States ($n = 1000$), Uruguay ($n = 900$), and Venezuela ($n = 500$).

The national polls conducted by Environics asked people ". . .to rate the extent to which companies should be held responsible" for 11 different aspects of corporate behavior against a three-point scale of "completely," "partially," or "not at all."

> About three-quarters of the people across all countries surveyed think that large companies should be held completely responsible for protecting the health and safety of workers, treating all employees and job applicants fairly, and not participating in bribery or corruption. About seven in ten people expect corporations to be completely responsible for ensuring that their products and operations do not harm the environment and that their operations and suppliers do not use child labor. A similar proportion expect large companies to operate profitably and

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[10] The "less emphasized" expectations were ". . .equally promote human development" (70.7%), ". . .help to honor basic civil and political rights" (75.6%), ". . .foster creative diversity" (68.9%), ". . .balance their ethical principles with local ethical demands" (78.6%), ". . .take on a leadership role to improve international business behavior in general" (71.6%), and ". . .help to create a world community (beyond business)" (75.6%) (Enderle & Peters, 1998, p. 39).

Table 1

Expectations of large companies defined by global NGOs ("most relevant expectations," regarding corporate behavior, beyond "…respect the laws and regulations of the NGO's country")

Respect the laws and regulations of the NGO's country
Assure no child labour used by contractors
Assure living wages paid by subcontractors
Pay at least living wages
Fair competition within existing legal and social constraints
Apply the same health and safety standards
Reduce net energy consumption
Recognise free associations of employees
No child or forced labour
Train and empower employees
Co-operate with others to eliminate bribery
Improve energy efficiency
Promote "sustainable development"
No bribery
Environmentally improve production
Recycle waste materials
Equal treatment of men and women

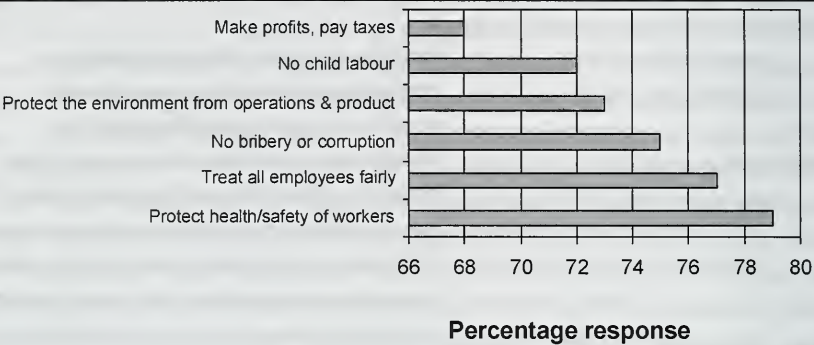90 91 92 93 94 95 96 97 98 99

Percentage response

(based on a global sample of 133 NGOs from 36 countries, where aggregate percentage relates to total affirmative answers of "yes, very important", "yes, important" and, "yes, less important")

Source: Enderle and Peters, 1998

pay their fair share of taxes. About six in ten people think that companies should be held completely accountable for providing secure, long-term jobs to their employees and for applying the same high standards everywhere they operate in the world. About four in ten hold companies completely responsible for listening and responding to public concerns, helping solve social problems, and supporting charities and community projects (Environics International, 1999, p. 18).

The present study only includes those expectations of a global society regarding corporate behavior that companies should be "held completely responsible for." Furthermore, this study only includes those expectations beyond *making a profit and paying taxes* (and 68% identified that companies should be held "completely responsible" for this), as arguably those expectations are most relevant to large companies maintaining their *social contract*, and hence organizational legitimacy, with a global community. Table 2 details the expectations defined by a *global society* from the Environics study.

These two surveys are considered relevant to exploring the legitimate role of large corporations within a global society, (1) assuming that the concept of corporate legitimacy is a function of public concern about certain issues and (2) accepting that the largest multinational corporations operate in a global market and not just a local or regional market. Evidence suggesting that the largest publicly listed corporations in ASK, the focus of this

Table 2
Expectations of large companies defined by a global society (expectations regarding the corporate behavior, beyond "...operate profitably and pay their fair share of taxes")

Percentage response
(based on a global sample of 25,247 citizens, across 23 countries, where aggregate percentage relates to total affirmative answers of "held completely responsible for")

Source Environics, 1999

study, are operating in a global market includes South Korea's move to completely open its stock market to foreigners (Department of Foreign Affairs and Trade (DFAT), 1998b), that 26% of the sampled Australian companies are also listed in Europe or the United States, and that multinational corporations have long been considered a key pillar to the Singapore economy (Department of Foreign Affairs and Trade (DFAT), 1998a). Evidence of the sampled companies' global *orientation*, as declared in annual reports, is provided in Section 3.2 of this paper.

3.2. Sampling multinational corporations

As already indicated, multinational companies were selected from three countries, the countries being ASK. These countries were selected not only on the basis of data availability but also on the basis of differences in their national culture. Briefly, using the five cultural dimensions of *Power Distance, Uncertainty Avoidance, Individualism, Masculinity,* and *Long-term Orientation* as developed by Hofstede (1980, 1991), Australia is ranked as a small power distance society, weak on uncertainty avoidance, as an individualistic society, and shows tendency towards having masculine traits and short-term orientation. Singapore ranks highly on power distance, weakly on uncertainty avoidance, tends to be collectivistic, is ranked lowly in terms of masculinity, and is medium-term orientated. South Korea ranks in the midrange on power distance, relatively strongly on uncertainty avoidance, tends to be collectivistic, possesses feminine traits, and is long-term orientated.

According to Gray (1988), the four cultural attributes relating to power distance, uncertainty avoidance, individualism, and masculinity can be linked to *secrecy*, and *secrecy* in turn is negatively associated with extent of disclosure. Gray specifically argues that if a country ranks highly in terms of uncertainty avoidance and power distance and lowly in terms of individualism and masculinity, then the more likely it is to rank highly in terms of *secrecy*. Eddie (1996, p. 90) tested all five cultural attributes across 10 Asia Pacific countries and

added further evidence of a high ranking in power distance and low ranking in individualism attributing to high levels of *secrecy*.

Whilst it is difficult to determine the precise influence of each of Hofstede's five cultural variables on the variable of *secrecy*, and whilst it is also difficult to precisely relate measures of *secrecy* to *extent of disclosure*, it does appear that the countries that we have selected are culturally different, and if we accept the work of Hofstede, Gray, and Eddie, then this should translate to national acceptance of differences in disclosure levels (and this in turn should translate to differences in extent of disclosure if the corporations involved adopt a national, as opposed to global, culture). Our notion of a "global culture" should work against the differences in disclosure policies suggested by national cultural traits.

The 50 largest publicly listed commercial and industrial organizations, by market capitalization, were selected from each of the three countries.[11] Market capitalization figures for publicly listed companies were chosen for two reasons. Firstly, by referring to publicly listed companies, the chances of obtaining English language annual reports are improved (Adams et al., 1998). Secondly, market capitalization as a size ranking using the 50 largest companies is consistent with previous literature and provides data for international comparison (see, for example, Guthrie & Parker, 1990; Hackston & Milne, 1996). It is argued that the 50 largest publicly listed commercial and industrial organizations in each of the three countries are operating on a global basis and that the expectations of global interest groups within society, and a global society in general, are relevant to their *social contract*.

Reflective of their global orientation, 58% of the corporations investigated made statements in their 1998 annual reports concerning *global reach* or *presence*, *worldwide operations*, *competing globally*, *embracing global competition*, or *multinational recognition*. For example, in Australia, Pioneer International's annual report states that it (1998, p. 1) "...is a leading global building materials company." In Singapore, Yeo Hiap Seng (1998, p. 11) describes itself as taking "...a global perspective...capitalizing on its strong distribution network and global presence in the Asian food and beverage industry...to capture a larger share of the overseas market." In South Korea, Hyundai Engineering and Construction (1998, p. 6) publicly pledge that they will "...continue to strive towards productivity and quality improvements to better serve our global partners and the world community."

3.3. Coding and measuring voluntary CSD

Content analysis was used to establish the number of disclosures (incidence) and amount of disclosure within the respective companies' annual reports, recognizing that the latter indicates the importance of the issue to the reporting entity (Gray, Kouhy, & Lavers, 1995b, p. 80; Krippendorff, 1980). For maximum comparability against previous studies, the Ernst & Ernst (1978) categories are used as a basis for recording CSD (Gray et al.,

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[11] The sample size was initially reduced from 150 to 149 companies due to an inconsistency between the two sources of market capitalization data used to select the South Korean companies. A complete list of the companies investigated is available from the authors on request.

1995b, p. 81), updated to include themes from Gray et al. (1995b), Hackston and Milne (1996), and the expectations of a global society reported by Environics International (1999) and global interest groups within society reported by Enderle and Peters (1998). Statutory disclosure requirements for ASK were also included so that voluntary CSD could be established.

Eight categories of CSD relating to *environment, energy, diversity,*[12] *fair business practices, human resources, community, products,* and *other* CSD were used and subsequently divided into 51 themes. Each theme is identified in Appendix A. Consistent with previous studies (see, for example, Adams et al., 1998; Deegan & Gordon, 1996; Ernst & Ernst, 1978; Gray et al., 1995a; Hackston & Milne, 1996; Ingram, 1978; Patten, 1991; Singh & Ahuja, 1983), corporate annual reports were selected to observe CSD practices amongst organizations. In the present study, annual reports for the financial year 1998/1999 were reviewed.

A principal characteristic of content analysis is that data are coded and measured in a reliable and systematic manner (Krippendorff, 1980). Decision rules were established to control for consistency and replicability in coding and measuring CSD (see, for example, Choi, 1999; Gray et al., 1995b; Hackston & Milne, 1996). An initial sample of 15 reports were read (five from each country) to test the relevance of the 51 themes prior to coding and measuring CSD across the entire sample. Minor modifications were made to reflect country-specific issues such as mandatory disclosure requirements and the recording of photographic CSD. Photographic CSD is consistent with Campbell (2000), Gray et al. (1995b, p. 84), Macintosh (1990, p. 159), Panchapakesan and McKinnon (1992, p. 76), and Singh and Ahuja (1983), recognizing that "…photographs are sometimes a more powerful tool in CSR than narrative disclosures for stakeholders who do not have either the time or the inclination to read every word in the annual report and just flick through it, looking at the pictures and possibly reading the chairman's statement" (Unerman, 2000, p. 675).

The present study adopts two types of reliability test for coding CSD. Firstly, tests are performed to assess the proportion of coding errors between coders (intercoder reliability or reproducibility) based on ex ante coding decisions. Secondly, tests are performed to assess the performance of coders against a predetermined standard (ex post coding decisions) to determine coder accuracy. Both calculations require knowledge of the total number of coding decisions made by each coder and their outcome. Therefore, sentences were chosen as the coding unit (Milne & Adler, 1998). Individual sentences in three randomly chosen reports were sequentially numbered and photocopied.

One set of reports was read by one of the authors, and a further set by an expert coder from the University of Otago. A coefficient of agreement was calculated using the ratio of coding agreements to total number of coding decisions made by each coder. To allow for chance,

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[12] This category was included to reflect the potential for corporations to communicate *diversity* CSD, as evident from an initial examination of the first 20 corporate annual reports received as part of this study. Such a decision complements the categorizing of results from Enderle and Peters (1998) and Environics International (1999). The decision to create a new category for *diversity*-related CSD does not jeopardize potential comparisons with previous studies, as the themes used to describe the *diversity* category are based on those that were originally included in the Ernst & Ernst (1978) *fair business practice* category.

Krippendorff's (1980) adjustment was applied. The results for intercoder reliability indicate that the author's coding techniques and decision rules produce a high level of intercoder reliability (+0.9537) and valid inferences may be made about the incidence and amount of CSD. Receipt of the expert coders' decisions also permitted some discussion[13] to obtain a pooled set of ex post coding decisions and a further test of reliability to determine coder accuracy.

Although sentences were used to code CSD for reliability testing, the present study measures CSD to the nearest hundredth of a page using a transparent plastic A4 sheet.[14] Such a technique provides similar results to measurement by individual sentences (Hackston & Milne, 1996, p. 93).

3.4. Controlling for corporate characteristics

The literature suggests a strong industry effect on CSD (see, for example, Choi, 1999; Cowen, Ferreri, & Parker, 1987; Deegan & Rankin, 1999; Gray et al., 1995a; Patten, 1991, 1992) and that companies can be categorized to reflect their industry's high or low profile (Choi, 1999; Hackston & Milne, 1996; Patten, 1991, 1992; Roberts, 1992). *High-profile* companies are those operating in *high-profile* industries such as raw material extraction, chemical, wood, and paper and forestry and are more exposed to the political and social environment than *low-profile* companies. *Low-profile* companies are those operating in *low-profile* industries such as services, healthcare, computers, and electronics. *High-profile* companies, therefore, have greater incentive to project a positive social image through CSD (Adams et al., 1998; Hackston & Milne, 1996; Patten, 1991).

Each company's industry was identified from a single source, the OneSource *Global Business Browser*. Fifty industry classifications were represented by the sample, which were categorized under 15 industry "types." The predominant industry type was *services* ($n=30$) followed by *computers and electronics* ($n=18$) and then *food and tobacco* ($n=14$) and *transportation* ($n=14$). Each industry type was labeled with a *high* or *low* profile as adopted in previous studies (Choi, 1999; Hackston & Milne, 1996; Patten, 1991; Roberts, 1992).[15]

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[13] Throughout the discussions, several issues became apparent regarding the coding of CSD categories and themes. For example, in a number of cases, the expert coder regarded photographic evidence referring to employees in a work environment as less relevant than photographic evidence highlighting employees celebrating acts of achievement. Consistent with Macintosh (1990, p. 160), in this study, images of female staff working, for example, and images of employees celebrating acts of achievement were considered equally relevant and measured as CSD.

[14] Previous studies (see, for example, Gray et al., 1995b, pp. 90 and 99) have ignored issues regarding actual physical page size, as the extra effort involved does not appear to make a significant difference to the interpretation. The present study reports "pages" of CSD measured using a transparent plastic A4 sheet divided into a grid of 100 rectangles. Each side is divided into 10 after allowing for a standard margin of approximately 25 mm. The transparent sheet is placed over sections of highlighted text, pictures, or captions and the number of hundredths assessed. No allowance was made for typeface or margins between blocks of text.

[15] Based on prior studies, the *food and tobacco* industry could be considered high or low profile. The present study considers it high profile given its consumer orientation (Adams et al., 1998; Choi, 1999; Cowen et al., 1987).

Table 3
Industry profiles relevant to the current study

Industry "types" for the current study	Sample size (n)	Industry profiles (H = high, L = low)				
		Patten (1991)	Roberts (1992)	Hackston and Milne (1996)	Choi (1999)	Current study
Services (including hotels)	30		L	L		L
Computers and electronics	18			L	L	L
Food and tobacco	14		L	L/H	H	H[a]
Transportation (including airlines)	14		H	H		H
Metals (including mining)	12			H	H	H
Construction	9			L		L
Fabricated goods (including appliances)	9		L		L	L
Utilities (including oil, gas, and electricity)	9	H	H	H	H	H
Communication	8			H		H
Chemical	7	H		H	H	H
Healthcare	7		L	L		L
Retail	5			L	L	L
Automotive	3		H			H
Wood, paper, and forestry	2	H		H	H	H
Fabric and apparel	1			L	L	L

[a] Labeled as high profile given its consumer orientation (Adams et al., 1998; Choi, 1999; Cowen et al., 1987).

Table 3 gives an overview of the literature's previous industry profiles and the profiles adopted in the present study.

Given the literature also suggests a potential country effect on CSD (see, for example, Adams et al., 1998; Gray et al., 1995a; Perera & Mathews, 1990; Williams, 1999), each country was assigned a numeric reference.

4. CSD results and discussion

For consistency with previous studies, results are first discussed against CSD *categories* (see, for example, Gray et al., 1995a; Hackston & Milne, 1996; Tsang, 1998; Williams, 1999). Ninety-five percent of the 148 companies investigated provided some form of voluntary CSD, with a mean amount across the sample of 3.47 pages. Table 4 provides the results of descriptive analysis for total voluntary CSD. The most measured pages disclosed were for categories relating to *human resources, community involvement, diversity,* and *environment*.

The *environment* category has been the subject of many recent CSD studies (see, for example, Choi, 1999; Deegan & Gordon, 1996; Teoh et al., 1998). In the present study, *environment* CSD accounts for 11% of total voluntary CSD, with 38% of companies making

Table 4
Results of descriptive analysis for total voluntary CSD

	Disclosing companies (making at least one disclosure)	Disclosing companies as a percentage of total sample (incidence)	Measured pages disclosed (amount)	Measured pages as a percentage of all disclosures	Minimum pages disclosed	Maximum pages disclosed	Mean pages disclosed	S.D.
Category								
Environment	56	38	55	11	0	4.86	0.37	0.85
Energy	18	12	2	<1	0	0.32	0.01	0.05
Diversity	82	55	56	11	0	5.04	0.38	0.73
Fair business practices	51	34	9	2	0	0.81	0.06	0.12
Human resources	135	91	305	59	0	14.42	2.07	2.61
Community involvement	73	49	66	13	0	4.28	0.44	0.81
Product	54	36	11	2	0	1.19	0.07	0.18
Other	37	25	10	2	0	2.47	0.07	0.27
Total voluntary CSD			514	100	0	18.59	3.47	3.81
Evidence								
Monetary	84	57	16	3	0	1.81	0.11	0.24
Quantitative	78	53	23	4	0	1.92	1.15	0.31
Qualitative	126	85	164	32	0	6.79	1.11	1.40
Declarative	110	74	52	10	0	3.63	0.35	0.61
Photographic	102	69	259	51	0	13.18	1.75	2.45
Total			514	100				
News								
Neutral[a]	79	53	29	6	0	3.82	0.20	0.41
Good[b]	138	93	475	92	0	17.48	3.20	3.61
Bad[c]	45	30	10	2	0	1.46	0.07	0.19
Total			485	94				

[a] Neutral news is a statement of policy or intent within the statutory minimum with no details of what or how, or statements/figures where the credit/discredit to the organization is not obvious (Gray et al., 1995b).

[b] Good news is a statement beyond the statutory minimum that includes specific details having a creditable reflection on the organization, or statements/photos/analysis/discussion that reflect credit on the organization (Gray et al., 1995b).

[c] Bad news is statement/photo/analysis/discussion that reflects discredit on the organization, including numbers made redundant, any increase in accidents, or figures that indicate a discreditable trend (Gray et al., 1995b).

at least one disclosure. A similar percentage of companies also make at least one disclosure for *product* CSD (36%), but this accounts for only 2% of all measured pages. If the amount of CSD for an issue is an indication of the perceived importance of that issue, then it appears that matters regarding an organization's impact on the environment are still considered more important than product impacts on the environment. On average, companies reporting *product* CSD only provide 0.07 pages compared to an average 0.37 pages of *environment* CSD.

Only a few studies have reported CSD regarding *fair business practices* since the Ernst & Ernst studies in the 1970s (see Cowen et al., 1987; Foo & Tan, 1988; Patten, 1991, 1992, 1995). In the present study, the Ernst & Ernst *fair business practices* is defined and measured using two categories relating to *diversity* CSD and *fair business practices* CSD (refer to Appendix A). Collectively, these two categories account for 13% of total voluntary CSD, in contrast to *environment* CSD, which accounted for 11% of total voluntary CSD. Companies sampled provide an average 0.38 pages of *diversity* CSD and 0.06 pages of *fair business practices* CSD (mean total = 0.44 pages), a figure well in excess of *environment* CSD (mean = 0.37 pages).

Human resource is the CSD category most reported and also the most variable ($s = 2.61$ pages), with 91% of the companies sampled providing an average disclosure of 2.07 pages. Recognizing that an examination of message types embodied in the disclosure can add further insight regarding CSD motivations (Buhr, 1998, p. 170; Guthrie & Parker, 1990, p. 162) and is an issue frequently overlooked (Campbell, 2000, p. 87), Table 4 also reports "evidence" and "news" types. *Photographic* images and *qualitative* statements make up the vast majority of CSD "evidence" (51% and 32% of measured pages disclosed, respectively) and 92% of all disclosure is considered *good* news, defined as a statement beyond the statutory minimum that includes specific details having a creditable reflection on the organization or statements/photos/analysis/discussion that reflect credit on the organization (Gray et al., 1995b).

This study also analyzed results against 51 CSD themes. Table 5 provides mean disclosure amounts of 0.01 pages or more against voluntary CSD themes. CSD with a mean below 0.01 pages is excluded.

At a theme level, *employee performance and profiles* is reported more than other forms of CSD (mean = 1.27 pages). This type of CSD includes general statistics on staff (average age, numbers employed, length of service, etc.), details of qualifications, per employee statistics, staff locations, and descriptions of occupations (Hackston & Milne, 1996). *Community sponsorship and services* ranked second in terms of quantity of disclosure (mean = 0.27 pages) and *employee morale and incentives* was ranked third equal with *employment of women* (mean = 0.24 pages).

Table 5 also shows that amongst the 30 voluntary themes reported by the largest corporations in ASK, nine themes align with a total of eight expectations, either from the "most relevant expectations" (Enderle & Peters, 1998) of global interest groups or from those aspects of corporate behavior that companies should be "held completely responsible for" (Environics International, 1999) from a global society. Appendix B provides descriptions of the nine themes and how they align with the eight expectations (hereafter referred to as *global*

Table 5

Company disclosure of corporate social responsibility themes (16 voluntary themes with a mean disclosure of less than 0.01 pages have been excluded)

Theme	Mean pages disclosed
# Reducing pollution arising from use of product (G2)	0.01
# Industrial relations (E9)	0.01
Leadership (D6)	0.01
# General diversity-related disclosure (C7)	0.01
Employment of minorities (C1)	0.01
# Conservation of energy in the conduct of business (B1)	0.01
Environmental audit (A2)	0.01
General human resources disclosure (E13)	0.02
# Conservation of natural resources and recycling (A5)	0.02
General product-related disclosure (G4)	0.03
Product safety (G1)	0.03
Community health-related activities (F2)	0.03
Employee benefits (E5)	0.03
General community involvement disclosure (F4)	0.04
Employee share purchase schemes (E7)	0.04
General environment disclosure (A10)	0.04
General fair business practices disclosure (D7)	0.05
General social disclosures not included in categories A to G (H1)	0.06
Prevention or repair of damage to the environment resulting from processing of natural resources (A4)	0.07
Education and the arts (F3)	0.10
Employee entitlements and remuneration (E3)	0.10
Environmental policy and systems (A1)	0.10
# Advancement of women (C4)	0.12
# Pollution control in the conduct of business operations (A3)	0.14
# Employee training and empowerment (E2)	0.16
# Employee health and safety (E1)	0.20
Employee morale and incentives (E8)	0.24
Employment of women (C3)	0.24
Community sponsorship and services (F1)	0.27
Employee performance and profiles (E6)	1.27

Mean pages disclosed
(based on a sample of 148 companies from ASK; mean total CSD = 3.47 pages;
letters and numbers in brackets refer to theme references in Appendix A;
# indicates themes aligned with global expectations)

expectations). Against those themes for which there was some disclosure, it appears that global expectations aligned with themes concerning child and forced labor, illicit operations (*no bribery or corruption*), minimum wages[16] (*pay at least living wages*), socially responsible business practices abroad[17] (including *apply the same health and safety standards*), sustainable development, and design for the environment (including *environmentally improve production*) are not addressed.

Using the descriptions in Appendix B, Table 6 reports results of the descriptive analysis against global expectations.

The mean disclosure amount against aspects of corporate behavior that companies should be "held completely responsible for" (Environics International, 1999), as expected by a global society, is 0.31 pages or 9% of the mean total voluntary CSD (3.47 pages). The mean disclosure amount against the "most relevant expectations" (Enderle & Peters, 1998) of global interest groups is 0.35 pages or 10% of the mean total voluntary CSD provided by the largest corporations in ASK. Seventy-two percent of companies that provided some disclosure volunteered an average of 0.66 pages of CSD aligned with global expectations, which represented 19% of total voluntary CSD.

The global expectations most reported were *protect health/safety of workers* (mean = 0.20 pages), *train and empower employees* (mean = 0.16 pages), *protect the environment from operations and product* (mean = 0.14 pages), and disclosures supporting *equal treatment of men and women* in career advancement (mean = 0.12 pages). However, whereas 47% and 42% of the sample, respectively, consider *train and empower employees* and *equal treatment of men and women* worthy of at least one mention, only 24% and 26%, respectively, mention *protect the environment from operations and products* and *protect health/safety of workers*. It appears that the largest companies in ASK are volunteering CSD but little aligns with global expectations.

If we accept that surveys, such as the ones used in this study, reflect society's expectations of corporate behavior, then the results suggest a legitimacy gap between the sampled company values and the value system of a global society. Perhaps CSD is being determined by reference to the expectations of other "relevant publics" (Lindblom, 1994) such as shareholders and employees or that management are unaware of *global concerns*. A further explanation might be that some companies sampled are more *globally orientated*, have a stronger tendency to *borrow* a global reporting culture, and subsequently adopt different disclosure practices (Zarzeski, 1996, p. 35). Reflective of this last possible explanation, Table 7 below reports an analysis of variance in CSD aligned with global expectations between the 58% of corporations that declared a global *orientation* in their annual report and those that did not.

The between sample variation has a χ^2 statistic of 11.541 ($df = 1$), suggesting that companies declaring their global *orientation* in the annual report provide significantly more

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[16] This theme specifically focussed on disclosure regarding payment of living wages. Disclosure regarding *employee entitlements and remuneration* (theme E3 in Appendix A) was measured separately.

[17] Socially responsible business practices abroad was defined as providing reference to using local suppliers, providing reference to promoting foreign nationals to managerial positions or training them for advancement, providing reference to disclosing involvement in the civic affairs of a foreign country, and providing reference to applying the same health and safety standards all over the world (Enderle & Peters, 1998).

Table 6
Results of descriptive analysis for CSD aligned with global expectations

	Disclosing companies (making at least one disclosure)	Disclosing companies as a percentage of total sample (incidence)	Measured pages disclosed (amount)	Measured pages as a percentage of all disclosures	Minimum pages disclosed	Maximum pages disclosed	Mean pages disclosed	S.D.
Expectations of a global society								
Protect health/safety of workers	38	26	29	6	0	3.02	0.20	0.54
Treat all employees fairly	6	4	2	<1	0	1.00	0.01	0.10
Protect the environment from operations and product	36	24	21	4	0	3.14	0.14	0.47
Total voluntary CSD	52	35	52	10	0	6.31	0.35	0.90
Expectations of global interest groups within society								
Equal treatment of men and women	62	42	17	3	0	0.98	0.12	0.21
Recycle waste materials	14	9	2	<1	0	0.50	0.02	0.07
Reduce net energy consumption and improve energy efficiency	12	8	1	<1	0	0.20	0.01	0.03
Train and empower employees	70	47	23	4	0	2.40	0.16	0.37
Recognize free associations of employees	16	11	2	<1	0	0.32	0.01	0.05
Total	103	70	45	9	0	2.96	0.31	0.47
CSD aligned with global expectations (n = 148)	106	72	97	19	0	7.06	0.66	1.08

Table 7
Analysis of variance for CSD aligned with global expectations using global orientation

Ranks	Global orientation in annual report	n	Mean rank
CSD aligned with global expectations	No	62	60.56
	Yes	86	84.55
	Total	148	

Test statistics[a,b]	CSD aligned with global expectations	
χ^2	11.541	
df	1	
Asymptotic sig.	.001	

[a] Kruskal–Wallis test.
[b] Grouping variable: global orientation declared in the annual report.

CSD aligned with global expectations, at the .01 level ($P=.001$). However, while this result might help to explain a variation against disclosed global expectations, it does not help to explain the *lack* of disclosure against other "most relevant expectations" (Enderle & Peters, 1998) or other aspects of corporate behavior that companies should be "held completely responsible for" (Environics International, 1999).

Whilst we have set out to explore the potential relevance of global expectations, alternative explanations for CSD trends have been advanced by other researchers. To further explore these results and given that CSD is potentially affected by *country of origin* and *industry of operation* (Adams et al., 1998; Gray et al., 1995a, p. 49), total voluntary CSD amounts and CSD aligned with global expectations for each country and industry profile are reported in Table 8.

Table 8 shows a significant variation in total voluntary CSD across countries. The between-country variation has a χ^2 statistic of 22.245 ($df=2$, asymptotic sig. $=0.000$), indicating that total voluntary CSD was sampled from populations with different mean ranks and providing support for a significant country effect, at the .01 level. Australia provides the highest mean amount of voluntary CSD (5.31 pages), almost twice as much as Singapore and South Korea.[18] This is a considerable increase over voluntary CSD amounts reported for Australia by Guthrie (1982, 1983, as cited in Guthrie & Mathews, 1985) in 1980 (0.68 pages) and 1983 (0.70 pages). The difference could be partly explained from the use of different criteria, in particular photographic evidence, which amounted to 2.56 pages.

There is also a significant variation in total voluntary CSD across industries. The between-industry-profile variation has a χ^2 statistic of 5.383 ($df=1$, asymptotic sig. $=0.020$), indicating that total voluntary CSD was sampled from populations with different mean ranks and providing support for a significant industry effect, at the .05 level. High-profile industries, on average, provide significantly more voluntary CSD (4.54 pages) than low-profile industries (2.72 pages).

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[18] Mean amounts for voluntary and statutory CSD combined are Australia (7.41 pages), Singapore (3.13 pages), and South Korea (2.85 pages).

Table 8
Total voluntary CSD and CSD aligned with global expectations, by country of origin and industry profile

	Country comparisons				Industry comparisons		
	Australia ($n=50$)	Singapore ($n=49$)	South Korea ($n=49$)	Kruskal–Wallis	High ($n=53$)	Low ($n=95$)	Kruskal–Wallis
	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)	χ^2 (asymptotic sig.)	Mean (S.D.)	Mean (S.D.)	χ^2 (asymptotic sig.)
Total voluntary CSD	5.31 (4.59)	3.00 (3.10)	2.07 (2.76)	22.245 (0.000)***	4.54 (4.59)	2.72 (2.96)	5.383 (0.020)**
CSD against global expectations	1.28 (1.44)	0.38 (0.62)	0.30 (0.68)	37.722 (0.000)***	0.98 (1.40)	0.44 (0.71)	5.770 (0.016)**

** Significant at the .05 level.
*** Significant at the .01 level.

Table 8 also indicates a significant variation in CSD aligned with global expectations. The largest Australian companies provide, on average, 1.28 disclosed pages (24% of total voluntary CSD), considerably more than the largest Singapore and South Korean companies (mean disclosures of 0.38 and 0.30 pages, respectively). High-profile companies also provide significantly more CSD aligned with global expectations, at the .05 level.[19] There is clearly an attempt by corporations in ASK to volunteer CSD, but the quantity appears to be highly dependent on country of origin and industry profile. Recognizing the significant country and industry effect on CSD aligned with global expectations, Table 9 reports mean pages disclosed by country of origin and industry profile against individual themes aligned with global expectations.

Against individual themes aligned with global expectations, Australia provides the highest disclosure for *protect health/safety of workers* regardless of industry profile (high profile mean = 0.74 pages, low profile mean = 0.35 pages). This is also the case for *equal treatment of men and women* (high profile mean = 0.21 pages, low profile mean = 0.26 pages) and *reduce net energy consumption/improve energy efficiency* (high profile mean = 0.02 pages, low profile mean = 0.01 pages). Singapore, however, provides the highest disclosure regardless of industry profile for *train and empower employees* (high profile mean = 0.29 pages, low profile mean = 0.21 pages). South Korean companies disclose against *protect the environment from operations and product* more so than any other individual expectation reported (high profile mean = 0.29 pages).

Regardless of industry profile, there are significant country differences, at the .01 level, for all CSD aligned with global expectations and individual expectations concerning *protect health/safety of workers*, *protect the environment from operations and product*, and *equal treatment of men and women*. Total voluntary CSD is also significantly different across countries, at the .01 level for high-profile companies and at the .05 level for low-profile

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[19] Although not reported, a significant industry variation (at the .05 level) was also noted for total voluntary CSD and CSD aligned with global expectations when using the 15 industry types.

Table 9
CSD aligned with global expectations, by industry profile and country of origin

	High-profile companies (n = 61)				Low-profile companies (n = 87)			
	Australia (n = 23)	Singapore (n = 17)	South Korea (n = 21)	Kruskal–Wallis	Australia (n = 27)	Singapore (n = 32)	South Korea (n = 28)	Kruskal–Wallis
	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)	χ^2 (asymptotic sig.)	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)	χ^2 (asymptotic sig.)
Protect health/safety of workers	0.74 (0.84)	0.00 (0.00)	0.11 (0.35)	35.922 (0.000)***	0.35 (0.75)	0.00 (0.02)	0.00 const.	23.942 (0.000)***
Train and empower employees	0.19 (0.29)	0.29 (0.48)	0.09 (0.22)	3.398 (0.183)	0.08 (0.15)	0.21 (0.50)	0.12 (0.41)	2.238 (0.327)
Protect the environment from operations and product	0.57 (0.90)	0.00 const.	0.29 (0.60)	18.154 (0.000)***	0.08 (0.19)	0.00 const.	0.01 (0.02)	9.299 (0.010)***
Equal treatment of men and women	0.21 (0.24)	0.07 (0.12)	0.00 const.	23.592 (0.000)***	0.26 (0.29)	0.12 (0.20)	0.00 (0.01)	30.689 (0.000)***
Recycle waste materials	0.06 (0.12)	0.00 (0.00)	0.00 const.	10.273 (0.006)***	0.01 (0.03)	0.02 (0.09)	0.00 const.	4.436 (0.109)
Reduce net energy consumption and improve energy efficiency	0.02 (0.06)	0.00 const.	0.00 (0.01)	4.851 (0.088)*	0.01 (0.02)	0.00 (0.01)	0.01 (0.03)	0.361 (0.835)
Treat all employees fairly	0.03 (0.13)	0.06 (0.24)	0.00 const.	2.902 (0.234)	0.01 (0.03)	0.00 const.	0.00 const.	4.496 (0.106)
Recognize free associations of employees	0.03 (0.08)	0.02 (0.08)	0.00 const.	3.606 (0.165)	0.01 (0.02)	0.02 (0.05)	0.01 (0.04)	3.262 (0.196)
CSD aligned with global expectations	1.85 (1.76)	0.39 (0.59)	0.50 (0.89)	19.022 (0.000)***	0.80 (0.88)	0.38 (0.64)	0.15 (0.41)	20.507 (0.000)***
Total voluntary CSD	7.44 (5.28)	3.54 (3.23)	2.18 (2.79)	17.105 (0.000)***	3.49 (2.95)	2.72 (3.04)	1.98 (2.79)	6.581 (0.037)**

   * Significant at the .10 level.
  ** Significant at the .05 level.
 *** Significant at the .01 level.

companies. However, matters regarding employee training, "…treating all employees and job applicants fairly, regardless of gender, race, religion, or sexual orientation" (Environics International, 1999, p. 19), and the free associations of staff do not appear as volatile across countries. CSD in general, and certain CSD themes, appear to be highly dependent on the social, political, and cultural environment of the reporting company's "home" country.

From this discussion, certain CSD themes appear to be influenced by country of origin and industry profile, with some country/industry combinations more likely to address particular themes than others. However, there are also global expectations concerning child and forced labor, illicit operations, minimum wages, socially responsible business practices abroad, sustainable development, and design for the environment, that are not reported regardless of country of origin or industry profile.

In considering the two research questions we posed towards the beginning of this paper, we now provide the following summarizing comments. In relation to the question "to what extent does voluntary CSD provided by large multinational organizations align with the expectations of a *global society*?" our results indicate little alignment. However, this result does improve when using a subsample of those companies declaring their global *orientation* in the annual report. Of course, such a conclusion is based on an assumption that the surveys used capture "global expectations."

In relation to the second question "if the voluntary CSDs made by multinational corporations from different countries shows significant dissimilarity (inconsistent with our "global perspective"), does *country of origin* or *industry of operation* appear to be a significant influence (as has been suggested in other CSD research)?" our results indicate that country of origin is significant, at the .01 level, in explaining differences in total voluntary CSD provided by high-profile companies. Country of origin is also significant, at the .05 level, in explaining variation in total voluntary CSD for low-profile companies sampled.

5. Conclusion and implications

This study has explored the social disclosure practices of the largest publicly listed industrial and commercial corporations headquartered in ASK. It contributes to the literature in a number of ways.

First, it provides an analysis of CSD by category and theme across culturally diverse countries and highlights the relevance of *diversity* and *fair business practices* CSD in future studies. Second, it provides CSD analysis by *theme*, recognizing that organizational legitimacy relies on a social contract maintained by disclosing information that aligns with society's expectations (in this case, disclosure by large multinational companies aligned with global expectations). Third, it examines the extent that voluntary CSD practices of the largest publicly listed corporations in ASK aligns with global expectations. Fourth, it adds further evidence to the significant influence of *country of origin* and *industry of operation* on CSD practices in general. Fifth, consistent with legitimacy theory, it has found that 92% of CSD is self-laudatory (Deegan & Gordon, 1996). Further work is needed to empirically link the results to company, industry, and country characteristics.

At an aggregated level, the results indicate that 19% of total voluntary CSD reported by the largest publicly listed industrial and commercial organizations in ASK aligns with global expectations. Recognizing the growing body of evidence that suggests that CSD is significantly impacted by country of origin and industry of operation, the study provides disclosure amounts for country/industry combinations across ASK and highlights how certain global expectations are reported more than others.

For example, Singapore reported the highest levels of CSD regarding *train and empower employees*, regardless of industry profile (refer to Table 9). Perhaps this is due to specific issues at the time. In the first half of 1998, some 18,000 redundancies were reported in Singapore, and for the first time since the country's independence, unemployment rose above 3%.[20] On 29 June 1998, the Singapore Government announced a series of measures aimed at reducing costs and encouraging businesses not to make redundancies but to undertake retraining (DFAT, 1998a). Singapore companies sampled might be reporting against the training and empowerment of employees to legitimize economic and political arrangements that contribute towards their own private interests (Guthrie & Parker, 1990, p. 166). This result is in stark contrast to the low level of disclosure regarding *protect the environment from operations and product* (refer to Table 9), which is surprising given the country's lack of natural resources and the Government's regular environment campaigns (Low et al., 1985).

There are certain global expectations that all companies sampled fail to address. Why these multinational organizations elect to provide only minimal information relating to the concerns of a global society is not something about which we can be sure. While the study suggests that "global orientation" declared in annual reports has a significant effect on CSD aligned with eight of the *most relevant* global expectations, it does not assist with understanding the lack of disclosure against the remaining 13 *most relevant* global expectations. Shell International, a company not included in the present study, regularly discloses on matters regarding illicit operations, child labor, socially responsible business practices abroad, and other global expectations not reported in the present study,[21] suggesting that these matters are considered important by some large multinational organizations.

In trying to explain this minimal disclosure, we can consider the following. Perhaps the managers of the organizations sampled are not aware of global concerns (although given the

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[20] The Economist Intelligence Unit, 1998 (17 November, Singapore Economy: Business Outlook).

[21] On the matter of illicit operations, Shell International state in their 1998 report "Profit and Principles—does there have to be a choice?" (p. 20) "We do not bribe nor do we accept bribes. We do not sanction illegal payments of any kind. We investigate all suspicious circumstances. Any employee found to have bribed or to have accepted bribes is dismissed. We believe that cutting corruption is essential and leads to greater equality, a happier workplace, more efficient economies, rapidly increasing investment flows, and the spread of prosperity." On the matter of child labor, their 1999 report (p. 17) states "In every country where we operate, our employees are above the local legal age of employment. The youngest company employee, who is 15 years old, is employed part time and works in Europe. Shell companies in 84 countries have a specific policy to prevent the use of child labor in any of their operations. Contractors and/or suppliers are screened against the use of child labor in 52 countries." And on the subject of social responsibility abroad, the 1999 report (p. 10) states "Shell companies cooperate with local governments and regulatory bodies in all countries where they operate and contribute, wherever possible, to the development of appropriate regulatory frameworks for emissions from refinery and chemicals manufacturing facilities. These are designed to take account of local circumstances including potential impact on the surrounding environment."

sophisticated ways that most organizations collect information about community perceptions and other market related issues, this possibility is perhaps open to question). Alternatively, perhaps managers focus on the concerns of a narrow "relevant public," such as shareholders, employees, or local communities. As another alternative, consistent with some of the legitimizing strategies suggested by Lindblom (1994), the organizations might be disclosing information about the strengths of the organization (for example, *employee performance and profiles* reported in Table 5) in an attempt to deflect attention from other concerns that might be held by the global community, such as those identified in the two surveys used in this study. A further explanation might be that, consistent with Zarzeski (1996) and relating back to the cultural work of Gray (1988), secretive countries such as South Korea do not presently perceive an economic gain from increasing their disclosures and therefore chose not to adopt reporting practices consistent with a global culture.

While the large multinational organizations sampled might be using CSD to respond to expectations of national *relevant publics*, represented by 81% of CSD not meeting global expectations, response to the terms of a "social contract" with global citizens and interest groups appears flaccid. Assuming that CSD is being made in response to the concerns of *relevant publics*, organizational legitimacy might be more secure from a national, rather than global, perspective. Based on the amount of disclosure, only the high-profile Australian companies sampled appear to show any significant response to global expectations (mean = 1.85 pages in Table 9).

For large multinationals headquartered in ASK and concerned with maintaining a social contract against the *most relevant* global expectations, the findings suggest some immediate consideration should be given to disclosure regarding child and forced labor, illicit operations, minimum wages, socially responsible business practices abroad, sustainable development, and design for the environment. To meet the two *most relevant expectations* of a global society, greater discussion is needed on issues regarding *protect health/safety of workers* and *treat all employees fairly* (refer to Table 2). To meet the two *most relevant expectations* of global interest groups, greater discussion is needed on *equal treatment of men and women* and *recycling waste materials* (refer to Table 1). Some companies sampled from ASK have yet to provide discussion on these matters.

Our results have a number of implications. First, our proposition that large multinational corporations will embrace similar disclosure strategies that recognize global concerns might only be acceptable for a certain percentage of the companies sampled. Consistent with Adams et al. (1998, p. 16), reasons for CSD differences across countries is complex and the country/industry effect requires further investigation, perhaps at a *theme* level. Second, if it is accepted that we have reasonably reliable measures of concerns held by people throughout the world, and if we are to accept that organizations are accountable for their actions in the same way that Gray et al. (1996) suggest,[22] then the results of our study indicate that multinational

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[22] Gray et al. (1996, p. 38) suggest that organizations have a duty to provide information (or an "account") about those actions for which they are held responsible. "Accountability" is considered to involve two responsibilities. First, there is a responsibility to *undertake certain actions* (or to refrain from certain actions). Second, there is a responsibility to *provide information* about those actions.

organizations are not providing information sufficient to allow people to monitor corporate performance against these concerns. With the lack of any relevant global legislative forces, this deficiency is likely to remain.

Acknowledgments

Appendix A. Content analysis categories and themes

The content analysis categories are principally based on the work of Ernst & Ernst (1978). Modifications include additional content from Choi (1999), Enderle and Peters (1998), Environics International (1999), Gray et al. (1995b), Hackston and Milne (1996), and statutory disclosure requirements for Australia, Singapore, and South Korea. Eight categories (A–H) and 51 themes are used to classify voluntary and mandatory disclosure (46 voluntary themes and 5 mandatory themes). A full copy of the coding instrument is available from the authors on request.

A. Environment

A1. Environmental policy and systems
A2. Environmental audit
A3. Pollution control in the conduct of business operations
A4. Prevention or repair of damage to the environment resulting from processing of natural resources
A5. Conservation of natural resources and recycling
A6. Promoting sustainable development
A7. Design for the environment and environmentally improve production
A8. Australian mandatory disclosure in the Directors' report against compliance with significant and particular environmental legislation
A9. Australian mandatory disclosure regarding accounting policies for Restoration Obligations in the Extractive Industries
A10. General environment disclosure not included in themes A1–A9

B. Energy

B1. Conservation of energy in the conduct of business
B2. Energy efficiency of products
B3. Alternative energy sources
B4. General energy-related disclosure not included in themes B1–B3

C. Diversity (formerly included in Ernst & Ernst's, 1978 Fair Business Practices category)

C1. Employment of minorities
C2. Advancement of minorities
C3. Employment of women
C4. Advancement of women
C5. Employment of other special-interest groups
C6. Support for minority businesses
C7. General diversity-related disclosure not included in themes C1–C6

D. Fair business practices

D1. Socially responsible business practices abroad
D2. Illicit operations
D3. Child and forced labor
D4. Global competition
D5. Civil rights
D6. Leadership
D7. General fair business practices disclosure not included in themes D1–D6

E. Human resources

E1. Employee health and safety
E2. Employee training and empowerment
E3. Employee entitlements and remuneration
E4. Minimum wages
E5. Employee benefits
E6. Employee performance and profiles
E7. Employee share purchase schemes
E8. Employee morale and incentives
E9. Industrial relations

E10. Australian mandatory requirements relating to disclosure against superannuation commitments and employee entitlements

E11. Australian mandatory requirements relating to disclosure against employee share schemes

E12. Korean mandatory requirements relating to disclosure against severance benefits

E13. General human resources disclosure not included in themes E1–E12

F. Community involvement

F1. Community sponsorship and services

F2. Community health-related activities

F3. Education and the arts

F4. General community involvement disclosure not included in themes F1–F3

G. Products

G1. Product safety

G2. Reducing pollution arising from use of product

G3. Product development

G4. General product-related social disclosure not included in themes G1–G3

H. Other

H1. General social disclosures not included in categories A–G

H2. References to additional information

Appendix B – Description of content analysis themes aligned with global expectations

Global expectations (Enderle & Peters, 1998;	Appendix A (Ref. for measuring CSD Aligned with Global Expectation)	Theme description for content analysis
1. Protect health/safety of workers	E1. Employee health and safety	This includes providing reference to reducing or eliminating pollutants, irritants, or hazards in the work environment, providing reference to promoting employee safety and physical or mental health, providing reference to disclosing accident statistics, providing reference to complying with OH&S standards, providing reference to receiving a safety award, providing reference to establishing a safety department or committee, providing reference to conducting research with the objective of improving work safety, and providing reference to discussion on contractor's health and safety.
2. Train and empower employees	E2. Employee training and empowerment	This includes providing reference to training employees through in-house programs, providing reference to giving financial assistance to employees enrolled in college, vocational, high school, or continuing education courses (Ernst & Ernst, 1978), and providing reference to training and empowering employees through development of relevant and transferable skills and knowledge (Enderle & Peters, 1998).
3. Protect the environment from operations and product	A3. Pollution control in the conduct of business operations	This includes providing reference to capital, operating, and research and development expenditures for pollution abatement, providing statements indicating that the company's operations are nonpolluting or that they are in compliance with pollution laws and regulations, providing statements indicating that pollution from operations has been or will be reduced (Ernst & Ernst, 1978), providing statements "…ensuring that…operations do not harm the environment" (Environics International, 1999, p. 21), and providing discussion on greenhouse gas emissions. It does not include providing discussion of normal operations and procedures by a manufacturer of pollution control equipment (Ernst & Ernst, 1978) and statements included in the environ-mental policy statement.
	G2. Reducing pollution arising from use of product	This includes providing reference to efforts to reduce pollutive effects of using a product (for example, modifications to reduce engine noise or use of biodegradable materials) (Ernst & Ernst, 1978) and providing statements "…ensuring that…products…do not harm the environment" (Environics International, 1999, p. 21). It does not include providing reference to improvement by manufacturers of pollution control equipment and providing reference to efforts to increase energy efficiency of product.

Appendix B (*continued*)

4. Equal treatment of men and women	C4. Advancement of women	This includes providing reference to programs for advancing women to managerial positions, providing reference to percentage or number of women in managerial positions, providing reference to women officers or directors (Ernst & Ernst, 1978), and providing reference to equal treatment of men and women (Enderle & Peters, 1998, p. 38).
5. Recycle waste materials	A5. Conservation of natural resources and recycling	This includes providing reference to recycling waste glass, metals, oil, water, paper, and other waste materials, providing reference to using recycled paper, and providing reference to efficiently using material resources in the manufacturing process (Ernst & Ernst, 1978). It does not include providing reference to recycling as a line of business, providing reference to adapting facilities to use alternate sources of fuel (for example, fitting gas-fired furnaces), and providing reference to conserving energy resources (Ernst & Ernst, 1978) and statements included in the environmental policy.
6. Reduce net energy consumption and improve energy efficiency	B1. Conservation of energy in the conduct of business	This includes providing reference to using energy more efficiently during the manufacturing process (Enderle & Peters, 1998, p. 38), providing reference to utilizing waste materials for energy production (for example, burning wood chips to produce steam), providing reference to energy savings from product recycling, providing reference to net energy consumption (Enderle & Peters, 1998, p. 38), providing reference to company's efforts to reduce energy consumption (for example, energy consumption seminars for employees), and providing reference to the utilization of secondary and tertiary recovery processes.
7. Treat all employees fairly	C7. General diversity-related disclosure…	This includes providing reference to an affirmative action or equal opportunity program (Ernst & Ernst, 1978), providing statements regarding "…treating all employees and job applicants fairly, regardless of gender, race, religion, or sexual orientation" (Environics International, 1999, p. 19), providing reference to making managers accountable for equal employment goals, providing reference to sponsoring minority housing programs or projects, providing reference to establishing a minority affairs council, committee, or office, and providing reference to other general diversity related disclosures.
8. Recognize free associations of employees	E9. Industrial relations	This includes providing reference to the company's relationship with trade unions and/or workers, providing reference to any strikes, industrial actions/activities, and the resultant losses in terms of time and productivity, providing reference to information on how industrial action was reduced/negotiated, and providing reference to statements recognizing free associations of employees (Enderle & Peters, 1998, p. 38).

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Timeliness of corporate and audit reports: Some empirical evidence in the French context

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Abstract

The issue of timeliness of financial reporting, an important qualitative characteristic of accounting information, has received much attention from regulatory and professional bodies in France in recent years. The increasing presence of international investors, particularly from the US, on the Paris Stock Exchange adds to the importance of this issue. The timeliness of corporate and audit reports in the French context is analyzed by examining the trend in reporting delay of companies, the effect that qualified reports have on the timeliness of corporate reporting, and the relationship between reporting behavior and types of audit reports over a 10-year period. The data are taken from more than 5000 annual reports of French publicly held companies for the years 1986–1995. These bear witness to an improvement in timeliness of corporate and audit reports. This improvement is greater for reports from consolidated accounts of groups than those from annual accounts of companies. There is also evidence that qualified audit opinions were released later than unqualified opinions and that, in general, the more serious the qualification, the greater the delay. © 2002 University of Illinois. All rights reserved.

Keywords: Timeliness; French corporate reporting; Delay of annual and consolidated reports; Delay of audit report; Audit qualifications

1. Introduction

Corporate reporting is generally directed at providing information, which will assist the user in decision making. Timeliness of reports is recognized by the accounting profession, the

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users of accounting information, and the regulatory and professional agencies as an important characteristic of financial accounting information.

This paper examines two major issues connected with the timeliness of financial reporting in the French context: (1) the improvement in timeliness of corporate reports (annual and consolidated accounts), and (2) the impact of different types of audit reports and the nature of audit qualifications on the timeliness of companies' financial reports.

Empirical research in this area is useful for a number of reasons. First, it is of importance in comparative international accounting and reporting. The present study examines some recent empirical works on the timeliness of corporate reporting and audit delay in France. Previous research studies have been conducted in Australia, Canada, New Zealand, and the US, countries where the environment of accounting and auditing practices is different from that of France. Most of these prior research works used data for the period before 1990.[1] Additionally, unlike in English-speaking countries, particularly the US, the French accounting and auditing systems are essentially macrobased and are very much government-inspired, -oriented, and -regulated. The complexity of the French accounting system, which is governed by the *Plan Comptable Général* (French General Accounting Manual), does little to help reduce delays in companies' financial reporting. For example, French groups have to publish two separate sets of financial statements and two reports on parent and consolidated accounts. And, all listed companies must have their financial statements audited by at least two statutory auditors who have also to submit two separate types of audit report (a "general report" on financial statements and a "special report" on legal and statutory issues). These French auditing practices do not lend themselves to the reduction of companies' reporting delays. One of the objectives of this study is to demonstrate that major environmental differences, in terms of accounting and auditing practices, between France and English-speaking countries affect the issue of timeliness of reporting.

Given the increasing level of foreign investment in France over recent years, this study should also provide information of use to foreign investors, notably those from the US (corporations and mutual funds) who seek a quality of financial information comparable to the level in their own country. For a variety of reasons (e.g., France's role in European markets and the European Monetary System), the French Stock Market has become more international in recent years. France is now fourth in the world in terms of inflow of foreign capital funds (after the US, Great Britain, and Sweden) and is third after the UK and the US for its investment abroad.[2] The increasing presence of foreign investors in the ownership of

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[1] For example, Ashton, Willingham, and Elliott (1987), Chambers and Penman (1984), Elliott (1982a, 1982b) and Givoly and Palmon (1982), US; Davis and Whittred (1980) and Whittred (1980), Australia; Carslaw and Kaplan (1991), New Zealand; Newton and Ashton (1989), Canada. Even studies such as Simnett, Aitken, Choo, and Firth (1995) used sample data regarding the Australian companies for the period 1981–1989.

[2] Annual report of French Central Bank (Banque de France), 1999, and "Invest in France" by Network and Datar (2000).

French listed companies has influenced corporate reporting, corporate governance, and the choice of accounting methods used by publicly held French com-panies.[3] Several large French companies have already adopted US accounting standards, either because their shares are quoted directly on the New York Stock Exchange or because many of their shares are in the hands of foreign investors.[4] In response to their demands, the French Commission of the Stock Exchange (*Commission des Opérations de Bourses, COB*) has constantly urged French listed companies to publish high-quality and more timely information.[5]

The principal aim of this paper is to measure the improvement in timeliness of audit reports and annual and consolidated accounts of French listed companies, as a response to the recommendations made by the French National Company of Statutory Auditors (Compagnie Nationale des Commissaires aux Comptes (CNCC), 1989, 1996) and the COB.[6] There are implications for policy with respect to regulatory action in France to reduce reporting delays from the current legal period of 180 days. International investors are likely to consider an improvement as a positive signal and there is a clear interest in increasing the quality of reporting in order to meet the high international standards required by foreign investors.

The research objective is also consistent with the strong emphasis given in the Statement of Financial Accounting (SFAC 2, FASB 1976, in Delaney, Epstein, Adler, & Foran, 1997) identifying timeliness as an important qualitative characteristic of accounting information.[7] Such information can be of value if it helps to predict events or to confirm or correct expectations. As the SFAC 2 stated, "although timeliness alone will not make information relevant, information must be timely to be relevant. It must be available before it loses its ability to influence the decision makers" (Delaney et al., 1997, p. 24, US GAAP).

Section 1.1 of this paper reviews the principal research studies undertaken at the international level on the timeliness of corporate reporting and/or audit delay. Following this, the research questions and the objectives of the study are outlined. The sample selection, research design, and methodology used in the study are then described. Finally, the conclusions are presented.

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[3] The author has undertaken a research project which is in progress and is concerned with the implications of foreign investments in French companies on corporate reporting (e.g., the choice of US and IASC accounting principles by French companies) and corporate governance. The preliminary results show that between 20 percent to 50 percent of companies' shares listed in the CAC40 (French index) belong to foreign investors who have a major influence on the companies' financial and corporate strategies. The impact of the presence of US investors in French publicly held companies is also emphasized in the French senate report, sessions August 19th, 1999, and November 25th, 1999.

[4] This issue is discussed in "Corporate Governance, Corporate Reporting and Regulatory Forces—French Case, " paper submitted by the author to an academic journal for publication.

[5] Annual reports of French Commission of Stock Exchange (COB) for the years 1998–2000 and the special report of Jean François Lepetit (president of the French Council of Financial Markets and member of the COB), dated January 4, 2000.

[6] The French organizations of the CNCC and the COB are, respectively, the equivalent of the AICPA and the SEC in the US.

[7] This issue was discussed in the "Conceptual Framework for Financial Accounting and Reporting: Elements of Financial Statement and Their Measurement," Delaney et al. (1997, p. 24, US GAAP).

1.1. Background and prior research

Several studies on the timeliness of corporate reporting and/or audit delay have been undertaken in English-speaking countries. Most of these studies were conducted in the US and are mainly related to issues such as the timeliness of annual earnings announcements (Bamber, Bamber, & Schoderbek, 1993; Chambers & Penman, 1984; Givoly & Palmon, 1982; Han & Wild, 1997; Kinney & McDaniel, 1993; Sinclair & Young, 1991), or the timeliness of corporate and audit reports (Ashton et al., 1987; Elliott, 1982a, 1982b; Kinney & McDaniel, 1993; Zeghal, 1984). Several studies have also been carried out in Australia (Davis & Whittred, 1980; Simnett et al., 1995; Whittred, 1980), Bahrain (Abdulla, 1996), Canada (Newton & Ashton, 1989), and New Zealand (Carslaw & Kaplan, 1991; Courtis, 1976).

Whittred (1980) investigated the effect of qualified audit reports on the timeliness of Australian annual reports, comparing companies that received audit qualifications (120 during a 10-year period, 1965–1974) with companies that received no such qualification. In such cases, the reporting behavior of the companies is compared with the reporting delays in the year preceding the qualification. The results of his study indicate that "first year" qualifications delay the release of companies' preliminary profit and annual reports and that, in general, the more serious the qualification, the greater the delay. He (p. 576) thinks that this is related to the increase in the year-end audit time and an almost certain increase in auditor–client negotiation time as a result of the impending qualification. He also refers to the notion of "anticipation effect" and suggests that one informative signal driving this anticipatory effect is the timing of the reporting release.

Givoly and Palmon (1982) examined the relationship between the information content of the accounting report and its timeliness using a sample of 210 US firms during the period 1960–1974. They also presented data for the timeliness of annual earnings announcements and its possible determinants. They observed an improvement in timeliness of the annual earnings announcement over the period, down to a median delay of 37 days in 1974. Their study also indicated that bad news tends to be delayed and the findings also show a differential degree of market reaction to "early" and "late" announcements. Judged by the intensity of market response, "late" earnings reports appear to convey less new information than "early" reports. The evidence presented in their study is also important for regulatory purposes. As Givoly and Palmon indicate, "if almost all companies are capable of and are actually issuing their statements within a much shorter period, the 90-day requirement might be too loose" (p. 485). In their concluding remarks, the authors also recommend reexamining the adequacy of the 90-day deadline with a view to shortening it, at least for large corporations. The same general idea—to shorten the legal reporting delay in France (currently 180 days[8])—is examined in one of the research questions of this study.

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[8] French Company Law requires the audited annual report to be submitted no later than 15 days prior to the firm's annual general meeting (AGM); the AGM has to be held within 6 months of the fiscal year-end. The annual report, including management report, the financial statements, notes to the accounts, and audit reports on annual accounts (and/or consolidated accounts for the groups) should be submitted to the general meeting for the shareholders' approval. [Lamy, 1997, "Lamy Sociétés Commerciales," Notes 3574 (p. 1682) and 3581 (p. 1587)].

Elliott (1982a, 1982b) examined the impact of audit qualifications on the delay in annual earnings release, the date of which in the qualification year was compared to the date of the corresponding release the previous year. To control for the possibility that a general pattern of lengthening audit time accounted for any delay observed, the release pattern of the "experimental firms" was also compared to that of the "matched control firms." According to Elliott (p. 145), earnings releases occur later for a firm receiving a "subject-to" opinion than when the opinion is unqualified. Rational investors observing the lateness of reports might infer the nature of the delayed signal, since the delay itself becomes a signal. Normally, successive earnings releases occur around the same date each year, but Elliott shows that the more serious qualifications ("going concern" and "asset realization") are associated with a delay in the earnings announcement of 2 weeks on average.

Ashton et al. (1987) and Bamber et al. (1993) for the US and Simnett et al. (1995) for Australia reported empirical evidence for certain determinants of "audit delay," defined as the length of time from a company's fiscal year-end to the date of the auditor's report. All three studies used variables that describe companies, their auditors, and the various types of interaction between these parties. They showed that audit delay is significantly longer in the case of companies that receive qualified audit opinions. Simnett et al. also showed that it is not only the issuing of a qualification, but also the type of qualification, that affects audit delay. Besides this, in contrast to the previous studies in this area, Simnett et al. indicate that variables representing audit complexity, debt/equity position, extraordinary items, audit technology, and the "Big Eight–non-Big Eight" status of the auditor had little or no impact on audit delay. The different results for these variables might be related to environmental factors such as the size of the market, accounting, and audit practices in different countries, and legal requirements concerning the listing and disclosure of accounting information.

Kinney and McDaniel (1993) took the analysis a step further by relating audit delay to correction of previously reported interim earnings, which may be the result of client-related factors such as poor internal controls or intentional violation of the securities acts by client management. According to the authors, the presence of such factors is likely to lead to increased year-end audit work and auditor–client negotiations about the best disclosure action. The authors say that firms with declining earnings who report corrections of interim earnings that were initially overstated also tend to have significantly increased audit delay.

In the case of the relationship between timeliness of earnings reports and stock prices, Zeghal (1984) indicates that accounting reports with shorter delays have a higher informational content than those with longer delays. Chambers and Penman (1984) also provide descriptive evidence on the relationship between timeliness of earnings reports and stock price behavior at the time of the reports' release. They show that when reports are published earlier than expected, they tend to have larger price effects than when they are published on time or later than expected.

The overall conclusion of these studies is that timeliness is a relevant characteristic when assessing the usefulness of accounting information. Although their results do show a considerable shortening of the reporting delay over time, some of the researchers cited feel that the adequacy of reporting deadlines should be reexamined. An investigation of the effects of qualified audit reports is needed. Some of these research works revealed that there is a significant delay associated with serious audit opinions (disclaimer, adverse, going concern)

and, in general, the more serious the qualification, the greater the delay. It was also shown that the reporting behavior of companies in the year of qualification was significantly longer than "normal" reporting behavior.

The present paper seeks to add to the empirical international accounting literature on timeliness by examining trends in timeliness of corporate reports (annual and consolidated accounts). It also investigates the change in audit reporting delays, the relationship between the length of the reporting delay and the type of qualification, as well as the relationship between reporting behavior for audit reports and the type of corporate reports (annual– nongroup, annual–group, and consolidated reports) for French publicly traded companies. The specific research questions posed are detailed in Section 1.2.

1.2. Research questions and objectives

The following research questions (RQ) are examined in this paper.

1.2.1. RQ1: Has reporting delay for the French companies decreased in recent years?

French companies should submit their annual report to the ordinary annual general meeting (AGM) of shareholders within 6 months from the end of the fiscal year.[9] Under French law, the shareholders' AGM takes place once per year in order to examine the management report, audited financial statements, and issues such as dividend policy. It is likely that the change in a company's general meeting date over time is mainly a function of management's intention to release early (or late) annual and/or consolidated accounts to the shareholders. The French accounting and auditing professional body (*CNCC*) and the financial market regulatory agency (*COB*) have regularly called for the early release of the audited financial statements to the AGM in order to respond to the demand of shareholders for more timely information. Thus, any improvement in reporting delay to the general meeting will confirm the need to reduce the current legal delay requirement of 180 days, bringing reporting delays in line with those of certain English-speaking countries (US, 90 days; Australia, 120 days).[10]

Such issues have regularly been discussed by the French regulatory and professional bodies at their annual meetings. The *CNCC*, in its fifth national meeting,[11] acknowledged that

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[9] Under French law (L. no. 66-537, July 24, 1966, Art. 157, al. 1er to 3), the AGM of company's shareholders takes place once a year in order to examine the audited financial statements. The majority of the shareholders can approve, reject, or modify the content of the propositions made by the company's board of directors (see "Lamy Sociétés Commerciales", 1997, Notes 3574–3589 on the AGM, pp. 1589–1595).

[10] The Australian Stock Exchange (ASE) specifies a maximum period whereby firms have to file their annual reports within 120 days after the year-end. However, the Australian company law requires that the AGM has to be held within 5 months of the fiscal year-end.

[11] CNCC (1989), "L'Information Financière en Question-12 propositions, Livre Blanc des 5ème Assises Nationales du Commissariat aux Comptes." The recommendations made in this report are the results of the debate between various professional groups in order to improve the quality of financial reporting along with the development of the French financial market. The propositions were mainly made in order to respond to the needs of the various interested parties and listed companies in the areas of accounting principles and standards and financial reporting.

"the timeliness of accounting information relies heavily on the communications policy of companies, which should not be based on the legal deadline of publication for accounting information but on the needs of the various interested parties " (CNCC, 1989, p. 29, author's translation). With regard to the timeliness of financial reporting of French corporations, the *CNCC* report discussed the following criteria for improving the quality of information; reducing the legal reporting delay, shortening the period of preparation of financial statements by companies, and improving the quality of information systems within the company as well as of publicly available information.

The issue of timeliness has also been raised regularly in the annual reports of the *COB*.[12] Its major concern in this area is to encourage French listed companies to release more timely information in order to satisfy the demand of the shareholders, particularly foreign investors. Acknowledging that there had been "a major improvement in timeliness of financial reporting in France," the *COB* noted that it was "still longer than that of English-speaking countries."[13] In 1999, it formed a working party to examine the different ways of improving the quality of financial reporting of French listed companies to make it conform to international standards and respond to the growing presence of international investors. The working party's report raised the issue of periodic financial information as a factor in reducing uncertainty (Section 4 of the report, 2000).[14] Two of its 10 recommendations related specifically to the timeliness of financial information: (1) to increase the frequency of periodic financial disclosure with respect to the company's results, and (2) to reduce delay in publication (Working Group and COB, 2000b, p. 14).

The issue of the quality of financial information in relation to the increasing presence of foreign investors has also been considered by the French parliament and has been discussed in the senate.[15]

At the time of writing, however, no action has been taken to reduce the legal delay.

1.2.2. RQ2: What differences are there between groups and nongroups in terms of reporting delays?

Unlike US groups, French groups are required to submit two sets of reports to their AGM: parent and consolidated.[16] It is, therefore, interesting to compare reporting delays of

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[12] See, for example, the annual report of the COB for 1998 (p. 254) and 1999 (p. 287) regarding the timeliness of financial reporting of French companies.

[13] Monthly bulletin of the COB (2000a, p. 31) with regard to the report on financial information of 100 commercial and industrial groups "Cauvin Angleys, et al. 1999, L'information financière-100 Groupes industriels et commerciaux" CPC, France (1999).

[14] This working party was formed at the request of the president of the *COB* (Michel Prada) who, in his letter dated May 20, 1999, asked the president of the French Council of Financial Markets and the member of the COB, Jean François Lepetit, to supervise the working group in charge of examining the publication of financial information of French listed companies and the issue of "profit warnings." The working group submitted its report to the *COB* in January 2000.

[15] See, for example, Sénat (1996), no. 191, and Sénat (1999), dated August 19 and November 25.

[16] See "Lamy Sociétés commerciales", 1997, no. 3581, pp. 1586–1587. Both parent and consolidated reports of groups are simultaneously examined at a single AGM.

nongroup companies, which present only one set of accounts, and groups, which must present parent as well as consolidated accounts. This will indicate whether the *COB*'s policy to encourage companies to reduce their reporting delays has had any impact. A comparison between the reporting behavior of nongroup companies and groups can be of interest to international investors. Though foreign investors invest mainly in large French groups, some of their investments are in French medium-sized firms (nongroup companies) for which only the annual accounts are prepared.

In RQ3, it should be stated that three types of accounts for French companies are currently published by French companies. These must be independently audited by statutory auditors:

1. annual accounts by nongroups
2. annual accounts by groups
3. consolidated accounts by groups.

The following RQ3 (a, b, and c) are designed to find out whether audit qualifications have had any effect on the reporting delays in recent years.

1.2.3. RQ3(a): Was there a general improvement in audit reporting delays (qualified and unqualified) in France over the period?

To measure this, the audit reports of nongroups, groups, and parent companies of groups were used. The audit report is an integral part of the company's annual report to the AGM, and all decisions taken by company's shareholders are based on audited financial statements. It is obvious that any reduction in audit delay should have a positive impact on shortening the reporting delay as recommended by the *COB* and the *CNCC*.

1.2.4. RQ3(b): Is there a relationship between audit qualifications and timeliness of reporting?

The presence of a qualified audit opinion may be expected to be associated with a longer audit delay, since French auditors are likely to be reluctant to issue a qualification and may spend some time attempting to resolve the items subject to the qualification. Support for this expectation is provided by Simnett et al. (1995) and Whittred (1980) using Australian data; Carslaw and Kaplan (1991) using New Zealand data; Ashton et al. (1987), Bamber et al. (1993), and Elliott (1982a, 1982b) using US data; and Ashton, Graul, &, Newton (1989, Spring) using Canadian data.

1.2.5. RQ3(c): If there is a relationship between audit qualification and timeliness, does it differ by type of financial report (annual–nongroups, annual parent company, and consolidated)?

The relationship, even though it concerns the impact of qualification on three different sets of accounts, may provide information for foreign investors, who are more likely to invest in groups than in smaller nongroup companies. In the case of qualified audit reports, it is expected that the improvement in audit reporting delay on group accounts should be greater

than that on annual accounts by nongroups, as the former are likely to be better prepared and willing to disclose more timely information.

The comparisons discussed in RQ 3a, 3b, and 3c can be of interest to the regulatory bodies and to the users of audited financial statements. Their demand for more timely accounting information depends, to a great extent, on the attitude of companies' management towards providing auditors with early release of preliminary financial statements and also on the delay required for submission of audit reports on the company's accounts.

1.2.6. RQ4: Is there a relationship between the length of the reporting delay and the type of qualification?

Audit qualifications are not all the same, and some are potentially more significant than others. Simnett et al. (1995) and Whittred (1980) for Australia and Elliott (1982a, 1982b) for the US show that, in general, the more serious the qualification, the greater the reporting delay. In this respect, Simnett et al. (p. 18) stated, "it is not only the issuing of a qualification, but the type of qualification, that affects audit delay".

1.2.7. RQ5: Does the relationship between reporting behavior (early, on time, and late) and type of audit reports differ by type of financial report (annual–nongroup, annual–group, and consolidated reports)?

For this, the sample of companies for the period of study (1986–1995) was first divided into two parts: audit reports without qualifications, and audit reports with qualifications. For each company and for each year, the comparison was made between the actual delay, discussed in RQ3 (a, b, and c), and "normal" reporting behavior.

To do this, it is necessary to define what constitutes a company's "normal" reporting behavior, for which the actual reporting delays of companies in the study's sample are used. The aim is to examine if the reporting behavior of companies in the year of a qualification is significantly different from "normal reporting behavior." It is to be expected that "early" reports are associated with "good" news (clean audit reports) and "late" reports with "bad" news (qualifications). This research question is formulated in a manner similar to Chambers and Penman (1984), Givoly and Palmon (1982), and Whittred (1980).

Reference has already been made to Whittred's (1980) evidence that qualified audit opinions in Australia are released later than unqualified opinions. This is because the decision to qualify may involve negotiation with the client, consultation with more senior audit partners, and extension of the scope of the audit work.

According to Whittred (1980, p. 572), "to show that the reporting attributes of companies which receive qualified audit reports are different from those of companies which are not qualified does not allow one to conclude that it is the qualification per se that is responsible for the difference. This might be due to the point that those companies which receive qualifications come from a (significantly) different subset of the population of listed companies." The explanation proposed by Chambers and Penman (1984), Givoly and Palmon (1982) and Whittred is that the reporting behavior of companies in the year they receive bad news (e.g., audit qualification) is significantly different (longer) from "normal." A similar approach has been adopted in this study in order to show the relationship between

various types of audit reports [qualified (bad news), unqualified (good news)] on annual and consolidated accounts and the companies' reporting behavior. "Normal" reporting behavior was defined by Whittred in two ways: "in the first, a company's 'normal' reporting behavior was defined to be the same as that occurring in the year immediately preceding the qualification. In the second, it was defined to be the mean total lag for the preceding three years" (Whittred, 1980, p. 572).

Givoly and Palmon (1982) tested the relationship between reporting timeliness (early, on time, and late) and annual earnings announcements (bad, neutral, and good news) using contingency tables. Chambers and Penman (1984) used a slightly different approach to show the relationship between stock price behavior and "early" and "late" reports.

The above-mentioned research questions are designed to examine the trend in reporting delay, the audit delay, and the impact of audit qualification on the reporting process of French listed companies. This will provide useful information about the reporting process of companies, an issue which has been under the close scrutiny of the French regulatory[17] and professional bodies in recent years. The questions raised in this study are also in line with the demands of shareholders, particularly foreign investors, who desire a clearer understanding of the reporting behavior of French companies. Finally, they should also contribute to bringing the quality of French reporting up to international standards.

2. Research design

2.1. Sample selection and sources of information

The annual and consolidated reports of companies listed on the Paris Stock Exchange were examined for the period of January 1986 to December 1995.[18] (In certain cases, the average delays for the year 1985 were also provided in the tables in order to provide a better analysis of improvement in reporting delay during the period of study.) These reports were not always available, in which case an attempt was made to obtain the information by contacting the company directly. Although it was still not possible to obtain reports for about 25% of companies listed on the Paris Stock Exchange, the remaining 75% was analyzed for this study.

Annual reports from French companies contain the following information:

- the management, business, corporate governance, and social (labor force) reports;
- financial statements and notes to the accounts, including the company's accounting policies (presented separately for consolidated and annual accounts of groups);
- two reports by external auditors: the "general report" and the "special report."

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[17] The COB, French Commission of Stock Exchange has regularly emphasized the improvement of reporting delay of listed companies in their annual reports. (annual reports of COB, 1998 and 1999).

[18] Year 1986 is selected as the starting point in this study since the submission of consolidated accounts by groups became mandatory in January 1986.

The content and the date of the "general report," which includes the independent auditors' opinion, was used for this study. (An example of the "general report" of BIC group using the French audit practices is presented in the Appendix). The "special report," which refers to French commercial law and legal matters, is not of use to the present study.

The following information was extracted from the reports:

- date of AGM for nongroup companies and groups (This date is considered to be the first date of public release of a company's information.);
- date of fiscal year-end;
- date of audit reports (on the annual accounts by nongroups, annual accounts by groups, and consolidated accounts by groups);
- types of audit reports—unqualified, qualified, and disclaimers; and
- types of qualifications (uncertainties, nonconformity with accounting principles, lack of different accounting provisions, etc.).

2.2. Sample size

A total of 5801 companies' files (company/years) containing annual and consolidated reports of listed companies for the period January 1986 to December 1995 were included in the sample. From these files, 5064 audit reports on annual accounts (2384 for nongroups and 2680 reports for groups) and 3417 audit reports on consolidated accounts (see Table 1) were

Table 1
Number of annual and consolidated reports examined during the period of study

Year	Files examined (annual and consolidated accounts)	Annual accounts (nongroups)	Consolidated accounts (groups)	Audit reports on annual accounts (nongroups)	Audit reports on annual accounts (groups)	Audit reports on consolidated accounts (groups)
1986	610	415	195	402	64	208
1987	623	390	233	301	203	322
1988	606	361	245	277	226	329
1989	598	372	226	266	219	332
1990	530	322	208	179	303	351
1991	545	313	232	180	328	365
1992	564	329	235	189	345	375
1993	521	306	215	166	331	355
1994	589	352	237	202	333	387
1995	615	348	267	222	328	393
Total	5801	3508	2293	2384	2680	3317

The above table shows two separate subsamples. Columns 3 and 4 indicate the number of annual and consolidated accounts examined to extract the dates of general meetings. Columns 5–7 are related to the number of audit reports of nongroups and groups. Because of the absence of some dates in both cases (general meeting and audit report), only the available dates are included in the sample. Therefore, the total numbers of annual and consolidated accounts do not match the corresponding figures for audit reports. However, the total of 5801 reports in both cases were included in the sample.

considered. These reports were examined for the date of the audit report (signature date by auditors) and to determine whether the reports contained any qualification.

The absence of dates for the AGM in certain cases, and of the audit reports in other cases, means that the figures for the number of annual accounts (date of AGM) and for dates of audit reports do not match. For nongroups, these are, respectively, 3508 and 2384 and for consolidated accounts 2293 and 3417. However, the total number (5801) of audit reports and dates of AGM analyzed in the sample were the same.

The total number of qualifications expressed in audit reports on annual and consolidated accounts is 478 (301 reports on annual accounts by nongroups and 177 reports on annual accounts by groups) and 309, respectively.

Since groups have to present two sets of accounts, two separate audit reports (for the parent company and for consolidated accounts) have been included in the sample for all the groups. However, as these two reports do not necessarily have the same date, where appropriate, the calculations for reporting audit delay have been made separately for audit reports on parent as well as consolidated accounts of groups.

3. Methodology

Several aspects of timeliness are investigated in the paper:

- the trend in companies' reporting delay over time;
- a comparison of reporting delay of auditors' reports across annual–nongroups, annual–groups, and consolidated group accounts;
- the relationship between reporting delay and the types of audit reports (unqualified and qualified reports); and
- the association between the reporting delay and the nature of auditors' qualifications.

The methodology used to examine each of these relationships is detailed below.

3.1. Trend in reporting delay of listed companies (RQ1)

The reporting delay (RD) is defined as the number of days between the fiscal year-end date and the date of the AGM. Under French law, the annual report must be available to the shareholders at least 15 days before the AGM. The report must be approved at the company's general meeting before being announced to the public and sent to the COB. The company is also supposed to publish unaudited preliminary earnings in the Official Bulletin for Legal Announcements (BALO) within 4 months of the final year-end. However, according to the COB's annual reports, 43% of listed companies in 1999 did not respect this requirement (47% for 1998).[19] For this reason, we consider the company's date of AGM to be the first date of

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[19] Annual reports of the COB for 1998 (p. 254) and 1999 (p. 287) with respect to the periodic publication.

public release of audited financial statements. In the case of groups, only one AGM[20] is held to examine the audited financial statements of both the parent company (annual accounts) and the group (consolidated accounts).

For each of the companies in the study, the number of days from the date of fiscal year-end to the date of the AGM is calculated for each year, in the following manner:

$$rd_{i,t} = dg_{i,t} - df_{i,t}$$

where $rd_{i,t}$, company's reporting delay in terms of number of days for company (or group) i in each year t; $dg_{i,t}$, date of AGM for each firm (or group) i in each year t; $df_{i,t}$, date of fiscal year-end for firm i in each year t.

In order to examine the trend in reporting delay to AGM during the period of study, the average number of days (ad) is measured using the following method for each year using the reporting delay (rd), as defined above, for all sample firms:

$$ad_N = (1/N) \sum^{10} rd_{i,t}$$

where ad_N, the average reporting delay (number of days) needed to submit the companies' reports to AGM for each year during the period of study; $rd_{i,t}$ reporting delay (number of days) for firm i in each year t; N, the number of companies' annual and consolidated reports for which the reporting delay is calculated.

3.2. Reporting delay of annual and consolidated accounts (RQ2)

Two separate subsamples for the reports of annual–nongroup and consolidated group were derived (Table 1). The reporting delay, as defined above, was measured separately for each subsample. As stated earlier, in the case of groups, two separate reports are prepared (one for annual accounts on parent company and another on consolidated accounts of group), but these are submitted simultaneously to the AGM. For this reason, it was not necessary to use both in the sample.

The same method of measurement for reporting delay, shown above, was used with regard to these two subsamples.

3.3. Reporting delay of auditors' reports on annual and consolidated accounts (RQ 3a, 3b, and 3c)

To examine RQ3a, a comparison was made of audit reporting delay for the three subsamples (regardless of whether the audit reports are qualified or not). The audit delay

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[20] If a majority of shareholders are not reached at the first general meeting, decisions are postponed to the following annual meeting, which must normally be held within 6 months. The decisions, other than examination of audited financial statements, are discussed at extraordinary general meetings, which can be held at any time during the year in accordance with the company's requirements.

(auditor's signature lag) was defined as the number of days between the year-end and the date of auditors' reports. The calculation was made separately for each subsample on the basis of the methodology defined above in Section 1.2.1 relating to RQ1, with the date of AGM for firm (or group) i replaced by the date of the auditors' signature for each category of the audit report.

The second comparison, RQ3b, is between the reporting audit delay of qualified reports with that of unqualified reports. Again, audit delay (average number of days between fiscal year-end and the audit report date) was calculated for each year for the subsamples of unqualified and qualified audit reports.

To examine RQ3c, the audit delay for qualified audit reports was compared across three different sets of accounts (annual–nongroups, annual–groups, and consolidated).

3.4. Relationship between type of audit qualification and timeliness (RQ4)

To assess the impact of different types of audit qualification on reporting delay, the average delay for qualified reports was calculated for each type of qualification. Each qualified report in the sample was classified according to the type of event or uncertainty that generated the qualification. The 543 qualifications observed during the period of study were classified following the French auditing practices and the *CNCC*'s categories, as either: (i) qualified "except for" opinions, (ii) "adverse opinions," or (iii) "disclaimer of opinions." A similar classification is used in some American textbooks with special reference to US auditing standards.[21] Those cases that could not be assigned to a particular qualification, due to the absence of specific wording, were included in the "other" category. An attempt was also made to rank the "except for" qualifications according to their nature and the seriousness of their impact on the company's financial statements.

In the French context, a qualified opinion report can result from a limitation on the scope of the audit or from failure by the auditee to respect accounting principles and appropriate control systems. A "qualified opinion" report can be used only when the auditor concludes that, overall, the financial statements are fairly stated. A "disclaimer opinion" must be used if the auditor believes the condition being reported is highly material. French auditing standards only propose three categories of audit reports: unqualified, qualified, and disclaimers of opinion. A qualified report consists of several cases, certain of which correspond to the Anglo-Saxon "except for" and others to "adverse" opinions. A qualified report can take the form of a qualification of both the scope and the opinion or of the opinion alone. Scope and uncertainty qualifications are more serious than "nonconformity with accounting principles" as this type of qualification is used when the auditor's scope has been restricted by the client or when circumstances exist that prevent the auditor from conducting a complete audit.[22]

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[21] See, for example, Arens and Loebbecke (2000) or Knechel (2001, pp. 565 and 566), Dodd, Dopuch, Holthausen, and Leftwich (1984, pp. 11 and 12), and Whittred (1980, p. 565).

[22] For full information about the conditions requiring a departure from an unqualified report in the French context, refer to "Le Rapport Général," published by the CNCC (1985), Notes d'Information no. 1.

On the other hand, the audit reports used in our sample of listed companies are mainly prepared by international audit firms and the reports contain clearly the "unqualified," "except for," and "adverse opinion" disclaimers.

In that sense, we believe that a "disclaimer of opinion" (in the French context) is more serious than an "adverse opinion." Therefore, the classification of audit reports presented in this paper is based on the definitions provided in French auditing standards, but we use the equivalent terms in Anglo-Saxon auditing.

Due to the relatively small number (65) of "adverse opinion" qualifications, this type of qualification was not classified according to cause.

3.5. Reporting behavior (early, on time, late) of annual and consolidated audit reports (RQ5)

To address RQ5, three alternative definitions of "normal" timeliness were used, combining elements from Chambers and Penman (1984) and Givoly and Palmon (1982) and, to a certain extent, Whittred (1980).

For the first definition, a company's "normal" reporting delay was assumed to be the same as that occurring in the previous year. In the second, it was defined as the mean delay for the period of study (10 years). For the third definition, a comparison is made between the actual delay for each year and delays for the remaining years. Whittred (1980) proposed two definitions for "normal" reporting behavior: "in the first, a company's 'normal' reporting behavior was defined to be the same as that occurring in the year immediately preceding the qualification. In the second, it was defined to be the mean total lag for the preceding years" (p. 572). Chambers and Penman (1984, p. 42) used a similar approach to define "early," "on time," and "late" interim reports, except that they used the mean within-firm standard deviation of lag times (approximately 4 days over a 7-year period of study).[23]

Using the above-mentioned methods, the "normal" reporting audit delays were calculated for every sample member and compared with the actual reporting delay for a given year. The measurement of each definition of "normal" reporting delay is shown below.

3.6. First method

A comparison of the reporting delay of audit report for each company in each year and the reporting delay of the previous year:

$$E(\text{rd}_t) = \text{rd}_{t-1}$$

where $E(\text{rd}_t)$ is "normal" delay for year t, and rd_{t-1} is "actual" reporting delay year $t-1$.

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[23] Chambers and Penman (1984) defined "early" reports as those which were more than 4 days earlier than the date of the report for the same fiscal period in the previous year, "late" reports as those more than 4 days later than that date, and "on time" reports all others. The 4-day period is approximately equal to the mean standard deviation of lag time and the mean absolute deviation of lag time from that in the previous year.

3.7. Second method

The "normal reporting delay" for each company is assumed to be the average delay within the period of study (1986–1995):

$$E(\mathrm{rd}_t) = \frac{1}{K}\sum_{t=1}^{K}\mathrm{rd}_t$$

where rd_t is the annual reporting delay for each company, and K represents the number of years (10 years) for which the audit reports are available.

3.8. Third method

In this method, the calculation is as follows:

$$E(\mathrm{rd}_t) = \frac{1}{t-1}\sum_{t=1}^{t-1}\mathrm{rd}_t.$$

This method, which was also used by Givoly and Palmon (1982, p. 506), defines a company's "normal" reporting behavior as the mean total lag for all remaining years. For example, for the year 1995, this would be the average for the preceding years 1986–1994.

In order to calculate any deviation from "normal delay," the actual reporting delay for each company was compared with the "normal reporting delay" using the above three methods. The calculation is done for qualified and unqualified audit reports on annual accounts by nongroup and group as well as consolidated accounts group for each sample member separately. Reports are then classified as "late," "early," or "on time" as follows:

$$D_t = \mathrm{rd}_t - E(\mathrm{rd}_t)$$

If $D_t > 0$, the report is "late".
If $D_t < 0$, the report is "early".
If $D_t = 0$, the report is "on time".

The relationship between the "normal" and "actual" reporting delay was subjected to the tests of chi-square and Fisher with confidence intervals for a sample proportion.

3.9. Relationship between reporting behavior and type of audit report on annual and consolidated accounts

The chi-square test is used to see if there is a relationship between the reporting behavior (early, on time, and late) and the types of audit reports (qualified and unqualified) on annual (nongroup and group) and consolidated accounts.

We reject the hypothesis H_0 for: $\alpha = 0.05$ if $\chi^2 = 5.991$; at 0.01 if $\chi^2 = 9.210$; and at 0.001 if $\chi^2 = 13.81$.

In addition, the following test of Fisher with confidence interval for a sample proportion is employed:

$$P = \frac{X}{n}$$

where P is the probability of any event, X is the number of reports (with or without qualification) with regard to timeliness (early or late publication), and n is the total number of reports which are published early or delayed.

4. Results

4.1. Corporate reporting delay of French listed companies (RQ1)

Table 2 shows the average number of days between the date of companies' fiscal year-end and the date of the general meeting—the earliest date of release of companies' reports and financial statements. This shows that the average delay fell from 114.7 days in 1986 to 101.1 days in 1995. Taking into account the standard deviation calculated for the average delays, it can be stated that the 180-day legal requirement for corporate reporting was met by the all the companies in this study.[24] This does not mean, however, that all companies listed on the Paris Stock Exchange met the 180-day legal requirement because the study sample only covers 75% of them. Similarly, the annual reports for 1998 and 1999 of the COB[25] show that approximately the same percentage of publicly held companies (541 and 568 companies, respectively) met their legal delay. Consequently, shortening the legal delay was proposed by the *COB* and the *CNCC* as one means to improve the timeliness of financial reporting particularly for listed companies in France.

The proposals of the *COB* and the *CNCC* were designed to respond to the demands of investors, mainly foreign institutions, for more timely information comparable to international standards. Even though the majority of companies met the 180-day legal requirement, the suggestion is that the 180-day requirement for financial reporting may be too loose, and possibly points to a need to reexamine the regulations concerning timeliness of reporting delay.

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[24] The legal delay of 6 months must be respected by all listed companies. However, the president of Commercial Court (Tribunal de Commerce) can postpone the meeting beyond this legal delay in exceptional cases at the request of a company's board of directors or supervisory board (L. no. 67-537, July 24, 1966, Art. 157, al.1er).

[25] See, for example, the annual reports of the COB for 1998 and 1999.

Table 2
Average number of days between fiscal year-end and the date of ordinary general meeting of companies (for all sample reports examined)

Year	Number of reports examined (annual nongroups and consolidated accounts groups)	Average delay (number of days)	S.D.
1986	610	114.7	35.4
1987	623	116.4	32.3
1988	606	114.6	31.8
1989	598	110.9	28.6
1990	530	110.5	29.5
1991	545	107.4	31.2
1992	564	103.5	28.5
1993	521	103.1	27.8
1994	589	101.6	26.7
1995	615	101.1	29.2
Total reports	5801		
Mean		108.5	

4.2. Reporting delay of groups and nongroups accounts (RQ2)

Comparison of the reporting delays on different sets of accounts (annual accounts by nongroups, annual accounts of parent company, and consolidated accounts by groups, taking into account that the date of general meeting is the same for the last two sets of accounts[26]) *provides* more detail about the overall improvement in the area of timeliness of French listed companies. Table 3 shows the change in average reporting delays between fiscal year-end and the AGM for French companies in the sample during the period 1986–1995.

There was a reduction of reporting delay for both annual–nongroups and consolidated accounts. The changes in average delays during the period of study were calculated (121.5 and 120.8 days average delay in 1985, respectively, for annual reports for nongroups and consolidated reports for groups). The results show a 10-day decrease in the period for annual reports of nongroups and 16 days for the consolidated reports of groups presented to the general meeting. (The Student's t value of 2.47 shows that there is significant difference between the changes in average number of reporting delay for annual and consolidated accounts). There was, thus, a greater improvement in reporting delay for groups than for nongroup companies. Since groups have to submit their annual and consolidated reports simultaneously to their general meetings, then parent companies of groups did better than nongroup companies in improving their performance.

The figures illustrate the success of the efforts made by the *COB* and the *CNCC* to encourage the companies listed, regardless of their size, to release their reports as early as possible.

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[26] Annual and consolidated accounts of groups are presented and examined simultaneously at the AGM.

Table 3
Change in average number of days between fiscal year-end and the date of ordinary general meeting (annual and consolidated accounts)

Year	Annual accounts (nongroups)	Changes in average delay days (annual accounts)	Consolidated accounts (groups)[a]	Change in average delay days (consolidated accounts)
1985[b]	385	121.5	198	120.8
1986	415	− 1.7	195	− 2.4
1987	390	+ 2.1	233	− 3.2
1988	361	+ 0.8	245	− 4.0
1989	372	− 1.8	226	− 7.1
1990	322	+ 0.1	208	− 8.3
1991	313	− 5.3	232	− 10.0
1992	329	− 9.7	235	− 12.3
1993	306	− 9.0	215	− 12.5
1994	352	− 10.8	237	− 15.6
1995	348	− 10.2	267	− 16.0
Total reports (1986–1995)	3508		2293	
Mean		− 3.74		− 9.17
S.D.		4.88		4.93
Linear trend		− 0.94		− 1.47
t test = 2.47		two-tailed sig.=.24		

[a] The number of annual and consolidated accounts for groups is the same since both sets of financial statement are examined simultaneously at the ordinary general meeting.

[b] For the year 1985, the average number of days is presented. The change in average delays for the following years is calculated in relation to the average delay for year 1985.

Three possible explanations can be offered for the greater improvement in reporting delay by groups when compared to nongroups.

First, releasing more timely information might carry a higher cost and thus groups' better access to financial resources may facilitate the process.

Second, the more active presence of international investors, notably US institutional investors, in groups (between 22% and 50% of shares of groups listed in the CAC40 is owned by foreign investors) is possibly a determinant factor persuading groups to release their parent company and consolidated accounts early to the general shareholders' meeting. Generally speaking, the board of directors is responsible for calling the shareholders' general meeting for discussion of financial operations and company results, and, if the board includes foreign investors, they are likely to ask for a shortening of the reporting period at the meeting.

Third, improving timeliness of financial reporting by groups to a level comparable to international standards is likely to have become part of their financial policy, either because they might hope to be listed in the near future in foreign financial markets such as New York or London, or because they might want to raise funds to finance their investment strategy.[27]

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[27] The issue of timeliness of reporting comparable to international standards has been raised in some of the annual reports of French groups in years 1999 and 2000. They refereed to this point as an important element in raising funds and listing in foreign financial markets.

4.2.1. Reporting delay of auditors' reports on annual and consolidated accounts (RQ 3a, 3b, and 3c)

Results comparing timeliness of audit reports on three sets of accounts (annual accounts by nongroups, annual accounts by groups, and consolidated accounts by groups) are presented in Tables 4–6. These complement those provided in the preceding sections, since the shareholders' decisions on financial statements are subject to the opinions the auditors give about the companies' accounts.

Table 4 reports the changes in average delay between fiscal year-end and the audit report date for three sets of accounts (RQ3a).[28] The results show a significant reduction in audit delay in all three sets of accounts after 1986. They show that by the end of the period, the companies and the groups in the sample were able to present the audit reports on their financial statements within 3 months from fiscal year-end. However, the reduction was greater for reports on group accounts: an improvement of 16.5 days for consolidated accounts and 15.6 days for parent companies of groups' accounts, compared with 14.3 days for the annual accounts provided by nongroups. This has implications for regulatory action since the audit report is an integral part of the company's annual report and only audited financial statements submitted to the shareholders can be considered as a basis of policies on finance, investment, and dividends at the general meeting. Consequently, the shortening of legal reporting delays to the general meeting and the demand from regulatory bodies and investors for more timely information depend also on the audit reporting delay.

Table 5 compares reporting delays for unqualified audit reports with those for qualified audit reports for all the companies in the sample (RQ3b). Although in both cases there was a considerable reduction in audit delays during the period of study, it was more substantial in the case of unqualified audit reports (34.3 days with Student's t value of -2.15). The results are consistent with previous research (Simnett et al., 1995; Whittred, 1980 on Australian data; Carslaw & Kaplan, 1991 on New Zealand data; Ashton et al., 1987; Bamber et al., 1993; Elliott, 1982a, 1982b on US data), which found that audit qualification was associated with longer audit delay. Simnett et al. (1995) also found that continuing qualifications are associated with longer audit delay.

To examine RQ3c, a comparison was made between the three sets of accounts (annual accounts by nongroups, annual and consolidated accounts by groups) in order to see whether the relationship between the audit qualification and timeliness of reporting presented in Section 4.1 varies. Table 6 shows audit delays for the sample of qualified reports presented in this study (a total of 787 qualified reports). It shows a substantial decrease in audit delay (40.5 days) in the case of qualified audit reports on consolidated accounts. On the other hand, the changes in average audit delays for both qualified reports on annual–groups and annual–nongroups accounts are not significant

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[28] In contrast to the reports on annual and consolidated accounts of groups which are submitted simultaneously to the general meeting, the two audit reports on these accounts do not necessarily have the same date.

Table 4

Change in average number of days between fiscal year-end and the date of audit reports on annual report for nongroups, groups, and consolidated accounts

Year	Number of annual audit reports (nongroups)	Change in average delay (annual reports for nongroups)	Number of annual audit reports (groups)[a]	Change in average delay (annual reports for groups)	Number of consolidated reports (groups)	Change in average delay (consolidated reports)
1985[b]	379	104.8	61	104	147	104
1986	402	− 1.6	64	− 1.8	208	− 0.9
1987	301	− 0.3	203	− 1.4	322	− 2.5
1988	277	− 1.3	226	− 2.8	329	− 5.3
1989	266	− 2.2	219	− 4.6	332	− 6.4
1990	179	− 4.0	303	− 6.2	351	− 7.8
1991	180	− 6.3	328	− 8.4	365	− 8.9
1992	189	− 8.6	345	− 10.3	375	− 11.4
1993	166	− 10.0	331	− 10.8	355	− 12.2
1994	202	− 12.4	333	− 13.5	387	− 14.6
1995	222	− 14.3	328	− 15.6	393	− 16.5
Total (1986–1995)	2384		2680		3417	
Mean		− 6.10		− 7.54		− 8.65
S.D.		5.00		4.97		5.07
Trend		− 1.41		− 1.53		− 1.73

t test between annual accounts of nongroups and groups = 0.65 (two-tailed sig. = .52); t test between annual nongroups and consolidated accounts of nongroups = 1.13 (two-tailed sig. = .27); t test between annual and consolidated accounts of groups = 0.49 (two-tailed sig. = .62).

[a] The annual audit reports of groups concern only the reports whose dates are not the same as for the consolidated audit reports.

[b] For the year 1985, the average number of days is presented for both types of reports. For the following years, only the changes in average are indicated in the table.

(3.4 and 3.9 days fewer, respectively; Significant Student's t scores are reported in Table 6).

This suggests that, generally, an audit qualification has more impact on delaying audit reports on annual accounts than it does on consolidated accounts. It may, thus, be argued that groups believe that only audited consolidated financial statements are relevant to investors. The average delay for the audit reports on consolidated accounts (results for both clean and qualified audit reports as indicated in Tables 4 and 6) is shorter than for reports on annual accounts, whilst the overall trend in the case of three types of audit reports is one of general improvement.

For consolidated accounts of groups, it is interesting to note that for the period of the study, the change in average delay for all audit reports on consolidated accounts is 16.5 days (last column in Table 4), whereas for qualified audit reports on the same accounts is 40.5 days (Table 6). Longer delay on qualified audit reports represents the impact of audit qualifications on group accounts, as is the case for the overall sample of qualified reports (Table 5).

Table 5
Change in average number of days between fiscal year-end and the audit report date (unqualified versus qualified)

Year	Number of unqualified reports	Change in average delay (unqualified reports)	Number of qualified reports	Change in average delay (qualified reports)
1985[a]	521	101.2	62	131.5
1986	543	− 3.4	67	− 2.4
1987	539	− 6.6	80	− 2.8
1988	532	− 8.1	78	− 4.9
1989	528	− 10.3	70	− 6.4
1990	460	− 14.5	70	− 7.7
1991	466	− 17.3	79	− 9.3
1992	473	− 21.7	91	− 11.0
1993	441	− 26.6	80	− 13.9
1994	505	− 27.8	84	− 18.1
1995	527	− 34.3	88	− 22.3
Total reports (1986–1995)	5014		787	
Mean		− 18.16		− 9.88
S.D.		10.26		6.56
Trend		− 3.43		− 2.21
t test = − 2.15		two-tailed sig.=.045		

[a] For the year 1985, the average number of days is presented for both types of reports. For the following years, only the changes in the average are indicated in the table.

As already indicated, the results, which confirm that audit qualification has some impact on delaying audit reports, should be of interest to researchers in comparative international accounting and reporting. According to Whittred (1980, p. 576), the reasons for this type of delay are "an apparent increase in the year-end audit time and an almost certain increase in auditor–client negotiation time as a result of the impending qualification." It is to be expected that this would be even more the case in France as a result of the appointment of two, or sometimes three, statutory auditors from different audit firms for the examination of the company's accounts at the year-end.

It should be stated that the results of both these measures (delays on corporate and on audit reports), though longer for French companies than for Canadian and US, are basically similar to those reported by Carslaw and Kaplan (1991) in New Zealand (95.5 days in 1988), although earlier studies in that country showed shorter delays (Courtis, 1976; Gilling, 1977). Similarly, Simnett et al. (1995), using Australian data, report that the mean audit delay increased steadily (94 days in 1989) over their period of study (1981–1989). Studies by Ashton et al. (1987) on US and Newton and Ashton (1989) on Canadian data showed much shorter audit delays.

4.3. Audit qualifications and timeliness (RQ4)

The results described in Section 4.2 reveal that audit qualifications delay the release of companies' annual and consolidated accounts, although the change in average delay with

Table 6
Change in average number of days between fiscal year-end and the date of qualified audit reports (annual versus consolidated)

Year	Number of annual qualified reports (nongroups)	Change in average delay (annual reports for nongroups)	Number of annual qualified reports (groups)	Change in average delay (annual reports for groups)	Number of qualified consolidated reports (groups)	Change in average delay consolidated reports
1985[a]	28	135.2	13	130.5	20	126.3
1986	30	− 2.6	15	− 3.2	22	− 2.1
1987	29	− 0.4	20	–	31	− 5.8
1988	31	+ 1.0	15	+ 2.7	32	− 9.6
1989	25	+ 1.3	16	+ 3.9	29	− 13.5
1990	23	+ 3.2	16	+ 5.7	31	− 17.8
1991	29	+ 2.9	18	+ 4.0	32	− 22.1
1992	34	+ 2.1	22	+ 3.1	35	− 26.2
1993	31	+ 1.6	15	+ 1.9	34	− 30.7
1994	33	− 0.6	19	− 1.3	32	− 35.6
1995	36	− 3.4	21	− 3.9	31	− 40.5
Total reports (1986–1995)	301		177		309	
Mean		0.51		1.29		− 20.39
S.D.		2.22		3.24		12.89
Trend		− 0.088		− 0.077		− 4.26

t test between annual reports of nongroups and groups = − 0.63 (two-tailed sig. = .53); *t* test between annual (nongroups) and consolidated accounts = 5.05 (two-tailed sig. = 0); *t* test between reports on annual and consolidated accounts = 5.16 (two-tailed sig. = 0).

[a] For the year 1985, the average number of days is presented for three types of reports. For the following years, only the changes in the average are indicated in the table.

regard to qualified audit reports on consolidated financial statements fell significantly (by 40.5 days) during the period of study.

Audit qualifications are not homogenous and some are more serious than others. In the French context, seriousness of qualified audit report depends mainly on issues such as scope limitation, the materiality of the issues raised in the report, and the auditors' assessment of the nature and the effect of factors that prevent the expression of an unqualified opinion (see the explanation provided in Section 4.3 on the methodology used for RQ4).

There were 543 qualifications in audit reports on annual and consolidated accounts during the period of study. These have been classified on the basis of their nature.

Table 7 shows that there is a correlation between the delay for the major categories of qualified audit opinions (disclaimers of opinion, adverse opinion, and multiple uncertainties) and the seriousness of the qualification. Even though other cases—nonconformity with accounting principles and lack of sufficient accounting provisions—are considered the least severe type of departure from an unqualified report, the average delay is nevertheless

Table 7
Average delay of the announcement of audit qualifications

Types of qualification	Number of reports	Average delay (days)	S.D.
"Disclaimer of opinion"	28	179.8	14.3
"Adverse opinion"	65	129.5	27.2
"Except for opinion"			
Scope limitation	41	124.7	19.2
Multiple uncertainties	144	134.5	24.5
Nonconformity with accounting principles	137	127.8	25.8
Lack of provisions for employees' retirement	63	126.4	18.5
Other provisions	46	115.6	15.8
"Other"	19	126.6	20.3
Total number of qualifications	543		

relatively high (127.8 and 126.4 days, respectively), providing further evidence of the relationship between audit qualification and timeliness.

The results presented in Table 7 are consistent with other researchers' findings, not surprisingly, given that the decision to qualify a company's financial statements is likely to be time-consuming. Elliott (1982a, p. 135) reports greater improvement in delays for "going concern" than for "asset realization" and "litigation" qualifications. Whittred (1980, p. 573) calculates mean total delays of 117 days for "subject to," 141 days for "disclaimers of opinion," and 107 days for "unqualified" reports. Simnett et al. (1995, p. 18) also associated the length of delay to the seriousness of audit qualifications.

For the French context, there is an additional factor that explains the link between length of delay and nature of qualification. The legal requirement that a company's accounts must be audited by at least two different statutory auditors,[29] from different audit firms, might well delay the preparation of a single audit report, taking into account that both auditors have to sign the same report and must agree on a common audit opinion. Besides which, as previously indicated, most of the larger companies listed on the Paris Stock Exchange employ three or more auditors (see, e.g., the audit report of the BIC group in the Appendix).

4.4. Relationship between reporting behavior (early, on time, late) and type of audit report (RQ5)

Analysis is made by comparing actual reporting delays with "normal" reporting delays. As presented above in Methodology, three different methods were used to define a "normal" delay.

Tables 8–10 present the number of qualified and clean reports on the three sets of accounts provided by the sample (annual accounts by nongroups, annual accounts by groups,

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[29] French Law, L. no. 66-537, July 24, 1966, Art. 223, al. 3.

Table 8
Timeliness of qualified and clean reports on annual accounts prepared by nongroups—audit delay versus "normal reporting"

Method (1), $E(\mathrm{rd}_t) = \mathrm{rd}_{t-1}$	Test of $\chi^2 = 5.16$		
Timeliness	Number of qualified reports	Number of clean reports	Total
Early	132 (44%)	983 (47%)	1115 (47%)
On time	30 (10%)	272 (13%)	302 (13%)
Late	139 (46%)	828 (40%)	967 (40%)
Total	301 (100%)	2083 (100%)	2384 (100%)

Method (2), $E(\mathrm{rd}_t) = \frac{1}{K}\sum_{t=1}^{K}\mathrm{rd}_t$	Test of $\chi^2 = 11.10$		
Timeliness	Number of qualified reports	Number of clean reports	Total
Early	117 (39%)	1005 (48%)	1122 (47%)
On time	12 (4%)	84 (4%)	96 (4%)
Late	172 (57%)	994 (48%)	1166 (49%)
Total	301 (100%)	2083 (100%)	2384 (100%)

Method (3), $E(\mathrm{rd}_t) = \frac{1}{t-1}\sum_{t=1}^{t-1}\mathrm{rd}_t$	Test of $\chi^2 = 2.26$		
Timeliness	Number of qualified reports	Number of clean reports	Total
Early	144 (48%)	1083 (52%)	1227 (51%)
On time	10 (3%)	80 (4%)	90 (4%)
Late	147 (49%)	920 (44%)	1067 (45%)
Total	301 (100%)	2083 (100%)	2384 (100%)

and consolidated accounts by groups), and compare the reporting delay with "normal" reporting delay.

Several results are obtained. First, a higher proportion of "qualified" audit reports on annual accounts (both for nongroups and parent companies of groups) is published "late" than "early," whereas the opposite is true in the case of "clean" reports (Tables 8 and 9).

Second, the results indicated in Table 10 (audit reports on consolidated accounts) show that on the whole, "clean" reports are published "early" during the period of study, whichever method is used. With regard to the "qualified" audit reports on consolidated financial statements, when using the first and third methods,[30] a majority of qualified reports are published "early".

Overall, there was a general improvement in the reporting behavior of companies for both annual and consolidated audit reports, with the greater improvement for the latter. This is consistent with the results reported previously in Tables 4 and 6.

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[30] If the second method is used (the average reporting delay over the period of study), the number of reports published "late" is greater. The possible explanation for this is the overall improvement in reporting trends for audit reports on consolidated accounts, which is also apparent from Table 6 (RQ3c).

Table 9
Timeliness of qualified and clean reports on annual accounts prepared by groups—audit delay versus "normal reporting"

Method (1), $E(\mathrm{rd}_t) = \mathrm{rd}_{t-1}$	Test of $\chi^2 = 5.48$		
Timeliness	Number of qualified reports	Number of clean reports	Total
Early	77 (44%)	1181 (47%)	1258 (47%)
On time	18 (10%)	326 (13%)	344 (13%)
Late	82 (46%)	996 (40%)	1078 (40%)
Total	177 (100%)	2503 (100%)	2680 (100%)

Method (2), $E(\mathrm{rd}_t) = \frac{1}{K}\sum_{t=1}^{K}\mathrm{rd}_t$	Test of $\chi^2 = 10.76$		
Timeliness	Number of qualified reports	Number of clean reports	Total
Early	69 (39%)	1209 (48%)	1278 (48%)
On time	7 (4%)	100 (4%)	107 (4%)
Late	101 (57%)	1194 (48%)	1295 (48%)
Total	177 (100%)	2503 (100%)	2680 (100%)

Method (3), $E(\mathrm{rd}_t) = \frac{1}{t-1}\sum_{t=1}^{t-1}\mathrm{rd}_t$	Test of $\chi^2 = 2.11$		
Timeliness	Number of qualified reports	Number of clean reports	Total
Early	84 (47%)	1302 (52%)	1386 (52%)
On time	6 (4%)	96 (4%)	102 (4%)
Late	87 (49%)	1105 (44%)	1192 (44%)
Total	177 (100%)	2503 (100%)	2680 (100%)

To examine the relationship between reporting behavior of audit reports and the type of reports, the chi-square and Fisher (with confidence intervals for a sample proportion) tests were applied to the data in Tables 8–10.

The chi-square test was used to compare the observed number of samples in each category with the expected number. It was applied to the data for reports on annual (both for nongroups and groups) and consolidated accounts, under the three predefined methods. The results are indicated in Tables 8–10.

Since the computed values of chi-square using the second method (11.10 for annual accounts by nongroups, 10.76 for parent companies of groups, and 15.20 for consolidated reports) are higher than the critical values, the null hypothesis can be rejected at the 1% level. A similar result is obtained using the third method, in the case of consolidated reports at the 5% level (chi-square of 6.53 compared to critical value of 5.99). It can be concluded that there is a relationship between the type of audit reports (qualified and unqualified) and audit reporting behavior (early, on time, late) when using the second (for annual and consolidated reports) and third (for consolidated reports) methods. In other words, "qualified" audit reports on both annual and consolidated accounts are generally published "later" than "normal," unlike "clean" reports which are usually reported "earlier" than "normal".

To summarize, statistical tests show that there is a relationship between the type of audit report (qualified and unqualified) and the reporting behavior. This confirms results obtained

Table 10
Timeliness of qualified and clean reports on consolidated accounts prepared by groups—audit delay versus "normal reporting"

Method (1), $E(\mathrm{rd}_t) = \mathrm{rd}_{t-1}$	Test of $\chi^2 = 4.37$		
Timeliness	Number of qualified reports	Number of clean reports	Total
Early	113 (37%)	1369 (44%)	1482 (43%)
On time	103 (33%)	861 (28%)	964 (28%)
Late	93 (30%)	878 (28%)	971 (29%)
Total	309 (100%)	3108 (100%)	3417 (100%)

Method (2), $E(\mathrm{rd}_t) = \frac{1}{K}\sum_{t=1}^{K} \mathrm{rd}_t$	Test of $\chi^2 = 15.20$		
Timeliness	Number of qualified reports	Number of clean reports	Total
Early	104 (34%)	1486 (48%)	1590 (47%)
On time	22 (7%)	237 (8%)	259 (7%)
Late	183 (59%)	1385 (44%)	1568 (46%)
Total	309 (100%)	3108 (100%)	3417 (100%)

Method (3), $E(\mathrm{rd}_t) = \frac{1}{t-1}\sum_{t=1}^{t-1} \mathrm{rd}_t$	Test of $\chi^2 = 6.53$		
Timeliness	Number of qualified reports	Number of clean reports	Total
Early	129 (42%)	1623 (52%)	1752 (51%)
On time	75 (24%)	631 (20%)	706 (21%)
Late	105 (34%)	854 (28%)	959 (28%)
Total	309 (100%)	3108 (100%)	3417 (100%)

in previous research work, notably that of Whittred (1980) in Australia and Elliott (1982a, 1982b) in the US market.

5. Conclusion

This study set out to examine the issue of timeliness of corporate and audit reports in the French context, using data from French listed companies for each year in the period 1986–1995. Various aspects of this issue, which is of great importance to researchers in comparative international accounting and to shareholders, particularly foreign investors in the French financial market, have been analyzed.

Following on from research conducted in English-speaking countries, research questions were developed regarding the timeliness of French corporate reports to AGM and audit delay. In doing so, special attention has been paid to the role of regulatory and professional bodies, the presence of foreign investors, and accounting and auditing practices in the French context, where there are major differences from English-speaking countries. There is evidence of an improvement in timeliness of corporate and audit reporting delays. It has also been shown that the existence of a qualification audit tends to lengthen the delay. Although account must

be taken of certain specific characteristics, the results presented are consistent with the findings for English-speaking countries.

Generally speaking, there was an improvement in the reporting delays for annual and consolidated accounts to the AGM of French companies and groups during the period of study. However, the improvement in reporting delay for groups' accounts (both annual accounts of parent companies and consolidated financial statements) is more significant than for nongroups. Consolidated accounts prepared by French groups can thus be considered more relevant because they are more timely.

Similar results were found for the impact of audit qualification on timeliness of audit reports. They show that the statutory auditors of companies and groups in the sample were able to submit their audit reports within 3 months from fiscal year-end. Besides this, although there was a steady reduction in audit reporting delays for all three sets of accounts, the improvement is marginally greater for reports on the consolidated accounts of groups and their parent companies than for nongroup companies. That larger firms tend to release their financial reports earlier than smaller companies may be related to their access to financial resources and the greater influence of foreign investors and market regulatory bodies on the groups. The results obtained may have implications for regulatory action with regard to the reduction in the reporting delay of companies, as the audit report is an integral part of the annual report to the shareholders.

With respect to the relationship between audit qualification and reporting delay, it was shown that audit qualifications were associated with longer audit delay, since the change in average delay of unqualified audit reports is significantly higher than that of qualified reports. When the impact of audit qualifications on three types of reports was measured, again the audit reports on consolidated financial statements show a decrease in delay (this time substantial) compared to audit reports on annual accounts (both for nongroup companies and parent companies of groups). This implies that the audit qualification has generally more impact on delaying the audit reports on annual accounts than on consolidated financial statements.

In the case of the impact of different types of audit reports (unqualified, qualified, and disclaimer opinions), the results show that a longer delay generally corresponds to a more serious qualification, which in the French case is the "disclaimer of opinion." Although the results are consistent with those obtained in English-speaking countries, they show a relatively high average delay even for "except for" (the least severe type of departure from an unqualified report). This may be related to the comparatively longer delay in almost all areas of timeliness of corporate and audit reports in France.

The analysis of the relationship between reporting behavior (early, on time, late) and type of audit reports (unqualified and qualified) supports the above conclusions. A greater number of qualified audit reports on all three sets of accounts are published "later" than the "normal reporting delay," whereas the "clean audit reports" are associated more with "early" release. Also, the improvement in the reporting delay of unqualified and qualified reports on consolidated accounts is greater than that for annual accounts.

Although the reporting delays both for corporate and audit reports are longer in the French case (even taking into account that most previous research studies conducted in English-

speaking countries were based on company reports released before 1990), the results are consistent with those from an Anglo-Saxon context, particularly those for Australia and the US (Elliott, 1982a, 1982b; Givoly & Palmon, 1982; Simnett et al., 1995; Whittred, 1980). The French context is different in many respects from that of English-speaking countries as far as accounting and auditing practices are concerned (e.g., comparison of reporting delay among three sets of accounts, timeliness of two corporate and two audit reports submitted to ordinary general meeting, presence of more than two statutory auditors to prepare a single audit report, etc.).

The results reported here are encouraging with regards to the improvement of reporting behavior of French corporate and audit reports. However, some limitations should be noted. First, the period of 180 days legal requirement for reporting may be superfluous, at least for listed companies, given that most listed firms are able to report well within this time. Moreover, 180 days is relatively long, especially when compared to requirements in certain English-speaking countries (e.g., Australia and the US). Second, any reduction in legal reporting delay might incur extra cost, related to the preparation of more up-to-date accounting and financial data, and, therefore, this would have to be assessed against the benefits of more timely disclosure of audited annual and consolidated financial statements.

Nevertheless, while it would appear that the efforts made by the stock market regulatory agency and professional auditing body (*COB* and *CNCC*) have been effective in convincing firms listed in French financial markets and their auditors to release more timely audit and corporate reports, reexamination of the adequacy of the 180-day deadline, with a view to shortening it, at least for the large French corporations, may still be necessary. It should encourage publication of even more timely financial information comparable to the standards expected at the international level. The growing number of international investors in French companies, together with multiple listings in foreign stock markets by some larger companies, is having some impact on the general improvement in reporting delay of French companies. Both these issues require the disclosure of more timely accounting and financial information.

Appendix

Rapport des commissaires aux comptes sur les comptes consolidés
Exercice clos le 31 décembre 1999

Mesdames et Messieurs les Actionnaires,

En exécution de la mission qui nous a été confiée par votre Assemblée Générale, nous avons procédé au contrôle des comptes consolidés de la société BIC établis en Euros relatifs à l'exercice clos le 31 décembre 1999, tels qu'ils sont présentés aux pages 63 à 99.

Les comptes consolidés ont été arrêtés par le Conseil d'Administration. Il nous appartient, sur la base de notre audit, d'exprimer une opinion sur ces comptes.

Nous avons effectué notre audit selon les normes professionnelles applicables en France ; ces normes requièrent la mise en œuvre de diligences permettant d'obtenir l'assurance raisonnable que les comptes consolidés ne comportent pas d'anomalies significatives. Un audit consiste à examiner, par sondages, les éléments probants justifiant les données contenues dans ces comptes. Il consiste également à apprécier les principes comptables suivis et les estimations significatives retenues pour l'arrêté des comptes et à apprécier leur présentation d'ensemble. Nous estimons que nos contrôles fournissent une base raisonnable à l'opinion exprimée ci-après.

Nous certifions que les comptes consolidés établis conformément aux règles et principes comptables applicables en France sont réguliers et sincères et donnent une image fidèle du patrimoine, de la situation financière, ainsi que du résultat de l'ensemble constitué par les entreprises comprises dans la consolidation.

Par ailleurs, nous avons également procédé à la vérification des informations données dans le rapport sur la gestion du Groupe conformément aux normes professionnelles applicables en France. Nous n'avons pas d'observation à formuler sur leur sincérité et leur concordance avec les comptes consolidés.

Paris et Neuilly le 28 avril 2000
Les Commissaires aux Comptes

Alain Lainé   Deloitte Touche Tohmatsu
                               Patrice de Maistre
                               Thierry Benoit

Statutory auditors' report on the consolidated financial statements
Year ended December 31, 1999

Ladies and Gentlemen,

In accordance with our appointment as auditors by your Annual General Meeting, we have audited the accompanying consolidated financial statements of BIC prepared in Euros for the year ended December 31, 1999, as shown on pages 63 to 99.

The consolidated financial statements have been approved by the Board of Directors. Our role is to express an opinion on these financial statements, based on our audit.

We conducted our audit in accordance with professional standards applicable in France. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the consolidated financial statements give a true and fair view of the financial position and the assets and liabilities of the Group as at December 31, 1999 and the results of its operations for the year then ended in accordance with accounting principles generally accepted in France.

We have also performed the procedures required by law on the Group financial information given in the report of the Board of Directors. We have no comment to make as to the fair presentation of this information nor its consistency with the consolidated financial statements.

Paris and Neuilly, April 28, 2000
The Statutory Auditors

Alain Lainé   Deloitte Touche Tohmatsu
                               Patrice de Maistre
                               Thierry Benoit

(This is a free translation of the original French text for information purposes only)

Acknowledgments

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Ownership structure and corporate voluntary disclosure in Hong Kong and Singapore

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Abstract

Drawing on prior empirical research based on disclosure behavior in developed western markets, this study examines the association of ownership structure with the voluntary disclosures of listed companies in the Asian settings of Hong Kong and Singapore. An analysis of annual reporting practices shows that the extent of outside ownership is positively associated with voluntary disclosures. In particular, the results also indicate that the level of information disclosure is likely to be less in "insider" or family-controlled companies, a significant feature of the Hong Kong and Singapore stock markets. © 2002 University of Illinois. All rights reserved.

Keywords: Voluntary disclosures; Agency theory; Hong Kong; Singapore

1. Introduction

Corporate voluntary disclosure has been the focus of an increasing amount of attention in recent years. Such disclosures can be defined as "disclosures in excess of requirements, representing free choices on the part of company managements to provide accounting and other information deemed relevant to the decision needs of users of their annual reports" (Meek, Roberts, & Gray, 1995, p. 555). Studies in this area have mainly focused on the impact of company characteristics on the extent of voluntary disclosure. Understanding why

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firms disclose information voluntarily is useful to both the preparers and users of accounting information as well as to accounting policymakers (Meek et al., 1995). However, the focus of much of the research to date has been on the US, the UK, and Continental European countries (e.g., Buzby, 1975; Cerf, 1961; Choi, 1973; Cooke, 1989; Firth, 1979; Frost & Pownall, 1994; Gray, Kouhy, & Lavers, 1995; Meek & Gray, 1989; Meek et al., 1995; Turpin & DeZoort, 1998). In contrast, very few studies (e.g., Cooke, 1991; Hossain, Tan, & Adams, 1994; Lau, 1992) have been concerned with the nature and extent of corporate voluntary disclosure in Asian countries. Accordingly, this study aims to examine the voluntary disclosure behavior of listed companies from two important Asian markets, namely, Hong Kong (China) and Singapore.

Hong Kong and Singapore are the focus of this study, first, because of their unique and similar backgrounds as emerging market economies with rapidly growing capital markets. Total market capitalization of the Hong Kong capital market has increased more than seven times from US$83,386 million to US$608,159 million during 1990–1999 (Stock Exchange of Hong Kong (SEHK), 1999). Similarly, it has increased more than nine times from US$21,124 million to US$192,983 million for the Singapore capital market during the same period (SEHK, 1999). In 1999, Hong Kong ranked as the second largest and Singapore the fourth largest economics in Asia in terms of market capitalization (SEHK, 1999). The Hong Kong and Singapore capital markets have both increased in importance and are keenly competing to be among the leading stock market locations in Asia outside Japan. So not only is more research needed on these markets, but also an assessment of similarities and differences in disclosure behavior is likely to be insightful.

Second, voluntary disclosure deserves special attention in the Asian context because firms in these countries have less incentives for transparent disclosure than their Anglo-American counterparts (Ball, Wu, & Robin, 1999). The disclosure orientation of firms in Asian countries is significantly influenced by the cultural environment in which they operate (Gray, 1988; Radebaugh & Gray, 1997). The cultural environments in which Hong Kong and Singapore firms operate do not encourage voluntary disclosure of corporate information. Both societies have been dominated by Chinese people. Chinese society is characterized by having relatively high levels of collectivism and power distance, and strong uncertainty avoidance (Chow, Chau, & Gray, 1995). The societal values of high collectivism and large power distance indicate that people would tend to adhere to rules and regulations and disclose voluntarily less information in their annual reports compared to their counterparts in US and UK markets. On the other hand, long-term creditors in strong uncertainty-avoidance countries such as Hong Kong and Singapore may require more information from their borrowers in order to preserve security. Such unique environments in Hong Kong and Singapore provide us with an opportunity to examine empirically the firm characteristics affecting corporate information disclosure in emerging economies.

Third, the disclosure orientation of firms in these countries is also greatly influenced by the form of their ownership and management structure (Lam, Mok, Cheung, & Yam, 1994; Mok, Lam, & Cheung, 1992). In Hong Kong and Singapore, listed companies are usually controlled by a family group who staff many of the senior positions and also own a large

proportion of the shares. In Hong Kong, a survey conducted in 1997 by the Hong Kong Society of Accountants (HKSA) confirmed the widespread view that the extent of control of listed companies in Hong Kong by one shareholder or a family group of shareholders is significant (HKSA, 1997). In contrast, a large proportion of listed companies in more developed countries such as the US and UK are owned by a diverse shareholder population, in which institutional investors such as pension funds and mutual funds predominate. The prevalence of family companies on a stock exchange may result in less demand for corporate disclosures than found in more developed countries because the major providers of finance already have that information. The impact of ownership structure is of particular significance for the current Hong Kong investment scene. As Hong Kong endeavors to become one of the major international capital markets, this has brought about rising expectations among market users and calls for more corporate disclosure for proper evaluation of the firm's economic performance. However, the influence of family-controlled companies may well be a countervailing force to the growing pressures for internationalization of the market.

Accordingly, this study examines whether ownership structure is associated with the voluntary disclosures of listed companies in Hong Kong and Singapore. It also investigates whether family ownership and control of firms has an impact on the level of voluntary disclosures because a substantial number of firms are family-owned and -controlled (Lam et al., 1994; Mok et al., 1992).

The paper is organized as follows: first, hypotheses are developed; second, the research methods used are explained; third, the results are detailed and discussed; and finally, some conclusions are drawn.

2. Development of hypotheses

2.1. Ownership structure and voluntary disclosures

Agency theory (Jensen & Meckling, 1976; Watts, 1977) suggests that where there is a separation of ownership and control of a firm, the potential for agency costs arises because of conflicts of interest between contracting parties. Fama and Jensen (1983) propose that where share ownership is widely held, the potential for conflicts between principal and agent is greater than in more closely held companies. As a result, information disclosure is likely to be greater in widely held firms so that principals can effectively monitor that their economic interests are optimized and agents can signal that they act in the best interests of the owners. In the Asian context, research is very limited on this issue. However, Hossain et al. (1994) found that ownership structure is statistically related to the level of information voluntarily disclosed by listed Malaysian companies. The hypothesis is thus:

Hypothesis 1: There is a positive association between wider ownership and the extent of voluntary disclosure by Hong Kong and Singapore companies.

2.2. Impact of family ownership on voluntary disclosures

In both of Hong Kong and Singapore, it seems that family-owned and -controlled companies are more in evidence than in western developed stock markets and that "insiders" control a significant proportion of listed companies. In Hong Kong, a survey conducted in 1997 by the HKSA confirmed the widespread view that the extent of control of listed companies in Hong Kong by one shareholder or a family group of shareholders is significant (HKSA, 1997). In Singapore, a similar situation seems to prevail though there is limited empirical evidence available owing to the difficulty of obtaining relevant data.

Family-controlled firms have little motivation to disclose information in excess of mandatory requirements because the demand for public disclosure is relatively weak in comparison with companies that have wider ownership. In the context of the Chinese culture, with relatively high levels of collectivism and power distance, and strong uncertainty avoidance, it would also be expected that transparency and information disclosure levels would be lower compared to the US and UK markets (Gray, 1988). Accordingly, an alternative hypothesis can be stated thus:

Hypothesis 2: There is a negative association between family or concentrated ownership and the extent of disclosure by Hong Kong companies.

3. Research methods

3.1. Sample

To ensure that samples selected from Hong Kong and Singapore were homogeneous, only industrial companies were selected. These companies fall into industrial sectors such as food and beverages; shipping and transportation; publishing and printing; electronics and technology; building materials and construction. A list of all the industrial companies whose shares were listed on the SEHK as of December 31, 1997, was prepared from the *Guide to the Companies of Hong Kong—1998* (Thornton, 1998a). To examine the annual reports of all respondent companies was not feasible, and hence, about one out of every three Hong Kong industrial companies was selected randomly by using the random number generator provided by "Excel." Annual Reports for 1997 were analyzed. These annual reports represented the most recent source of data available at the time of the study. The sample size of 60 represents about 32% of the total population. A similar procedure was carried out for Singapore companies based on the *Guide to the Companies of Singapore and Malaysia—1998* (Thornton, 1998b) for the financial year 1997. Because of the smaller population, about one out of every two Singapore industrial companies was selected randomly by using the random number generator provided by "Excel." Hence, 62 companies out of the total population of 133 were selected, representing about 47% of the total population. Thus, while the samples were random and represented a significant proportion of the companies listed on

each stock exchange, they did not comprise the entire population of industrial companies in Hong Kong and Singapore.

Regarding the industry composition of the samples, the Hong Kong and Singapore sample companies were similar in constitution with the vast majority of companies in the electronics and technology industry (70% for Hong Kong sample companies and 73% for Singapore sample companies, respectively) and fewer companies in other industrial sectors (publishing and printing; food and beverages; and shipping and transportation). Nevertheless, a control for industry was incorporated in the statistical tests.

3.2. Disclosure index

The voluntary disclosure checklist was based on the one developed in a recent study by Meek et al. (1995), which examined the voluntary disclosures of US, UK and Continental European companies. The major reason for adopting this checklist is that the original checklist was compiled "based on an analysis of international trends and observations of standard reporting practice, taking into account the relevant research studies as well as other comprehensive international surveys of accounting and reporting" (Meek et al., 1995, p. 561). It also provides a useful benchmark for comparison with earlier research. The items on the checklist were checked against the mandatory disclosure requirements of Hong Kong and Singapore in order to arrive at the voluntary disclosure checklist applicable to the sample companies (see Appendix A). The items on the checklist were categorized into three information types: (a) Strategic Information including (1) General Corporate Information, (2) Corporate Strategy, (3) Acquisitions and Disposals, (4) Research and Development, (5) Future Prospects; (b) Nonfinancial Information including (1) Information about Directors, (2) Employee Information, (3) Social Policy and Value Added Information; and (c) Financial Information including (1) Segmental information, (2) Financial Review, (3) Foreign Currency Information, and (4) Stock Price Information.

Most of the prior studies related to corporate information disclosure have tended to treat voluntary disclosure as a whole. Strategic and financial types of information have decision relevance to investors while nonfinancial information is directed more toward a corporation's social accountability and targeted at a wider spectrum of stakeholders than the owners/investors. As a result, the variables affecting voluntary disclosure choices may also vary by information type. Thus, following Meek et al. (1995), the voluntary disclosure items of this study are categorized into three major types of information: strategic, nonfinancial, and financial.

The voluntary disclosure index for each company becomes TVD/MVD—the number of total voluntary disclosures (TVD) as a proportion of the maximum voluntary disclosure possible (MVD). The voluntary disclosure index was compiled based on the addition, and unweighted scoring approach, of the disclosure items. Such an approach was based on the assumption that each item of information disclosure is of equal importance in the corporate information users' decision-making process. Assigning weights would bring about a certain degree of subjectivity and reflect the importance of certain types of information to the specific groups of information users (Firth, 1979). This may not be able to properly reflect

the decision made by the majority of information users as the annual report is usually considered as a very general-user report. Such an addition and unweighted scoring approach has been employed and supported in several prior studies (Ahmed & Nicholls, 1994; Cooke, 1991; Meek et al., 1995). In addition, weights may not represent real economic consequences to the subjects whose opinions are pooled (Chow & Wong-Boren, 1987) and may not reflect stable perceptions on similar disclosure items across subjects over time (Dhaliwal, 1980). Finally, the results of prior studies (Chow & Wong-Boren, 1987) have suggested that weighted and unweighted disclosure indexes are interchangeable because their effects are equivalent.

One of the major issues of adopting this dichotomous procedure is the applicability of the item concerned, i.e., the determination of whether an information disclosure item is not disclosed (0) or not applicable (N/A) when that particular item is not included in the annual report. In order to tackle this problem, an information disclosure item was coded as N/A (not applicable) only after having investigated the entire annual report and ensuring that no similar information could be found in any part of the report. This approach has been used in prior studies (e.g., Cooke, 1989; Wallace, 1988; Wallace, Naser, & Mora, 1994).

The employment of index numbers as a measure of the degree of voluntary disclosure depends on the information items that are used as a basis of the calculation of the index number. The voluntary information disclosure checklists admittedly do not include all of the information disclosed by corporate management. However, these information disclosure items do comprise the majority of the significant corporate information disclosures that corporate managements are expected to disclose in their annual reports in order to meet the information needs of different stakeholders. Thus, the use of index numbers can be considered to be able to capture a large degree of corporate voluntary disclosure by the sample companies. Such an approach is also consistent with prior studies (Aitken, Hooper, & Pickering, 1997; Chow & Wong-Boren, 1987; Cooke, 1989, 1991; Firth, 1979; Hackston & Milne, 1996; Hossain, Perera, & Rahman, 1995; Hossain et al., 1994; Meek et al., 1995; Wallace & Naser, 1995; Wallace et al., 1994).

3.3. Ownership structure variable—outside owners

While there is little or no information in the annual reports of the Hong Kong companies about the number of shareholders, there is information about the proportion of shares owned by directors and dominant shareholders, as this is a required disclosure by the SEHK. In addition, the SEHK requires 25% or more of the issued share capital of listed companies to be held by "unconnected persons" (those with no family relationships with members of a firm's board of directors) and the general public (Phenix, 1994). On the other hand, the Stock Exchange of Singapore (SES) requires only 10% to be held by "unconnected persons" and the general public. The ownership variable in this study was calculated initially by adding together the proportions of equity belonging to directors and to dominant shareholders to arrive at the proportion of a firm's equity owned by insiders. This figure was then used to derive the proportion of a firm's equity owned by outsiders (OOWN).

3.4. Regression model

A linear multiple regression analysis was used to test the association between the dependent variable of voluntary disclosure and the independent variable of ownership structure. In addition to the ownership structure, a number of control variables are also included in the model to test the hypotheses. These control variables have been commonly used in prior disclosure research studies (Chow & Wong-Boren, 1987; Cooke, 1989, 1991; Craswell & Taylor, 1992; Hossain et al., 1995; Zarzeski, 1996). The analysis of voluntary disclosure was based on the following multiple regression model:

$$VOEXT = \beta_0 + \beta_1 SIZE + \beta_2 LEV + \beta_3 AUD + \beta_4 OOWN + \beta_5 PROF + \beta_6 MULT$$

where: VOEXT=extent of voluntary disclosure scores; β_0=regression intercept; SIZE=firm size; LEV=leverage; AUD=size of auditors; OOWN=ownership structure; PROF=profitability; MULT=multinationality; β_i=parameters to be estimated; i=1, ..., 6.

4. Results and discussion

4.1. Descriptive statistics

Table 1 reports the descriptive statistics of our sample of Hong Kong and Singapore companies in terms of the disclosure scores for 1997. For the Hong Kong companies, the voluntary mean disclosure in 1997 varied from 9.77% in the case of financial information to 18.49% for strategic information, with nonfinancial information in between at 10.45%. The overall mean disclosure in 1997 was 12.23%. Whereas for the Singapore companies, the voluntary mean disclosure in 1997 varied from 10.68% for financial information to 16.76% for nonfinancial information, with strategic information in between at 16.00%. The overall mean disclosure in 1997 was at 13.83%. Table 1 shows that, with the exception of nonfinancial information, the levels of voluntary disclosure for Hong Kong and Singapore companies were relatively similar. The voluntary disclosure of nonfinancial information, however, appears to be a phenomenon particular to Singapore companies. This was confirmed by ANOVA statistical tests for differences in disclosure between Hong Kong and Singapore, where it was found that only in respect of nonfinancial information was the difference significant.

Table 1 also provides information about the sample companies for Hong Kong and Singapore in terms of the independent and control variables for 1997. Examination of Table 1 reveals that the Singapore companies were larger, on average, in terms of profitability and sales than their Hong Kong counterparts. As regards leverage, auditor, ownership, and multinationality, they did not differ substantially. However, an important finding concerns the ownership structure of the sample companies. As reflected in Table 1, the proportion of equity owned by the external stakeholders compared with the insiders (directors and dominant shareholders) of Hong Kong and Singapore companies in 1997 was 56.16% and 57.31%,

Table 1
Descriptive statistics

Sample characteristics

	Ownership (external)		Sales (HK$ million)		Leverage		Profitability		Auditor		Multinationality	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
HK companies	56.16	22.78	1683	1515	21.00	21.86	7.62	8.05	0.87	0.34	41.63	23.31
Singapore companies	57.31	30.89	1703	2407	18.11	21.45	11.85	16.63	0.97	0.18	45.74	21.91

	Strategic information 1997 (%)	Nonfinancial information 1997 (%)	Financial information 1997 (%)	Total disclosures 1997 (%)
Disclosure scores—Hong Kong				
Mean	18.49	10.45	9.77	12.23
S.D.	9.90	5.11	8.37	7.74
Minimum	3.80	3.10	1.50	3.80
Maximum	40.00	25.00	42.00	40.00
Source: HK Company Annual Reports for 1997				
Disclosure scores—Singapore				
Mean	16.00	16.76	10.68	13.83
S.D.	9.00	9.69	6.93	8.09
Minimum	4.00	2.86	2.30	2.90
Maximum	32.00	37.00	23.80	27.20
Source: Singapore Company Annual Reports for 1997				

respectively. A further analysis of the biographical details of the directors of the Hong Kong companies indicated the family relationships among the directors and senior management staff (such family relationships are not required to be disclosed by Singapore listed companies). Based on the family relationships, a further analysis of the shareholdings among the family members revealed that more than half (35 firms accounting for 58% of the sample companies) of the listed companies in Hong Kong were subject to family control (i.e., *one* family group of shareholders owning 50% or more of the issued share capital).

4.2. Multivariate tests

As shown in Table 2, the multiple regression model for 1997 for Hong Kong companies reported the F value of 5.401 (significant at the .001 level) for the level of overall disclosure. The adjusted coefficient of determination (R^2) for the level of overall disclosure was 42.7%.

Similarly, the F value of Singapore companies in 1997 as shown in Table 3 was 17.057 (significant at the .001 level) for the level of overall disclosure. The R^2 for the level of overall disclosure in 1997 was 72.5% for Singapore companies.

Table 2
Regression results—Hong Kong (1997)

	Strategic information	Nonfinancial information	Financial information	Total disclosures
Adjusted R^2	0.225	0.322	0.350	0.427
F statistic	3.860**	3.807***	4.184***	5.401***
Significance	0.003	0.000	0.000	0.000
Intercept	− (−0.857)	− (0.225)	− (−2.540)	− (−2.331)
Variables:				
OOWN[a]	0.464 (3.756)***	0.599 (5.272)***	0.613 (5.515)***	0.556 (6.556)***
AUD[b]	0.121 (0.980)	0.122 (1.070)	0.130 (1.166)	0.111 (1.058)
LEV[c]	0.001 (0.008)	0.026 (0.210)	−0.05 (−0.406)	−0.103 (−0.895)
PROF[d]	0.182 (1.505)	0.098 (0.885)	−0.027 (−0.248)	0.087 (0.850)
SALE[e]	0.171 (1.366)	0.007 (0.060)	0.220 (2.078)*	0.203 (1.915)*
MULT[f]	−0.026 (−0.026)	0.157 (1.345)	0.144 (1.258)	0.092 (0.853)
Industry				
=1 if electronics and technology	−0.276 (−1.881)	−0.276 (−1.881)	0.149 (1.041)	0.091 (0.676)
=1 if publishing and printing	−0.059 (−0.437)	−0.059 (−0.437)	0.134 (1.016)	0.148 (1.188)
=1 if food and beverage	−0.041 (−0.302)	−0.041 (−0.302)	0.081 (0.608)	0.095 (0.763)
=1 if shipping and transportation	−0.120 (−0.895)	−0.120 (−0.895)	0.228 (1.736)	0.225 (1.818)

The table shows standardized coefficients and t statistics (in parentheses) for the respective independent variable in the model.

[a] Ratio of a firm's equity owned by outsiders to all equity of the firms.
[b] 1 for Big 5 and 0 for Non-Big 5.
[c] Long-term liabilities over shareholders' equity.
[d] Income after tax, exceptional items, and extraordinary items over net sales.
[e] Natural logarithm of net sales.
[f] Foreign sales by subsidiaries over total operations.
* Significant at .05.
** Significant at .01.
*** Significant at .001.

Thus, these multiple regression models were highly significant and had an explanatory power similar to those reported in earlier studies (e.g., Cooke, 1989, 1991). However, there were some apparent differences in the explanatory power of the information types between Hong Kong and Singapore companies as shown by the R^2. The amount of explained variation in disclosure for Hong Kong companies in 1997 ranged from 22.50% for strategic information to 35% for financial information, with nonfinancial information in between at 32.2%. On the other hand, the amount of explained variation in disclosure for Singapore companies in 1997 was higher ranging from 42.6% for strategic information to 64.9% for financial information, with nonfinancial information in between at 46%.

Table 3
Regression results—Singapore (1997)

	Strategic information	Nonfinancial information	Financial information	Total disclosures
Adjusted R^2	0.426	0.460	0.649	0.725
F statistic	5.528***	6.186***	12.282***	17.057***
Significance	0.000	0.000	0.000	0.000
Intercept	– (−1.762)	– (−1.383)	– (−0.540)	– (−1.181)
Variables:				
OOWN[a]	0.454 (4.072)***	0.487 (4.509)***	0.794 (9.117)***	0.761 (9.858)***
AUD[b]	0.121 (1.189)	0.131 (1.318)	0.074 (0.925)	0.025 (0.348)
LEV[c]	0.157 (1.382)	0.187 (1.701)	−0.035 (−0.395)	−0.043 (−0.549)
PROF[d]	0.002 (0.023)	0.000 (0.002)	−0.032 (−0.386)	0.029 (0.392)
SALE[e]	0.301 (2.483)*	0.249 (2.348)*	0.055 (0.584)	0.107 (2.027)*
MULT[f]	−0.021 (0.189)	0.088 (0.821)	0.081 (0.934)	0.111 (1.449)
Industry				
=1 if electronics and technology	−0.061 (−0.395)	−0.028 (−0.185)	−0.189 (−1.576)	−0.171 (−1.611)
=1 if publishing and printing	0.033 (0.271)	0.188 (1.577)	−0.043 (−0.443)	−0.006 (−0.069)
=1 if food and beverage	0.072 (0.517)	0.045 (0.331)	−0.143 (−1.319)	−0.090 (−0.933)
=1 if shipping and transportation	0.021 (0.174)	−0.019 (−0.161)	−0.118 (−1.271)	−0.058 (−0.711)

The table shows standardized coefficients and t statistics (in parentheses) for the respective independent variable in the model.
  [a] Ratio of a firm's equity owned by outsiders to all equity of the firms.
  [b] 1 for Big 5 and 0 for Non-Big 5.
  [c] Long-term liabilities over shareholders' equity.
  [d] Income after tax, exceptional items, and extraordinary items over net sales.
  [e] Natural logarithm of net sales.
  [f] Foreign sales by subsidiaries over total operations.
  * Significant at .05.
  ** Significant at .01.
  *** Significant at .001.

The use of this statistical tool is based on the assumptions of no significant multicollinearity between the explanatory variables, and conditions of linearity and normality. Potential problems related to multicollinearity may be investigated by means of a correlation matrix. The Pearson correlations generated by SPSS suggested that multicollinearity between the explanatory variables was most unlikely to cause a serious problem in the interpretation of the results of the multivariate analysis. In addition, another more formal method for detecting multicollinearity involves the calculation of the variance inflation factor (VIF). VIF measures the degree to which each explanatory variable is explained by the other explanatory variables and "very large VIF values indicate high collinearity and a common cutoff threshold is VIF values above 10" (Hair, Anderson, Tatham, & Black, 1995, p. 127).

VIF figures for all the independent variables were generated by SPSS and well below 10, indicating that multicollinearity did not exist in the multiple regression model. To test whether the fundamental assumption of linearity in the multiple regression model is appropriate, an analysis of the scatterplots should be examined. Analyses of the scatterplots indicated that the assumption of linearity was approximately met. In addition, the normal probability plot was also analyzed. The line representing the actual data distribution closely follows the diagonal, indicating that the data set adheres approximately to the normality assumption.

The regression results on the association between ownership structure and the extent of voluntary disclosure are discussed as follows:

4.2.1. Hong Kong

As shown in Table 2, the coefficients for ownership structure of the Hong Kong companies were highly significant ($P<.001$), not only for total information but also for all of the information subgroups. These findings are consistent with Hypothesis 1 that *there is a positive association between wider ownership and the extent of voluntary disclosure.*

An analysis of the shareholdings among the family members of the Hong Kong sample companies for 1997 reveals that more than half (35 firms accounting for 58% of the sample companies) of the listed companies in Hong Kong are subject to family control. In order to analyze the impact of family control on voluntary disclosures, another regression model was run with the same variables as in Table 2, but with an added indicator variable for family control. The coefficient on OOWN remains significantly positive, and the coefficient on the proportion owned by family members was negative and statistically significant ($P<.05$), not only for total information but also for all of the information subgroups: strategic, financial, and nonfinancial. This indicates that while concentrated ownership in general reduces disclosure, that effect is particularly pronounced when the firm is family-controlled. Gray's (1988) secrecy hypothesis also argues that where a firm's shares are held by family-controlled firms, there is a preference for confidentiality and restriction of disclosure of information about the business only to those who are closely involved with its management and financing. Thus, the findings of this study support Hypothesis 2 that *there is a negative association between family ownership and voluntary disclosures.*

In addition, we tested for the presence of nonlinear relationships. It has been suggested by Lang and Lundholm (1993) that the nonparametric test (ranked regression) is a powerful method for dealing with data sets with nonlinear relationships between dependent and independent variables. The ranked regressions were thus conducted based on the procedure suggested by Lang and Lundholm (p. 264). The results were similar to the regression analysis based on unranked data. Ranked ownership was a significant predictor of the ranked disclosure index.

It is also interesting to know the extent to which the relation is nonlinear because high levels of ownership may be required to exercise the level of control necessary to affect disclosure policy. Similarly, at small levels of ownership, block holders may not have the ability to expropriate from the firm and may be less concerned about disclosure. Thus, the

ownership variable was divided into quartiles (1–25%, 26–50%, 51–75%, and 76–100%) and further regressions were conducted on these four groups to test for the presence of a nonlinear relationship. Overall, the regression results of the ownership variable based on these four groups do not differ statistically from the results contained in Table 2, i.e., the coefficient on OOWN remains significantly positive not only for total information but also for all of the information subgroups for all quartiles. Further, F tests for differences in coefficient estimates suggest that each increase is not statistically significant, indicating that there is a positive association between wider ownership and the extent of voluntary disclosure regardless of the level of ownership.

4.2.2. Singapore

As shown in Table 3, the coefficients for ownership structure of the Singapore companies were highly significant ($P<.001$), not only for total information but also for all of the information subgroups. These findings are consistent with Hypothesis 2 that *there is a positive association between wider ownership and the extent of voluntary disclosure.*

To test for the presence of nonlinear relationships, ranked regressions and ownership quartile regressions were conducted with similar results to those in Table 3, i.e., there was no evidence of a nonlinear relationship.

While the Singapore situation seems likely to be similar to Hong Kong in terms of family ownership and control, it was not possible to test this aspect further, owing to the lack of information available. In contrast to Hong Kong, the SES does not require the disclosure of family relationships among directors and senior management.

5. Conclusions

The results of this study of voluntary disclosure behavior by Hong Kong and Singapore listed companies provide support for the agency theory-based hypothesis that there is a positive association between wider ownership and the extent of voluntary disclosure. The empirical findings also highlight the importance of the contextual characteristics of Hong Kong and Singapore. The strong prevalence of "insider" and family-controlled companies is likely to be associated with lower levels of disclosure. This hypothesis is supported strongly in the case of Hong Kong. However, in the case of Singapore, it was not possible to test for this directly, owing to a lack of data, though indirect support is provided by the findings on ownership in general.

Insider and family-controlled companies have little motivation to disclose information in excess of mandatory requirements because the demand for public information disclosure is relatively weak in comparison with that of companies with wider share ownership. This structural feature of the Hong Kong and Singapore stock markets provides a countervailing force to the growing pressures for internationalization and global transparency. This is an important issue that needs to be factored into investor decisions and accounting standards setting policy at both the national and international levels.

Appendix A. Voluntary disclosure checklist—Hong Kong and Singapore

	Voluntary in Hong Kong	Voluntary in Singapore	Voluntary in both Hong Kong and Singapore
(1) General corporate information			
1. Brief history of company	x	x	x
2. Organizational structure	x	x	x
(2) Corporate strategy			
1. Statement of strategy and objectives—general	x	x	x
2. Statement of strategy and objectives—financial	x	x	x
3. Statement of strategy and objectives—marketing	x	x	x
4. Statement of strategy and objectives—social	x	x	x
5. Impact of strategy on current results	x	x	x
6. Impact of strategy on future results	x	x	x
(3) Acquisitions and disposals			
1. Reasons for the acquisitions	x	x	x
2. Amount of goodwill on acquisition	x		
3. Reasons for the disposals	x	x	x
4. Amount of consideration realized from the disposal	x		
(4) Research and development (R&D)			
1. Description of R&D projects	x	x	x
2. Corporate policy on R&D	x	x	x
3. Location of R&D activities	x	x	x
4. Number employed in R&D	x	x	x
(5) Future prospects			
1. Statement of future prospects—qualitative	x	x	x
2. Qualitative forecast of sales	x	x	x
3. Quantitative forecast of sales	x	x	x

4. Qualitative forecast of profits	x	x	x
5. Quantitative forecast of profits	x	x	x
6. Description of capital project committed		x	
7. Committed expenditure for capital projects		x	
8. Qualitative forecast of cash flows	x	x	x
9. Quantitative forecast of cash flows	x	x	x
10. Assumptions underlying the forecasts	x	x	x
11. Order book or backlog information	x	x	x

(6) Information about directors

1. Age of the directors		x	
2. Educational qualifications		x	
3. Commercial experience of the nonexecutive directors			x
4. Commercial experience of the executive directors	x	x	x
5. Other directorships held by nonexecutive directors	x		
6. Other directorships held by executive directors	x		
7. Position or office held by executive directors		x	

(7) Employee information

1. Geographical distribution of employees	x	x	x
2. Line-of-business distribution of employees	x	x	x
3. Categories of employees by sex	x	x	x
4. Categories of employees by function	x	x	x
5. Identification of senior management and their functions	x	x	x
6. Number of employees for 2 or more years	x	x	x
7. Reasons for changes in employee numbers or categories over time	x	x	x
8. Share option schemes—policy	x		

9. Profit sharing schemes—policy	x	x	x
10. Amount spent in training	x	x	x
11. Nature of training	x	x	x
12. Policy on training	x	x	x
13. Categories of employees trained	x	x	x
14. Number of employees trained	x	x	x
15. Welfare information	x	x	x
16. Safety policy	x	x	x
17. Data on accidents	x	x	x
18. Cost of safety measures	x	x	x
19. Policy on communication	x	x	x
20. Redundancy information	x	x	x
21. Equal opportunity policy statement	x	x	x
22. Recruitment problems and related policy	x	x	x

(8) Social policy and value-added information

1. Safety of products	x	x	x
2. Environmental protection programs—qualitative	x	x	x
3. Environmental protection programs—quantitative	x	x	x
4. Charitable donations		x	
5. Community programs	x	x	x
6. Value-added statement	x	x	x
7. Value-added data	x	x	x
8. Value-added ratios	x	x	x
9. Qualitative value-added information	x	x	x

(9) Segmental information

1. Geographical capital expenditure—quantitative	x	x	x
2. Geographical net assets—quantitative	x		
3. Geographical production—quantitative	x	x	x
4. Line-of-business capital expenditure—quantitative	x	x	x
5. Line-of-business net assets—quantitative	x		
6. Line-of-business production—quantitative	x	x	x

7. Competitor analysis—qualitative	x	x	x
8. Competitor analysis—quantitative	x	x	x
9. Market share analysis—qualitative	x	x	x
10. Market share analysis—quantitative	x	x	x

(10) Financial review

1. Profitability ratios	x	x	x
2. Qualitative comments on profitability	x	x	x
3. Cash flow statement—direct	x	x	x
4. Cash flow ratios	x	x	x
5. Liquidity ratios	x	x	x
6. Gearing ratios	x	x	x
7. Fixed asset revaluation within the last 5 years	x	x	x
8. Disclosure of brand valuation	x	x	x
9. Disclosure of other intangible valuations (except goodwill)	x	x	x
10. Dividend payout policy	x	x	x
11. Transfer pricing policy	x	x	x
12. Impact of any accounting policy changes on results	x	x	x
13. Financial history or summary—3 or more years	x	x	x
14. Financial history or summary— 6 or more years	x	x	x
15. Restatement of financial information to IASC	x	x	x
16. Off balance sheet financing information	x	x	x
17. Advertising information—qualitative	x	x	x
18. Advertising expenditure—quantitative	x	x	x
19. Effects of inflation on future operations—qualitative	x	x	x
20. Effects of inflation on results—qualitative	x	x	x
21. Effects of inflation on results—quantitative	x	x	x
22. Effects of inflation on assets—qualitative	x	x	x
23. Effects of inflation on assets—quantitative	x	x	x

24. Effects of interest rates on results	x	x	x
25. Effects of interest rates on future operations	x	x	x
(11) Foreign currency information			
1. Effects of foreign currency fluctuations on future operations—qualitative	x	x	x
2. Effects of foreign currency fluctuations on current results—qualitative	x	x	x
3. Major exchange rates used in the accounts	x	x	x
4. Long-term debt by currency	x	x	x
5. Short-term debt by currency	x	x	x
6. Foreign currency exposure management description	x	x	x
(12) Stock price information			
1. Share price at year end	x	x	x
2. Share price trend	x	x	x
3. Market capitalization at year end	x	x	x
4. Market capitalization trend	x	x	x
5. Size of shareholdings	x		
6. Type of shareholder	x		
7. Foreign stock market listing information	x	x	x

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Capsule commentary

Corporate Taxes 2001–2002/Individual Taxes 2001–2002—Worldwide Summaries,
Compiled by PricewaterhouseCoopers, John Wiley & Sons, Inc., New York City, 2001, 922/
573 pp. (US$190 for the 2-volume set)

This two-volume reference work forms part of PricewaterhouseCoopers' Information Guide series. The Corporate and Individual volumes cover 127 and 128 countries and territories, respectively, with each section supplied by a local office of the firm. In addition to providing the requisite factual information, each author reviews the significant developments during the past year. Contact information (postal address, fax number, and e-mail address) is supplied for each author, thus enabling readers to seek answers to more specific queries.

Of interest is the fact that taxes are not imposed on individuals in the Bahamas, the Cayman Islands, and the Gulf states, a benefit conferred by abundant tourism and petroleum deposits.

Stephan A. Zeff

Book Review Section

The book review section is interested in works published in any language, as long as they are comparative or international in character. The author or publisher of such works should furnish the book revieweditor with two (2) copies of the work, including information about its price and the address where readers may write for copies. Reviews will be assigned by the book review editor. No unsolicited reviews will be accepted. Suggestions of works that might be reviewed are welcomed.

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Book reviews

International Accounting: A Global Perspective

By M. Zafar Iqbal, South-Western College Publishing, Cincinnati, Ohio, second edition, 2002, xxii+546 pp.

Of immediate note is that the authorship of the second edition has dramatically changed. Instead of a triauthored text, only the primary author of the first edition authors this version. In the preface (p. iii), he states, "the second edition is completely rewritten to streamline presentation of the material. Many numerical examples have been added within the chapter texts. End-of-chapter problems and cases have been greatly expanded."

Initially, I expected the streamlined version to be shorter and perhaps to provide less coverage than the first edition. Surprisingly, most of the text and student materials at the end of each chapter are identical to the previous version. However, modest enhancements and restructuring of the material have been undertaken. Previously, the text was comprised of 14 chapters, while the current version contains only 12. Examples and references have been updated throughout, and some changes have been made in the examples to reflect more recent events. The major "streamlining" appears to be removal of the topical discussion for 11 selected countries throughout the text, as well as combining the discussion of standard setting in selected nations with the discussion of harmonization. This edition includes a discussion of accounting in five nations with diverse accounting systems, namely, Brazil, Germany, Japan, the Netherlands, and the US in only two chapters (Chapters 6 and 11).

In the current version, the author has reordered the chapters with mixed success. Following the introductory chapter, students are plunged into the two most difficult and technical topics in international accounting: foreign currency, including limited discussion of foreign exchange risk management, moved from Chapter 9 (now Chapter 2), and accounting for changing prices (Chapter 3). Thereafter, the text presents cultural influences on accounting (Chapter 4), which is a fundamental issue in international accounting and is perhaps better grouped with overview and introductory materials. Chapters 5 and 6 address accounting measurement and disclosures, and disclosure diversity and harmonization, respectively. Chapter 7 provides good closure on external financial reporting issues through its focus on international financial statement analysis. Chapters 8, 9, and 10 retain the strong emphasis on managerial accounting found in the previous version. Chapter 11 focuses on internal and external auditing issues, and Chapter 12 deals with the emerging world economy.

Each chapter now begins with a set of learning objectives and an introductory overview paragraph, correcting deficiencies noted by McKinnon (1998, p. 669). The development of a chapter on cultural influences on accounting, a topic that had been summarily discussed in one page in the first edition (Chapter 4), is an improvement that will aid students in gaining a fundamental understanding of international accounting. The revised Chapter 5 provides both a general overview of disclosure topics, such as social disclosure and voluntary disclosure, as well as a discussion of specific issues, including consolidation, leases, goodwill, which is an improvement over the previous edition's separation of those topics. Chapter 6 provides an overview of standard setting in the five abovementioned nations, coupled with a disappointing discussion of the IASB (formerly IASC). While fleetingly mentioning IOSCO and its formal acceptance of IASC standards, the text fails to provide an adequate discussion of the issues surrounding adoption of international standards in some nations (e.g., the US), its prevalence in other nations as an acceptable basis of presentation, and the current status of the IASB. Brief discussions of EVA and return on equity have been added to Strategic Planning and Control (Chapter 8). Chapter 12 presents a good general discussion of issues in emerging economies. It represents a consolidation of general topics covered in two chapters in the first edition but omits specific discussion of any nations. As a result, the accounting focus in this text is much more general and focused on industrialized nations than its predecessor.

To tie the text to the Internet, Web sites are provided within the text and a Web index has been added following the subject index. Because Web sites often change, an index can quickly become outdated. This concern has been mitigated by limiting the entries in the index to prominent entities (e.g., IOSCO, the US SEC, the European Union) and selected established international press and data sites (e.g., the interactive *Wall Street Journal*, the *Financial Times*, Africa News Online, and Hoover's Online). As with the reference lists at the end of each chapter, this index will also require careful updating in future versions to ensure that Web sites are correct at the time of publication.

Student materials at the end of each chapter consist of questions, exercises and problems, and cases. In some chapters, a few questions have been added or replaced, while in others, they are identical to, or a subset of, those from the previous edition. Names, amounts, and even the order of exercises and problems have often been changed, but almost all of the problems have been carried forward from the previous edition. The cases have not changed significantly either. With the exception of the newly included Chapter 4, I did not find significant additions to the student materials provided in this edition.

Overall, the text is highly readable and, with the exception of the placement of the technical topics, well designed. Chapter placement, in itself, creates no major barrier to adoption, because instructors can rearrange chapters according to personal preference without loss of necessary prerequisite information. With the caveat that instructors will need to augment the harmonization discussion with external materials, I believe that this text can be easily adapted to a wide variety of courses and instructor teaching styles. Even students with a modest knowledge of accounting will gain a good general introduction to issues in international accounting. In particular, I would recommend this text for undergraduate international accounting courses taught to students from all business disciplines.

Reference

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Financial Accounting, An International Introduction
By David Alexander and Christopher Nobes, Pearson Education, Harlow, Essex, England, 2001, xvii+456 pp.

Alexander and Nobes' introductory textbook in financial accounting is not based on any specific national regulatory framework. Instead, International Accounting Standards (IASs) are used as the point of reference for the text. In the cases where the authors refer to a regulatory framework, the regulation of the European Union (EU) is used.

The book is intended to be useful as the main textbook in introductory financial accounting courses throughout the EU, as well as in internationally oriented courses in the rest of the world. These courses may be either at the undergraduate or the graduate (MBA) levels.

The book is divided into three main parts. The first part covers the context of accounting, including such areas as the reasons for having accounting, an overview of the primary financial statements, accounting frameworks and concepts, the regulation of accounting, and international diversity and harmonization. There is a section on the basics of double-entry bookkeeping, as well as a discussion of financial statement analysis, that is, common ratios based on financial statement data.

The second part contains many of the financial reporting issues that are commonly discussed. This includes areas such as fixed assets (both tangible and intangible), inventories, financial assets and liabilities, income taxes, cash flow statements, consolidation, and foreign currencies. A relatively broad range of financial reporting issues are covered in the book. In addition, Part 2 has two chapters of a more theoretical nature, where recognition, measurement, and the effects of changing prices are discussed.

Part 3 is rather compact, containing only two chapters that discuss how to use accounting data for analysis. The first chapter covers how accounting may be used in stock market valuation, and the second covers specific difficulties that may arise in international comparisons between companies. Furthermore, the authors have included outlines of both the EU's Fourth Directive and IASs in appendices.

As indicated by the overview provided above, the book is rather wide in its scope. Many different issues are included. Most of these are useful to students in an introductory level course, but there are some that are of less interest. Chapters 4 and 5 cover accounting regulation, international diversity, and harmonization. The sections on regulation and harmonization are kept suitably short. However, there is too much emphasis on international diversity, given that this is not a book on international accounting. Rather, it is an international introductory accounting book. Thus, the inclusion of Chapter 18, which covers problems encountered when comparing and analyzing companies from different countries, could also be questioned.

A further issue concerns the level of theory to be included in an introductory textbook. For example, Chapter 16, on accounting for price changes, is mostly of theoretical interest. This comment is predicated on the assumption that inflation accounting is not used, or not likely to be used in the near future, and thus has little practical relevance.

It is obvious that the authors are very much up to date on current issues in accounting. For example, Chapter 9 starts with a distinction between tangible and intangible fixed assets and a summary of the current discussion about the increased importance of intangible assets. Similarly, Chapter 11, on financial assets and liabilities, is also up to date in its coverage of the latest developments in that area. This feature of the book is most useful.

The appendices, which include a glossary, summaries of EU's Fourth Directive and IASs, and answers to exercises, are helpful for students.

The overall structure of the book is well planned. As noted above, it is divided into three parts, beginning with the context of accounting, continuing with accounting issues, and ending with analysis of accounting. However, one could question the reasoning behind the structure in some cases. For instance, Chapter 7 (included in Part 1) is about financial statement analysis through ratios, and it is closely related to Part 3.

The book is very well written in the sense that it is written in a way that makes it easy for students to understand. For being an introductory book in financial accounting, the theoretical level is relatively high. The authors have chosen not to focus very much on the structure of the double-entry bookkeeping system. There is a brief discussion on this, but it is far from the focus of the book. As the discussion in the book is advanced per se, it may be difficult for entry-level students to grasp the content, in spite of the clarity of the language used. Thus, the assistance of the professor is clearly needed. It is not a self-study book.

Not only is the book relatively advanced conceptually, it also covers more issues than are normally found in an introductory level textbook. By necessity, some of these issues are covered rather briefly. If students are expected to internalize all of this, they will need a long course, and help from the professor.

Some of the central issues in accounting are explained in a way that is very easy to grasp. A good example is found on page 280, under the heading 'Why it matters', where the role of judgments in accounting is linked to the usefulness of the cash flow statement.

This leads into the pedagogical features of the book. Every chapter starts with learning objectives. Quite often in the text, there are notes on 'Why it matters', that is, why a certain accounting issue is important and relevant. This feature is most useful, as entry-level students might have difficulty understanding the relevance of what they learn. There are also

suggested activities and self-assessment questions. All these pedagogical features are useful as aids in the learning process of students.

An interesting issue with a book of this nature is whether higher education in accounting is ready for textbooks that are not set in any particular national context. IASs are used as the point of reference, and it is true that IASs are useful for listed companies in most of Europe. However, there are a lot of companies that neither are listed nor are following IASs. Students should be prepared to deal with those companies, too. A further potential complication for students who are not native English speakers could be the English language itself, as the authors point out in Chapter 1 (page 9).

All of this might not be a problem if the book is accompanied with national teaching material in the courses where it is used. Most importantly, the authors have succeeded in removing the national context, and they have created a truly international textbook. Thus, the book is ideal for courses with a mix of students from different countries.

In summary, this is a unique book, which is not like any of its competitors. It is an introductory financial accounting textbook with a relatively high theoretical level and coverage of a wide range of issues. Each topic covered is very clearly explained. The book is highly up to date. However, for those looking for in-depth coverage of specific issues, or more technically oriented teaching material, this book will need to be supplemented.

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BOOK REVIEWS

Empires of the sky:
determinants of global airlines' accounting-policy choices

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Abstract

This study quantifies the current level of diversity observed in airline accounting and examines possible determinants that explain accounting-policy choices by the global airline industry. Airlines' accounting-measurement policy for unrealized foreign-exchange differences and their disclosure of frequent-flyer information remains diverse. Inferential statistics shows that larger airlines tend to take unrealized foreign-exchange differences directly to equity and tend to disclose frequent-flyer accounting policy, while airlines with lower leverage tend to disclose frequent-flyer accounting. © 2002 University of Illinois. All rights reserved.

Keywords: International accounting; Accounting-policy choice; Determinants; Airline industry; Measurement and disclosure practices

1. Introduction

The worldwide disparity in accounting practices is a large impediment to the growing trend in internationalization of corporate activities and the growing globalization of business and capital markets (International Accounting Standards Committee [IASC], 2000). Within the international business community, there is a call for accounting information to converge

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(Purvis, Gernon, & Diamond, 1991). The airline industry, an important industry with unique characteristics, is no exception (Feldman, 1992). Greater interest in mergers and alliances within the airline industry and greater scrutiny by the financial community means that the disparity in airline accounting practices can be troublesome as airlines are being forced onto international capital markets in search of funds (KPMG, 1992).

Sampson (1984, p. 19) wrote, "The airlines, as they changed the shape of the world, were also locked into the ambitions of nations. They provide a kind of visual projection of changes on earth—the shifting political balances of power and wealth, the swings of economic beliefs, the technological developments coming up against political deadlocks and reactions." These two sentences best capture the essence of the global airline industry, which today is one of the world's largest industries with over 300[2] international and regional airline companies based in over 137 countries. It is also a high-profile industry that commands substantial media attention whenever anything goes wrong, for example, the health issue, aptly named the "economy class syndrome," for passengers on long-haul flights.

In 1997, 1.4 billion passengers were carried by the world's airlines resulting in operating profits of US$16.5 billion on US$291 billion of revenues (Aviation Information and Research, 1998b). This industry's average growth rate is estimated at 5.5% per annum, over the next 5 years (Aviation Information and Research, 1998a). Airlines are typically in monopoly or oligopoly arrangements. This gives them additional power and size to have a large impact on a country's economy (Nunes, Farago, & Travis, 1997). Furthermore, airline operations span the world but they are not truly multinational. This industry also has a dependence on expensive technology that will cost airlines an estimated US$1000 billion in the next 20 years (Boeing, 1996).

Recently, methods of airline financial reporting and disclosure became a matter of greater importance as an airline's real financial stature began to play a lead role in strategic decisions, especially in light of the growth experienced by the industry together with the growing trend of forming airline alliances. A survey of the airline industry in 1992 found that the substance of airline financial statements varied significantly from country to country and even between airlines operating within the same country, due to the differing accounting policies used. This led to the promulgation of six airline accounting guidelines (AAGs) as industry-specific guidance to the accounting methods available for dealing with particular issues between the periods of 1993–1996 by the International Air Transport Association's (IATA) Accounting Policy Task Force (IATA & KPMG, 1994b).

The first phase of this study looks at the current level of diversity observed in the airline industry with regard to the key accounting issues identified in the survey. Phase II analyzes areas of ongoing diversity by exploring determining factors that may influence airlines' choice for certain accounting practices addressed in the IATA and KPMG's accounting

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[2] Two hundred and sixty are members of the International Air Transport Association (IATA), a body that oversees and represents the airline industry (International Air Transport Association (IATA), 1997).

guidelines. Costly contracting theory forms the underlying theoretical framework for this study. The relevant research questions pertaining to this study are:

1. What is the current level of diversity in airline reporting on key accounting practices?
2. What factors help explain the choice of key accounting practices for airline companies?

This research study is important for several reasons. First, this study provides insights into the diversity of accounting practices and examines factors that may explain the differences that are observed. Second, financiers are placing greater emphasis on airline financial statements in their evaluation of funding proposals, which are impaired by the disparity in accounting practices (IATA & KPMG, 1994b). National aviation authorities also need comparable financial information to be able to draw clear comparisons between airlines financial accounts to assess their financial fitness before approving landing rights and airport slot applications (IATA & KPMG, 1994b). Third, the diversity of airline accounting practices was such a major problem that the IATA in association with KPMG created an Accounting Policy Task Force to establish greater consistency in airline financial reporting. The collaboration brought about six AAGs. Such comprehensive attempts at self-regulation point to the priority given by the airline industry to this issue. This study examines the extent to which accounting practices have become more consistent after these self-imposed guidelines were introduced. Fourth, this study is an intra-industry study with a sole focus on airlines. Any variability due to an industry factor is removed, thus, resulting in a more powerful analysis (Chong, Tower, & Taplin, 2000). Finally, this study empirically examines explanatory factors for accounting-policy choice at a global level, an area virtually ignored in the past literature. An understanding of how cultural factors, institutional structure, and the external environment affect cross-national accounting diversity is useful in international accounting harmonization efforts (Doupnik & Salter, 1995).

2. Phase I: disparity in airline accounting

KPMG and IATA's (1992) survey of airlines' annual reports found great diversity in the accounting policies adopted, making the comparison of airlines' financial accounts difficult for users. The IATA Accounting Policy Task Force was established to identify the areas of accounting that are potentially contentious or were causing divergence within the industry. As a result of the task force's efforts, six AAGs—addressing the issues of accounting for unrealized foreign-exchange differences resulting from the translation of long-term foreign currency borrowings, frequent-flyer liabilities, fleet depreciation, revenue recognition, maintenance costs, and lease accounting—were issued between 1994 and 1997.

2.1. Unrealized foreign-exchange differences

The conversion of foreign-currency balances is a major issue for most airlines. As the operations of the global airline industry involve numerous foreign-currency inflows with

expenditure often substantially denominated in US dollars, the treatment of exchange differences as a result of such conversions are of critical importance (KPMG, 1992). Volatility in foreign-exchange markets will cause substantial fluctuation in reported results. The most notable diversity is in relation to the method of recognition of unrealized exchange differences arising from the translation of foreign currency long-term monetary liabilities (IATA & KPMG, 1994a). The two basic approaches used by airlines are immediate recognition of unrealized differences in the profit and loss account and the direct-to-equity approach.

This diversity is addressed in *AAG 1: Translation of Long-Term Foreign Currency Borrowings* promulgated in 1994. AAG 1 states that unrealized foreign-exchange differences should be recognized immediately through the profit and loss account consistent with *International Accounting Standard (IAS) 21: The Effects of Changes in Foreign-Exchange Rates* (IAS 21 refers to such conversions as foreign-currency transactions not translations). The AAG guideline recommends that airlines provide a comprehensive explanation of the accounting policy being applied, as well as making clear the effect of that policy on the profit and loss account and the balance sheet.

2.2. Frequent-flyer liabilities

Frequent-flyer programmes have been introduced by many international airlines since the 1980s, principally to induce higher levels of repeat business from premium-fare traffic and to foster customer loyalty (Gallacher, 1997). The basic concept of this frequent-flyer programme is to reward passengers based on the frequency of travel on sponsoring airlines. Airlines are becoming more concerned about the impact of frequent-flyer programmes on their financial statements (Bowman, 1995). Frequent-flyer programmes are "one part ticking time bomb to one part invaluable marketing tool;" they are a mounting cost which many airlines are attempting to minimize but are they definitely here to stay (Bowman, 1995, p. 23).

Accounting for frequent-flyer liabilities in the form of the commitment to give frequent-flyer benefits to customers are hard to quantify with precision. *AAG 2: Frequent-Flyer Programme Accounting* identified three methods that have been used by airlines; the contingent-liability method, incremental-cost method, and deferred-revenue approach. The contingent-liability method treats frequent-flyer liabilities as an obligation that is only payable contingent upon a future event (in this case, the redemption of frequent-flyer awards) and, therefore, is deemed inappropriate because it effectively excludes the amount of frequent-flyer liability from the balance sheet. The incremental-cost method is recommended; wherein a provision is made in the balance sheet for the incremental or marginal costs associated with the expected redemption of frequent-flyer points (Bowman, 1995). Conversely, the deferred-revenue approach entails the deferral of revenue generated from the sale of tickets conferring frequent-flyer points (IATA & KPMG, 1995).

2.3. Aircraft depreciation

Depreciation is another important accounting issue in this highly capital-intensive industry. The KPMG and IATA's (1992) survey found extensive diversity in the methods used for

depreciation. Asian airlines adopted relatively conservative depreciation policies that charged double the annual depreciation rate of the European or North American airlines even though their fleets were generally younger. There are also movements towards differentiated depreciation between new technology aircraft and those in earlier series. The two most commonly used methods of calculating depreciation are the straight-line method, based on estimated useful life, and units of output depreciation based on actual aircraft usage. The latter is believed to be adopted to smooth the impact of depreciation charges on the profit and loss account (KPMG, 1992). *AAG 3: Components of Fleet Acquisition Cost and Associated Depreciation* (IATA & KPMG, 1996a) recommends the use of the straight-line method.

2.4. Revenue recognition

Revenue in the airline industry comprises turnover from the transportation of passengers and cargo, as well as from the provision of other services. The basic principle that revenue should only be recognized when transportation is provided is well established, reflecting the application of the accruals basis. However, the treatment of commissions, discounts, and the recognition of unredeemed tickets varied widely between airlines (IATA & KPMG, 1996b). Differing accounting treatment of revenue-related issues and insufficient disclosure made comparison of the airline's financial performance difficult. *AAG 4: Recognition of Revenue* issued in 1996 stated that the accrual principle should be adopted for the recognition of revenue consistent with *IAS 18: Revenue*.

2.5. Maintenance costs

Expenditure on fleet maintenance in relation to both owned and leased assets is an important component of operating costs for all airlines. Airlines have different maintenance regimes depending on the age and type of aircraft in addition to the requirements of aviation regulatory authorities and manufacturers' specifications (IATA & KPMG, 1996c). The two main methods adopted were expensing the cost as a period expense and capitalizing the cost and then amortizing it to the profit and loss account over the period until the next scheduled maintenance. The Accounting Policy Task Force advocates that the accounting policy employed should ensure that costs are expensed to the profit and loss account in a manner that fulfils the matching concept. The use of a provision account for maintenance is not consistent with the recently issued *IAS 37: Provisions, Contingent Liabilities, and Contingent Assets*.

2.6. Lease accounting

Lease finance is a significant source of funding in this capital-intensive industry, particularly in relation to fleet assets. The use of leasing as a source of finance has increased dramatically because of its flexibility in tax planning and capital structuring. From an accounting perspective, the most fundamental issue arising from lease financing is whether a lease is treated as an operating lease or a finance lease. Whether it is on or off balance sheet

Table 1
Current level of uniformity in airline accounting

	Uniformity in measurement		Level of disclosure	
Unrealized foreign-exchange differences	Diverse	(54%—immediate recognition)	Uniform	(92% disclosed)
Frequent-flyer liabilities	Uniform	(93%—incremental cost)	Diverse	(38% disclosed)
Aircraft depreciation	Uniform	(96%—straight-line)	Uniform	(100% disclosed)
Revenue recognition	Uniform	(100%—accrual basis)	Uniform	(100% disclosed)
Maintenance cost	Uniform	(89%—period expense)	Uniform	(100% disclosed)
Lease accounting	Diverse	(60% had both operating and finance leases)	Uniform	(90% disclosed dollar values for leases)

has consequent implications for financial analysis, for example, the computation of the debt-to-equity ratio (KPMG, 1992). Essentially, *AAG 6: Accounting for Leases of Aircraft Fleet Assets* recommends that finance leases be brought onto the balance sheet and treated as purchased assets, while operating leases only give rise to lease rentals that are charged to the profit and loss statement evenly over the lease term (IATA & KPMG, 1997). This approach is consistent with IASC's *IAS 17: Leases*. The major concern is related to the inclination of airline companies to structure their lease agreements strategically to avoid requirements for recognizing additional liabilities on the balance sheet.

The above issues were identified as prime areas of diversity in global airlines' financial reporting, warranting the issuance of six AAGs from 1992 to 1996. Phase I of the study examines the current level of diversity in airline reporting on these key accounting practices from both a measurement and disclosure perspective. The level of uniformity observed in the airline sample is depicted in Table 1.

From a measurement perspective, airlines' accounting policy for aircraft depreciation and revenue recognition are highly uniform. All but three airlines (96%) are depreciating aircraft using the straight-line method while 100% of the airlines recognize revenue on an accrual-accounting basis. In terms of disclosure, the major problem area is the disclosure of frequent-flyer accounting policy, with only 30 airlines (38%) having the relevant disclosure. Twenty-eight airlines (93%) used the incremental-cost method, while the other two used the deferred-revenue approach. The treatment of maintenance cost is reasonably uniform with 89% recognizing it as a period expense (11% used the capitalize-and-amortize method). Airlines' accounting policy for unrealized foreign-exchange differences is more diverse. Of those airlines that disclosed their accounting policy for unrealized foreign-exchange differences, 43 (67%) immediately recognize the gain or loss in the profit and loss statement, while the rest take them direct to equity. Finally, with respect to lease accounting,[3] 9% had finance leases only, 31% used only operating leases, but 60% of the airlines have a mixture of both operating and finance leases.

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[3] The lack of information about the details of the lease contracts entered into by the airlines deters the further examination of true differences in accounting policies adopted.

Table 2
Measurement comparison of the results of Phase I with results of the 1992 survey

Accounting practice	Accounting policy choice	1992 survey (%)	1999 Phase I (%)
Unrealized foreign-exchange differences	Immediate recognition	47.8	67.2
	Direct-to-equity	26.1	32.8
	Other	26.1	0.0
	Total	100.0	100.0
Frequent-flyer liabilities	Incremental cost	55.0	93.3
	Other	45.0	6.7
	Total	100.0	100.0
Aircraft depreciation	Straight-line method	91.6	96.3
	Other	8.4	3.7
	Total	100.0	100.0
Revenue recognition	Accrual accounting basis	100.0	100.0
	Other	0.0	0.0
	Total	100.0	100.0
Maintenance costs	Period expense	100.0	88.8
	Capital and amortize	0.0	11.3
	Total	100.0	100.0

Lease accounting is not reported further due to insufficient and inconsistent disclosure.

In relation to disclosure, all airlines provided information on their accounting policy for aircraft depreciation, revenue recognition, and maintenance cost. Seven airlines (8%) did not disclose their accounting policy for unrealized foreign-exchange differences, while various types of information are disclosed concerning lease commitments. Most airlines (90%) disclose the monetary values for both operating and finance lease commitments, but five airlines gave only the number of planes under each type of lease.[4] Disclosure on frequent-flyer accounting is the most problematic with only 38% of airlines with frequent-flyer programmes providing this information.

There seems to be a high level of uniformity in measurement practices now (frequent-flyer accounting, aircraft depreciation, revenue recognition, and maintenance cost[5]) as compared to when the survey was conducted in 1992 (see Table 2). The implications of the trend towards higher disclosure are discussed in Section 8.

As shown in Table 1, only three areas remain diverse and warrants further examination; the accounting for unrealized foreign-exchange differences, the accounting for leases, and the disclosure of frequent-flyer liability accounting policy. However, the lack of disclosure on the details of lease arrangements meant that an examination into the appropriateness of

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[4] Further examination of the 10 airlines that disclosed both number and currency amounts showed that the ratios calculated using either type of information are virtually identical. The proportion of operating leases based on the number of airplanes or the currency amounts are very highly correlated ($R=.996$, P-value$=.000$) and, thus, comparable.

[5] Statistical analyses conducted on the partial diversity noted in the measurement of maintenance cost revealed that all the independent variables were statistically insignificant in relation to the accounting-policy choice for maintenance cost.

the classification of leases was not possible. For example, the proposer lease classification (operating versus financing) could not normally be determined nor could the effect of different choices be calculated from the financial statements. Therefore, only the other two issues (i.e., accounting for unrealized exchange differences and the disclosure of frequent-flyer accounting policy) are further examined in the next phase of this study.

3. Determinants of accounting policies

3.1. Costly contracting theory

The second phase of this study uses the costly contracting theoretical framework of Watts and Zimmerman (1986) to examine possible determinants of airlines' accounting practices for the two areas of diversity (unrealized exchange differences and the disclosure of frequent-flyer accounting policy). Costly contracting theory is founded on the notion that accounting-policy choices have economic consequences, if changes in the rules used to calculate accounting numbers change the distribution of a firm's cash flows (Holthausen & Leftwich, 1983). This theory states that the firm exists as a legal nexus of contractual relationships and managers would choose policies that serve their best interests (Jensen & Meckling, 1976). Consequently, their choices are not always in the best interests of the shareholders, giving rise to agency costs between managers (the agents) and stakeholders (the principals).

Agency costs refers to the dollar equivalent of the reduction in welfare experienced by the principal due to the divergence of their individual interests (Godfrey, Hodgson, & Holmes, 1994). These costs include contracting and monitoring costs incurred to reduce or eliminate the effects of adverse selection on behalf of the agents (Jones, 1995). The presence of contracting and monitoring costs (i.e., the costs of designing, negotiating, and evaluating compliance), for example, management compensation and lending contracts as a result of contractual agreements in the real world, is readily conceded (Holthausen & Leftwich, 1983).

Watts and Zimmerman (1986, 1990) propose three hypotheses of costly contracting theory to explain the actions of agents (managers); the political-cost hypothesis, the bonus-plan hypothesis, and the debt-equity hypothesis. The political-cost hypothesis stipulates that the larger the firm, the more politically visible it is (Cahan, 1992). This means that the larger the firm, the more likely the managers of these firms would use income-reducing accounting policies to avoid unfavourable political exposure. The bonus-plan hypothesis postulates that managers would choose income-maximizing accounting policies if their remuneration is dependent upon accounting income (Healy, 1985). Finally, the debt-equity hypothesis proposes that the closer a firm gets to a breach of a debt covenant, the greater the incentive to adopt income-maximizing accounting policies in order to avoid violating existing conditions agreed upon in the covenants (Press & Weintrop, 1990).

Costly contracting theory provides a powerful theoretical framework for analyzing the behavior of managers based on the assumption of the "rational economic man" as readily evidenced in the real world (Locke & Tower, 1995). Fig. 1 shows the conceptual schema of this study with the costly contracting theory as the underlying theoretical perspective.
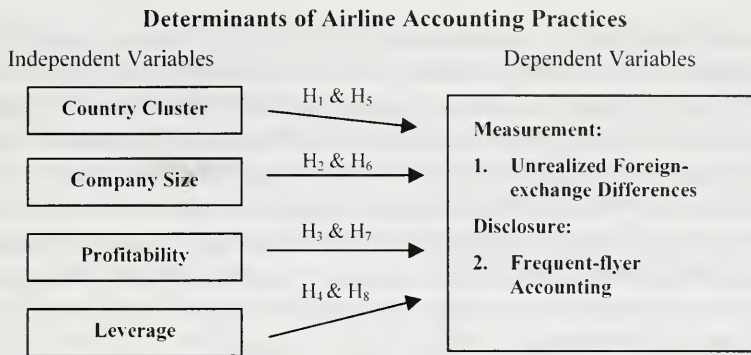
Determinants of Airline Accounting Practices

Independent Variables   Dependent Variables

Fig. 1. Conceptual schema.

3.2. Hypotheses development

Two sets of hypotheses are developed, one for the measurement of unrealized foreign-exchange differences and another for the disclosure of frequent-flyer accounting policy using costly contracting theory to examine economic drivers and country cluster as a proxy for country effects. Consistent with past costly contracting theory, size, and profitability are used as measures of political visibility and leverage as the link to the debt-equity hypothesis. Country cluster is examined as an exploratory variable as a surrogate measure of a country's accounting regulatory system and the sophistication of capital markets.

3.2.1. Measurement

This subsection deals with the development of hypotheses in relation to airline's accounting-measurement policy choices.

Empirical international accounting research has indicated that the country within which the company reports affects the financial-reporting system (e.g., Craig & Diga, 1998; Guthrie & Parker, 1990). Country cluster is similar in concept to country of origin except that it refers to a group of countries that are similar in terms of possible external factors (Nobes, 1992, 1998). For example, countries with a tradition of codified Roman law accounting systems tend to be detailed and comprehensive (Mueller, Gernon, & Meek, 1994). Therefore, airlines originating from countries that belong to the same cluster[6] are expected to adopt similar accounting-policy choices. Following this, the resulting hypothesis is:

Hypothesis 1: Airlines in the same country cluster will tend to adopt the same accounting-policy choice for unrealized foreign-exchange differences.

Using various organizational attributes as measures of political visibility and breach of debt covenant (see, for example, Craig & Diga, 1998; Wallace & Naser, 1995), many costly

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[6] Airlines are typically in monopoly or oligopoly arrangements (the 80 airlines in the sample originated from 52 countries for an average of 1.5 airlines from each country). Therefore, companies classified by country of origin will not provide sufficient cell sizes for statistical purposes.

contracting studies concluded that management's choice of accounting practices is influenced by economic factors. In this study, company size and profitability are used as measures of political visibility and leverage is used as the approximation of a breach of debt covenants.

Company size is seen as a proxy for corporate attributes such as political visibility, lower information-production costs, and competitive advantage (Ball & Foster, 1982; Leftwich, Watts, & Zimmerman, 1981). A firm's reported accounting numbers potentially affects the extent to which it is criticized or supported, with subsequent economic consequences, for example, additional taxes. As a firm grows in size, it may be subject to increased regulatory or political scrutiny. Therefore, the level of political visibility of airlines is expected to influence accounting-policy choices. The second hypothesis[7] is:

Hypothesis 2: There is an association between company size and airlines' accounting-policy choice for unrealized foreign-exchange differences.

Profitability is a performance-related variable of interest to financial-report users (Wallace, Naser, & Mora, 1994). Costly contracting theory argues that firms making unusually high profits (i.e., more politically visible) may be subject to increased regulatory scrutiny such that firms choose to adopt accounting policies that will reduce reported earnings (Hagerman & Zmijeski, 1979; Holthausen & Leftwich, 1983). Chong et al. (2000) found profitability to be a significant predictor of accounting-measurement practices. To determine the impact of an airline company's profitability on its accounting policies, the following hypothesis is developed:

Hypothesis 3: There is an association between profitability and airlines' accounting-policy choice for unrealized foreign-exchange differences.

Leverage represents the proportion of a company's assets that are financed by debt. High leverage ratios indicate that the company uses assets that are mainly financed by creditors. These creditors in turn use debt covenants and restrictions on the borrowing company to reduce management's ability to transfer wealth between debt and equity holders (Daley & Vigeland, 1983). Firms with higher leverage are closer to technical default on their covenants and this motivates the adoption of accounting policies that maximize net income (Lilien & Pastena, 1982). This is an important issue given the tendency of airlines to have high debt levels. Past research found leverage to be correlated with accounting policies that maximizes income (Christie & Leftwich, 1990; Lemke & Page, 1992; Lilien & Pastena, 1982). Therefore, it is hypothesized that the degree of leverage of an airline influences accounting-measurement practices. The resulting hypothesis is:

Hypothesis 4: There is an association between leverage and airlines' accounting-policy choice for unrealized foreign-exchange differences.

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[7] Hypothesis 2, 3, and 4 are nondirectional because the effects of the different accounting policies on accounting income cannot be quantified. Unrealized gains and losses are reported in aggregate, therefore, there is insufficient data to determine directionality (the final effect could be an increase or decrease in income).

3.2.2. Disclosure

The following details the development of the hypotheses to test airlines' disclosure practice in terms of frequent-flyer accounting.

In relation to Nobes' (1998) concept of country cluster, the corollary is that countries with similar cultures and environments should have similar accounting systems and thus, similar accounting practices. It is argued that countries in a particular cluster adopt similar accounting practices and are subject to similar external factors because they have similar background features like laws and company structures (Nobes, 1992). For example, the United States and Canada would have more investor-oriented disclosures while countries in the European cluster are more likely to be more legalistic and secretive in what they disclose. It is therefore postulated that airlines from the same country cluster will tend to provide similar accounting disclosure.

Hypothesis 5: Airlines in the same country cluster will tend to provide the same level of frequent-flyer accounting-policy disclosure.

Foster (1986) noted that firm size is the variable most consistently reported as significant in studies examining differences across firms in their disclosure policy. Meek, Roberts, and Gray (1995) postulate that larger firms have lower information-production costs or lower costs of competitive disadvantage associated with disclosure. Other costly contracting studies argue that large firms choose to increase disclosures to reduce the agency costs associated with increased company size (Chow & Wong-Boren, 1987; Leftwich et al., 1981). The size hypothesis for disclosure is:

Hypothesis 6: There is a positive association between company size and the likelihood of frequent-flyer accounting-policy disclosure.

Past costly contracting literature asserted that profitable firms have incentives to distinguish themselves from less profitable firms in order to raise capital on the best available terms (Meek et al., 1995). One way to achieve this is through voluntary information disclosure, which may also be related to the variability of a firm's profitability (Foster, 1986; Lang & Lundholm, 1993). Others believe that profitability is a factor that impels the dissemination of more extensive disclosure to users (Cowan, Ferreri, & Parker, 1987). However, the empirical evidence on the direction of the relationship between profitability and disclosure is not clear, given the mixed results reported by different authors (Wallace et al., 1994), and so a nondirectional hypothesis for this variable is used here.

Hypothesis 7: There is an association between profitability and the likelihood of frequent-flyer accounting-policy disclosure.

Wallace and Naser (1995) argued that highly leveraged firms provide additional information to satisfy the needs of long-term creditors who often require assurance on firms' paying capabilities. Costly contracting tenets argue that potential wealth transfers from debtholders to shareholders increase with leverage and so should lead to increased disclosure (Craig & Diga,

1998). Conversely, Zarzeski (1996) postulates that companies with higher leverage share more private information with their creditors and subsequently have lower levels of disclosure. Several studies also found lower leveraged firms disclosed more information (Meek et al., 1995). Again, the mixed results obtained in past research led to a nondirectional hypothesis for the effect of leverage on frequent-flyer disclosure. Therefore, the final hypothesis is:

> **Hypothesis 8**: There is an association between leverage and the likelihood of frequent-flyer accounting-policy disclosure.

4. Research methodology

The data source for this study is collected from 80 airline annual's financial reports around the world for the 1997/1998 fiscal financial year.

4.1. Measurement of independent variables[8]

The techniques used to measure country cluster, size, profitability and leverage are summarized in Table 3. All dollar figures were converted to US dollars for comparison. The use of a composite measure of size is in line with Cooke's (1992) argument that each measure of size contains a possibly unique aspect of company size and there is no overwhelming theoretical reason for one measure to be superior. Therefore, the use of a measure of size made up of several different size variables collapsed into a composite size index using factor analysis is adopted in this study (Cooke, 1992). In addition, the six variables were log-transformed to satisfy the assumption of normality of distribution for the factor analysis conducted.

4.2. Measurement of dependent variables

The issues are classified according to the accounting choices identified in the respective AAG. Logistic regression, an alternative form of regression for binary nonmetric dependent variables, is used as it allows for the use of dichotomous dependent variables (as is the case with both dependent variables examined) (Tabachnick & Fidell, 1996).

AAG 1: Translation of Long-Term Foreign Currency Borrowings identified two different methods used by airlines to account for unrealized exchange differences. Airlines either take such exchange differences, whether they are gains or losses, to the profit and loss account or

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[8] "Alliance partners" is another possible independent variable as the changing dynamics of the airline industry environment is a strong motivation for alliance arrangements, which help airlines gain technical know-how and expand the scope of an airline's activities (Hall & Eppink, 1998). The growth of alliances could be a catalyst for compatible accounting policies within the same alliance (Nunes et al., 1997; Sheets, 1989). The effect of alliance partners is problematic because only 25 airlines (out of a total of 80) could be grouped into five mutually exclusive alliances. However, exploratory statistical analyses performed (for the 25 airlines) on the three dependent variables proved that the participation in an alliance was to be insignificant in predicting the accounting policies adopted.

Table 3
Measurement technique for independent variables

Variable	Measurement technique
Country cluster	Grouped according to the Class A/Class B country cluster based on Nobes' (1998) classification schema
Company size	Composite measure for size using six proxies (total revenue, total assets, issued capital, total employees, revenue passenger kilometres, and available seat kilometres)
Profitability	Two-year average of the ratio of profit before interest and tax to total assets
Leverage	Ratio of long-term debt to total equity

record the exchange differences direct-to-equity in the balance sheet. The following classification of policies for unrealized exchange differences is used:

1. Immediate recognition in the profit and loss account
2. Direct-to-equity

Two main methods for frequent-flyer accounting are identified in *AAG 2: Frequent-Flyer Programme Accounting*. One method maintains a provision for potential frequent-flyer liability equivalent to the incremental costs that the airline expects to incur when frequent-flyer points are redeemed. The other involves deferring a portion of revenue on the ground that part of the ticket value conferring frequent-flyer points is unearned until those points are used. However, the raw data showed that all but one of the disclosing airlines uses the first method. The main issue with frequent-flyer liabilities is, therefore, whether the airlines disclose their policy. Given the rapid rise of such liabilities, it is argued that the disclosure of their policy is important information for users of the financial statements (Gallacher, 1997). Therefore, the issue examined will be whether the airline *disclosed* their frequent-flyer accounting policy in their annual reports. The resulting dichotomous classifications used are:

1. Disclosed
2. Not disclosed

5. Results

The data set consists of 80 airlines representative of the overall population of global airlines, originating from 52 countries. These annual reports were obtained from a combination of mail requests to the airlines and annual reports available on a database compiled by the IATA: "Airline Annual Reports on CDROM." Table 4 depicts the ranges, means, and standard deviation of each continuous independent variable, while Table 5 shows the characteristics of the two categorical dependent variables via frequency statistics.

The categorical independent variable used in this study is country cluster. A total of 25 out of the 52 countries could be classified into Nobes' (1998) classification schema. There were

Table 4
Descriptive statistics of independent variables

Independent variable	N	Minimum	Maximum	Mean	S.D.
Total revenue (US$ millions)	80	13	18,570	2962	4203
Total assets (US$ millions)	80	10	20,915	3351	4752
Issued capital (US$ millions)	80	0.008	2877	361	558
Employees (number)	80	192	113,900	15,377	20,743
Revenue passenger kilometres (million kilometres)	80	34	195,553	26,218	39,696
Available seat kilometres (million kilometres)	80	69	272,319	37,308	55,708
Profitability ratio	80	− 0.167	0.593	0.049	0.087
Leverage ratio	80	0.000	44.469	1.719[a]	5.088

The first six variables were used to obtain a composite overall measure for the independent variable of size, which is defined to have a mean of 0 and standard deviation of 1.

[a] The mean leverage becomes 227.5% when Thai Airways (airline with an extreme leverage ratio of 4400%) is included in the calculation.

50 annual reports originating from those 25 countries and all were grouped into two clusters, Class A (strong equity) or Class B (weak equity), as classified by Nobes (1998). Accordingly, there were 30 airlines in the Class A cluster and 20 in the Class B cluster.

5.1. Unrealized foreign-exchange differences

Logistic-regression runs were performed at two levels to test the relationship between the four independent variables of country cluster, company size, profitability, and leverage on airlines' accounting-policy choice for unrealized foreign-exchange differences. First, a simple

Table 5
Frequency table for unrealized foreign-exchange differences and frequent-flyer disclosure

Accounting practice	Accounting policy choice	Frequency	Percentage
Unrealized foreign-exchange differences[a]	Immediate recognition in the profit and loss account	43	53.8
	Direct-to-equity	21	26.2
	Not disclosed	7	8.8
	Not applicable	9	11.2
	Total	80	100.0
Frequent-flyer accounting disclosure	Disclosed	30	37.5
	Not disclosed	31	38.8
	Not applicable	19	23.7
	Total	80	100.0

[a] Further examination confirmed that, whichever approach was adopted, it was consistently applied to both unrealized gains and losses. A logistic-regression analysis was also carried to see if airlines with net unrealized gains tended to adopt a different method to those airlines that reported net unrealized losses. The results proved that there was no significant relationship ($P=.41$).

Table 6
Logistic regression results for unrealized foreign-exchange differences

Independent variable	Simple logistic regression		Multiple logistic regression	
	P-value	N	With country cluster (n = 38)	Without country cluster (n = 64)
Country cluster	.5750	38	0.7006	–
Company size	.0494**	64	0.3224	0.0811***
Profitability	.7883	64	0.9215	0.9939
Leverage	.3326	64	0.4638	0.3021

** Significant at the .05 level.
*** Moderately significant at the .10 level.

logistic regression is conducted where each independent variable[9] is considered one at a time. Following this, a multiple-logistic-regression analysis is performed using all the independent variables. Two separate multiple-logistic-regression models were constructed, with the inclusion of country cluster and without country cluster in the backward elimination model. The difference between these two models is simply that the multiple-logistic-regression model, which considered the country cluster variable, is based on a subset of the sample (50 out of the 80 airlines). Table 6 depicts the results obtained from the logistic-regression models performed.

The results in Table 6 shows that only company size is a significant factor at P-value=.0494 in predicting the choice of method for unrealized foreign-exchange differences. In the multiple-logistic-regression models, company size was the last variable to be removed during a backward elimination analysis and the only significant determinant. Further examination of the logistic-regression output revealed that the larger airlines tend to take unrealized exchange differences direct-to-equity. There are no outliers that influenced these conclusions.

5.2. Frequent-flyer accounting disclosure

Logistic regressions were performed to test the association between the four independent variables on airlines' accounting-policy choice to disclose or not disclose frequent-flyer liabilities. However, 19 airlines were excluded from the analysis because they did not offer frequent-flyer programmes.[10] Each individual independent variable is considered separately as a potential predictor for the disclosure of frequent-flyer liabilities and then considered simultaneously. Results from the logistic-regression runs are shown in Table 7.

[9] Thirty airlines cannot be grouped into the two Class A and Class B country clusters. Therefore, the result of the logistic-regression model for the country-cluster variable is based on a sample size of 50 airlines.
[10] The airlines that were excluded because of lack of frequent-flyer programs came from both country clusters, mostly from developing countries and the smaller countries in general (but with wide geographical spread). They consist of small and medium airlines with leverage of up to 272%.

Table 7
Logistic regression results for frequent-flyer accounting disclosure

Independent variable	Simple logistic regression		Multiple logistic regression	
	P-value	N	With country cluster (n = 41)	Without country cluster (n = 61)
Country cluster	.0010 *	41	0.0073 *	–
Company size	.0030 *	61	0.0397**	0.0025 *
Profitability	.7628	61	0.3940	0.7957
Leverage	.0976***	61	0.1427	0.0385**

 * Highly significant at the .01 level.
 ** Significant at the .05 level.
 *** Moderately significant at the .10 level.

Both country cluster and company size were highly significant predictors of accounting-policy choice to disclose frequent-flyer liabilities with P-values of .001 and .003, respectively. Leverage was only moderately significant without country cluster and insignificant with the smaller sample size with country cluster. The regression results suggest that larger airlines, airlines from the Class A country cluster and airlines with lower levels of leverage, tend to disclose their frequent-flyer accounting policy. Backward elimination analyses showed country cluster and company size as significant variables (with country cluster) and company size and leverage to be significant predictors (without country cluster).

Overall, results of the logistic regression revealed company size as a significant predictor of airline accounting-policy choice for unrealized foreign-exchange differences and frequent-flyer liability disclosure. In addition, Nobes' (1998) country cluster classification was found to be a possible factor in predicting accounting-policy choice for frequent-flyer liability disclosure, while leverage was moderately significant in predicting frequent-flyer liability disclosure. Again, regressions performed with and without outliers produced the same results.

6. Analysis of results

In 1992, six issues were identified as prime areas of diversity in global airlines' financial reporting and resulted in the issuance of AAGs. Five years later, diversity in several of those problem areas has been dramatically reduced. The industry-specific efforts undertaken to improve comparability have resulted in increased uniformity in half of the problem areas. Gupta and Lad (1983) define industry self-regulation as a process, whereby an organization at the industry level sets and enforces the rules and standards relating to the conduct of all firms in the industry. The airline industry, previously a government-controlled industry in most countries, had been exposed to increased competition. In light of this reform, industry self-regulation is proposed as an alternative to the traditional regulatory framework and includes the establishment of minimum standards of safety and quality and the creation of industry codes or standards (Garvin, 1983). Regulation of accounting at the industry level through the

establishment of industry accounting standards has the potential to improve the comparability of financial reports (Arbor & Wotruba, 1997).

As the business environment becomes increasingly international, the "use of accounting information across national boundaries creates a pressure" for comparable information (Taylor & Turley, 1986, p. 142). At present, the International Accounting Standards Committee is committed to narrowing the differences in financial reporting to facilitate decision making in a global financial market (International Accounting Standards Committee, 2000). The "success" of the industry-specific guidelines in improving uniformity in at least half of the problem areas in just a few years is an important signal. Perhaps, a workable strategy to achieve better international accounting harmonization is to first aim for harmonization within industries.

6.1. Country cluster

Past international accounting authors clustered countries together based on the premise that they have similar accounting practices. The corollary is that countries with similar cultures and environments should have similar accounting practices. Results from the logistic regression were mixed. Airlines in the Class A (strong equity markets) cluster were more likely to disclose accounting policy for frequent-flyer liabilities. However, country cluster was not influential in predicting accounting-policy choice for unrealized foreign-exchange differences.

The finding is consistent with prior literature by providing empirical evidence that Class A/Class B country clusters are fundamentally different in terms of accounting-disclosure practices. Nobes' (1998) Class A cluster refers to countries with high dependence on equity markets and outside creditors' financial systems (includes countries where securities markets are the dominant influence on accounting regulation, tax laws have little effect on financial-accounting practices and specified requirements of the format and content of financial reports). Countries in the Class B cluster, on the other hand, have tax laws that determine most detailed measurement and valuation rules, heavy emphasis on conservatism, and preferences are given to the information needs of creditors and tax authorities (Radebaugh & Gray, 1997). The accounting system of countries with a tradition of codified Roman law tends to be detailed and comprehensive, while common law systems are more adaptive and innovative (Mueller et al., 1994). These differences in the institutional structures may explain why organizations in countries from the Class A cluster exhibit higher levels of disclosure.

However, Nobes (1998) argues that outsider companies in Class B countries will move to Class A country accounting and the accounting approach in consolidated statements would also tend towards Class A country accounting. According to Nobes (1998), even organizations in countries grouped in the Class B cluster will tend, over time, to adopt accounting practices similar to those adopted by organizations in Class A countries as a result of capital market pressures, culture assimilation, and globalization trends. This assimilation over time explains the insignificance of country cluster in predicting accounting measurement for unrealized foreign-exchange differences.

6.2. Company size

The size of a company is seen as a proxy for political visibility and competitive advantage. The larger a company, the higher its political costs and the greater the threat of adverse regulatory action. Size also is believed to be positively correlated to levels of disclosure because larger companies are more complex than smaller ones and, thus need to report more information (Craig & Diga, 1998). Past literature has consistently found company size to be a determinant of both measurement and disclosure practices. These results are, to a certain extent, consistent with prior accounting literature. Size was found to be a driving factor in predicting accounting practices around the world. Chong et al. (2000) discovered that company size was significant in predicting the use of the amortization method of accounting for goodwill, while Lemke and Page (1992) concluded that firm size significantly predicts accounting-policy choice. In this study, company size is a significant predictor of airlines' accounting-policy choice for unrealized foreign-exchange differences.

In past disclosure studies, Craig and Diga (1998), Meek et al. (1995), and Zarzeski (1996) all found size to have a positive and highly statistically significant effect on disclosure level. Similarly, Chow and Wong-Boren (1987) in their study of the extent of voluntary disclosure indicated that voluntary disclosure increases with the size of the firm. Consistent with extant literature, company size was found to be a significant predictor of the disclosure of accounting policy for frequent-flyer liabilities. This may be because larger companies disclose higher levels of information, as they are more likely to compete internationally for resources (Zarzeski, 1996).

6.3. Profitability

Profitable airlines have incentives to adopt income-reducing accounting policies to avoid political scrutiny (Cahan, 1992). The results obtained differ from the research of Chong et al. (2000), which found that the profitability of manufacturing companies was a statistically significant predictor of accounting-measurement practices. A reason for these conflicting results is the fundamental difference between the two industry groups. In the airline industry, total revenue, revenue passenger kilometres, and available seat kilometres seem to be more important[11] than profitability as measures of performance. Lemke and Page (1992) and Tower, Hancock, and Taplin (1999) in cross industry studies found profitability to be insignificant in predicting accounting practices. The results of this study are consistent with these latter cross-industry studies.

The empirical evidence on the influence of profitability on disclosure is mixed. However, Cowan et al. (1987), Meek et al. (1995), and Wallace et al. (1994) consistently found that profitability is not significantly associated with the level of disclosure. Thus, the results of this study are consistent with these past findings.

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[11] Most articles on the airline industry stress the size of the revenue achieved but say little about the level of profits.

6.4. Leverage

Airlines with higher leverage are less likely to disclose frequent-flyer accounting information. It was, however, not a significant determinant of airlines' accounting-policy choice for unrealized foreign-exchange differences. Past research into the effects of leverage provides mixed results. The results obtained showed no support for the use of leverage in predicting measurement-accounting practices. The regression results in fact showed a negative relationship between leverage as opposed to the positive relationship postulated.

The finding that airlines with higher leverage disclose less lends weight to the results obtained by Meek et al. (1995) and Zarzeski (1996). In the latter study, it was initially hypothesized that companies with higher debt ratios have higher levels of disclosure but the results showed significant support in the opposite direction. Other studies found leverage insignificant in influencing the levels of disclosure (see, for example, Wallace & Naser, 1995; Wallace et al., 1994), while there are also studies that found a positive correlation between leverage and disclosure levels (some examples are from Ahmed & Nicholls, 1994; Craig & Diga, 1998).

Zarzeski (1996) postulated that companies with higher debt ratios share more private information with their creditors (creditors have rights to obtain information) and, thus, do not need to disclose as much in the reports (such companies have more creditors relative to stockholders). The results showed support for this logic and further examination of the eighty reports confirms this. Many airlines still have some type of government linkage and therefore have relatively less individual shareholders and high levels of debt. Therefore, airlines with more creditors relative to shareholders have lower levels of disclosure, as their creditors obtain the necessary information through sources other than annual reports.

7. Implications

Airline financial reporting is becoming more uniform. The self-regulation efforts the airline industry has undertaken have improved comparability and uniformity in half of the initial problem areas. This indicates that self-regulation could be an important strategy towards international accounting harmonization.

Overall, results from this study indicate that country cluster does play a role in determining the choice of accounting practices among global airlines. Logistic and linear regression found country cluster to be significant in relation to the disclosure of accounting policy for frequent-flyer liabilities. Airlines in the Class A country cluster are more likely to disclose their accounting policy for frequent-flyer liabilities. Company size was a significant predictor of the accounting-policy choice for unrealized foreign-exchange differences and the disclosure of accounting policy for frequent-flyer liabilities. Larger airlines tend to defer unrealized foreign-exchange differences and disclose their frequent-flyer accounting policy. Leverage was found only to be moderately significant in predicting the accounting-policy choice for frequent-flyer accounting disclosure. Airlines with lower debt levels tend to disclose their accounting policy for frequent-flyer programmes. The profitability of an airline was not found to influence its accounting-policy choices.

Findings from this study have provided a number of valuable insights to airline accounting practices worldwide. First, the industry-specific guidelines examined in Phase I have, in a short time, improved the uniformity in at least half of the major areas of accounting diversity in the airline industry. The lack of any variance observed in three (revenue recognition, depreciation, and maintenance cost accounting) of the six areas that were found to be major sources of disparity back in 1992 signals greater consistency and, hence, comparability between airline financial reporting five years after the survey. This could mean that the efforts of the IATA have been successful in improving the comparability of airline financial reporting, and/or that airlines are submitting to pressures from global financial markets for greater comparability.

A further implication of these results is that industry-specific regulation may be an appropriate way of achieving international harmonization. The results obtained in this study, which contrast findings on other industry studies, indicate that fundamental differences exist between industries (see Craig & Diga, 1998). Perhaps, international organizations, such as the IASC, should first attempt to harmonize accounting within an industry instead of formulating standards or subverting various national accounting practices away from the optimal ones for domestic purposes. After all, the impetus for harmonization is the desire to improve comparability between companies to facilitate the optimal worldwide allocation of resources (Meek & Saudagaran, 1990). Industry-based harmonization would enable users to compare companies in the same industry worldwide when making economic decisions, and thus allow optimal worldwide allocation of resources within a particular industry.

The findings add empirical support to the Class A/Class B classifications of countries developed by Nobes (1998). Both Doupnik and Salter (1995) and Nair and Frank (1980) echoed support for the distinction between the two major classes of measurement-accounting systems that are fundamentally different because of differences in the external environment, cultural values, and institutional structure.

At the same time, from a theoretical perspective, the results support the application of Watts and Zimmerman's (1990) costly contracting theory in the context of international accounting research. Evidence is found in the explanatory significance of company size and leverage in determining accounting-policy choice. Therefore, costly contracting theoretical framework provides a means of explaining and predicting the attributes of corporate financial reporting in an international context.

Results from the Phase II analyses performed in this study seem to indicate that no one clear driver but several possible determinants of accounting-policy choice decisions exist. It can be concluded that the accounting-policy choices are affected by a hybrid of interacting forces. Therefore, this study provides a signal to the international accounting standard-setters that there may be ongoing problems in efforts to improve the comparability of worldwide companies' financial accounts.

Further empirical research could benefit from a longitudinal research examining several consecutive years' annual reports. Additional research incorporating other accounting issues such as accounting for financial instruments could be undertaken for this particular industry. Airlines are exposed to exchange-rate fluctuations because of their multi-currency operations, leading to incentives for the extensive use of financial instruments to hedge foreign-exchange

risk. Moreover, other independent variables such as the level of domestic competition and government ownership could be included.

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Ownership structure and earnings informativeness
Evidence from Korea

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Abstract

This paper examines the relationship between corporate ownership structure in Korea and the informativeness of earnings. Korean ownership structure is characterized by the dominance of one primary owner who also participates in firm management. Existing literature offers two alternative perspectives on the behavior of such owner–manager firms, convergence of interests, and management entrenchment hypotheses. We tested the alternative views to see how they are reflected in earnings informativeness. The results show that earnings are more informative as holdings of the owner increase, supporting the convergence of interest explanation for the owner–manager structure. Second, we examine the role of institutional investors and blockholders. On the one hand, institutions/blockholders have incentives to actively monitor management. However, on the other hand, institutions/blockholders may not render effective monitoring because they lack expertise, suffer from freerider problems, or strategically ally with management. These opposing views predict conflicting signs on the relation between the earnings informativeness and holdings of institutions/blockholders. We find that earnings informativeness increases with the holdings of institutions and blockholders. This supports the active monitoring role of institutions/blockholders. Finally, we test the relationship between earnings informativeness for chaebol (Korean business group)-affiliated companies vs. that for nonchaebol-affiliated companies, and find no significant relationship between the owner–largest shareholder's holdings and earnings informativeness. This provides evidence that for chaebol companies, the negative effect of management entrenchment/expropriation of minority shareholders

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offsets the positive effects. This phenomenon is stronger for chaebol-affiliated companies than for nonchaebol affiliates.

1. Introduction

This paper examines the relationship between corporate ownership structure in Korea and the informativeness of earnings. Korean ownership structure is characterized by the dominance of one primary owner. The dominant owner, typically a founder or his immediate family, holds a significant number of shares—enough to be the largest shareholder but usually much less than the majority holdings of a company—and controls the whole company. Using the holdings of family and related companies, this control often extends over many companies in different industries, forming a corporate group called chaebol. These owners usually participate in the management of the firm, directly or indirectly, influencing most of the management decisions. This management style lacks transparency and credibility, and is cited by investors as the main source of economic inefficiency that led to the recent economic crisis in Korea.

We address three issues based on the owner–manager's role and incentives. First, we examine the relationship between holdings of the owner–largest shareholder and earnings informativeness. There are two conflicting views about the informativeness of earnings when an owner–manager dominates the management. One view is that, as Morck, Shleifer, and Vishny (1988) claim, management entrenchment occurs, causing a moral hazard and information-asymmetry problem between the owner and outside investors. Investment decisions are likely made to maximize the (inside) owner's wealth rather than that of outside shareholders. Outsiders could find it difficult to monitor decisions; thus, the firm's management appears less transparent and credible. In such cases, investors and creditors could protect themselves by imposing more contractual constraints on the firm. The owner, in turn, may use earnings management to respond to these accounting constraints. This will reduce the quality of earnings and informativeness.

Another view, as Jensen and Meckling (1976) suggest, is that convergence of interest could occur as the owner's holdings increase, reducing agency costs. Reduction in agency costs would be greater, the higher the holdings of the owner–largest shareholder. In this case, the owner–largest shareholder behaves in a way to maximize firm value and impose fewer contractual constraints on the firm. The owner will be less motivated to manage earnings, resulting in higher earnings quality and informativeness.[1]

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[1] Recently, the issue of economic efficiency related to ownership structure in Asia has been a subject of many studies. Fan and Wong (2000) examine how expropriation of minority shareholders by controlling shareholders affects earnings informativeness. Claessens, Djankov, Lang, and Fan (1999) examine the efficiency of investment by diversified firms in nine East Asian countries, and report that misallocation of capital by diversified firms are more pronounced in certain less developed countries. Claessens, Djankov, Lang, and Fan (2000) also examine how expropriation of minority shareholders in East Asia affects market valuation.

Second, we examine the role of institutional investors and blockholders in the presence of the owner–largest shareholder. The role of institutional investors is not always clear. Theory suggests that institutions may have incentives to actively monitor firm management (Pound, 1988; Shleifer & Vishney, 1986). Yet many argue that institutions do not monitor effectively because they either lack expertise or suffer from freerider problems among themselves (Admati, Pfeiderer, & Zechner, 1994), or strategically ally with the management (Pound, 1988). A similar argument can be made for the blockholders. We examine how the monitoring role of institutional investors and blockholders affects earnings informativeness.

Third, we investigate whether there is a difference in earnings informativeness between chaebol and nonchaebol companies. A chaebol, as a large business group, could display a different type of agency problem. The owner of a chaebol may use an affiliate's resources for the benefit of the group as a whole or the welfare of the owner–manager, not for the interests of shareholders of a particular affiliate. This creates another type of agency cost: expropriation of minority shareholders by the owner–manager to increase his own personal interest and value of other group firms.[2]

This is often accomplished through complicated transactions among chaebol affiliates that decrease the value of a prosperous member firm to support a troubled member firm. Such transactions are usually not fully disclosed. They introduce noise and reduce the reliability of accounting numbers, resulting in reduced earnings informativeness.

The results show that earnings are more informative as holdings of the owner increase, supporting the convergence of interest hypothesis for the owner–largest shareholder. It appears that the market places more weight on the positive side of owner–manager's holdings (reduction in agency costs) than the negative side (management entrenchment). We also find that earnings become more informative with increases in the holdings of institutions and blockholders, supporting their role as an active monitor.

However, when we partition the sample for chaebol vs. nonchaebol companies, we find that the relationship between earnings informativeness and holdings of the owner–largest shareholder becomes insignificant. This result is inconsistent with the convergence of interest hypothesis and suggests that management entrenchment and expropriation of minority shareholders offset the positive effect of convergence of interest for chaebol firms. This phenomenon is most apparent for those firms in our sample that have the strongest characteristics of chaebol, i.e., the top five chaebol firms and chaebols with a large number of affiliates.

The remainder of the paper is organized as follows. Section 2 describes the characteristics of ownership structure in Korea. Section 3 explains the relationship between the ownership structure and earnings informativeness. Section 4 presents the data. The results are reported in Section 5 and Section 6 concludes the paper.

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[2] Johnson, La Porta, Lopez-de-Silanes, and Shleifer (2000) use the term "tunneling" to describe the transfer of resources out of firms for the benefit of their controlling shareholders.

2. Ownership structure in Korea

2.1. The owner–largest shareholder structure in Korea

Korean ownership structure is characterized by the predominant role of the owner–largest shareholder. The owner–largest shareholder, by holding a significant proportion of shares of the company, effectively controls the whole company. These owners usually participate in firm management directly or indirectly through close key managers, and influence most of the management decisions (Jensen & Meckling, 1976).

Typically, the owner–manager holds the largest proportion but much less than the majority holdings of the company. In some cases, they are able to exercise complete control of the company with holdings as low as 10%. This is possible through the holdings of the family and/or related companies. This kind of control mechanism is more evident for chaebol companies than nonchaebol companies.

A chaebol is a financial clique consisting of many corporate enterprises engaged in diverse businesses, and typically owned and controlled by one or two interrelated family groups.[3] As of 1997, the number of affiliates of the top 30 chaebols represented only 24.2% of all firms listed in the Korean Stock Exchange (KSE), but they accounted for 45.8% of Korea's total market capitalization. This illustrates the importance of chaebols in the Korean economy.

Korean chaebols are quite similar to Japanese keiretsu in that affiliates both maintain substantial ties with other affiliates in the group, and there is considerable interlocking equity ownership. Unlike Japanese keiretsu that is controlled by a professional corporate management however, chaebols are controlled by families through stock ownership. That is, a founder/owner or his designated successor exercises the ultimate management control over the entire group. Furthermore, chaebols maintain a central staff within the headquarters of a group, enabling the individual owner to exercise control over all group affiliates.

Fig. 1 shows how an owner controls the companies in a chaebol. It describes how Chairman Lee Kun-Hee (Lee) of the Samsung Group, one of the largest chaebols in Korea, controls Samsung Electronics, a key company in the group. At the end of 1998, Lee held 2.4% of Samsung Electronics and was the largest individual shareholder. The other major shareholders were related companies of Samsung Electronics including Samsung Life (7.0%), Samsung (3.5%), Cheil Jedang (3.2%), Shinsegae Department Store (1.9%), Cheil Wool Textile (1.6%), and Joong-ang Daily News (1.0%).

Lee is the largest shareholder of these related companies, which are also shareholders of Samsung Electronics, such as Samsung Life (Lee holds 9.2%), Cheil Jedang (14.1%), and Shinsegae Department Store (22.7%). Lee is not the largest shareholder for the remaining corporate shareholders of Samsung Electronics—Joong-ang Daily News and its subsidiary Joong-ang Development. However, Lee controls these companies indirectly because the Samsung Group that he controls owns 49.3% of Joong-ang Daily News and 48.3% of Joong-ang Development.

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[3] The term "chaebol" simply means a closely held, integrated, yet diversified corporate entity that produces a wide array of product lines for global consumption.
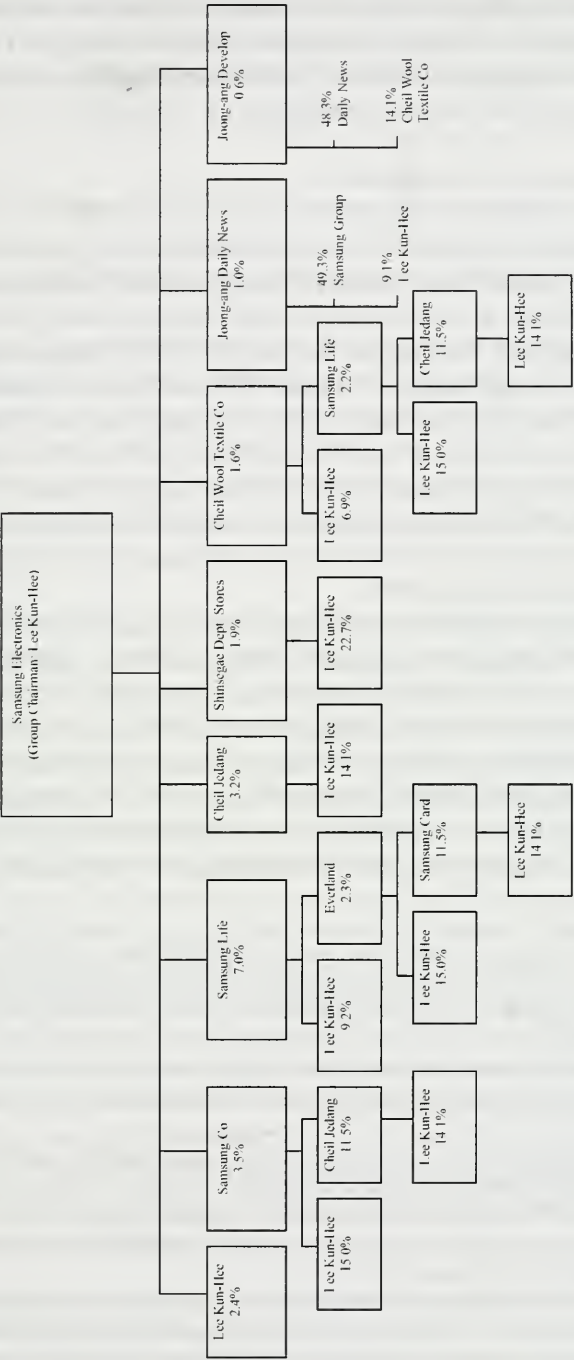
Fig. 1. Ownership structure of Samsung Electronics (Korea) among affiliates of Samsung Group as of 1998.

Thus, Lee, who holds only 2.4% of the total holdings of Samsung Electronics, effectively controls 19.6% (the total holdings by Lee plus those by all related companies) of the total shares of Samsung Electronics through direct and indirect holdings. This shows how an owner can control a key company in a chaebol, and eventually all the companies in the group through significant but less than majority holdings of a company.[4]

2.2. Institutional investors and blockholders

Korean banks, insurance companies, securities brokerage firms, investment trust companies,[5] and small-scale savings and loans are classified as financial institutions. Korean financial institutions are allowed under a certain limit to hold shares of other companies. Banks are allowed to invest in stocks and bonds up to the limit of 100% of the net capital of the bank. However, investment in stocks may not exceed 10% of the total shares for the invested company. Also, acquisition of other bank stocks is prohibited. An insurance company's investment in securities is limited to 40% of its equity and to 5% of the outstanding shares of the invested company. The limit is higher for investment trust companies. They can invest up to 20% of the total shares of the invested company. A similar restriction exists for savings and loan companies. No limit exists for security brokerage companies as long as they maintain an operating net equity ratio of at least 50%.

A bank can also exercise significant influence over companies as the creditor. Traditionally, the major source of corporate financing in Korea has been bank loans, although they have been replaced somewhat with equity financing recently.[6] Since most companies maintain close financial ties with banks through debt and equity financing, banks are in a position to exercise significant influence over the company operations. However, unlike the main bank system in Japan, Korean banks have not been very active in monitoring their client firms.[7] As a major shareholder of many banks, the government has used banks as a vehicle to control many companies, thereby restricting the efficiency of the banking system.

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[4] Obviously, it is also necessary to examine the owner's indirect holdings—through related companies—to investigate fully the influence of the owner–largest shareholder. However, these data are generally not available, and often not accurate even if available. This study, therefore, uses only the holdings of the owner and related families, which limits the study.

[5] Investment trusts are the companies that collect funds from investors—which is usually on a small scale—form a fund, make investments on behalf of the investors, and distribute returns to them according to their holdings.

[6] Debt financing has decreased in Korea recently. This is due to the government policy to reduce the debt ratio of most Korean companies and the financial restructuring attempts by many financially distressed firms after the Korean economic crisis in 1997. Another factor is the rapid expansion of equity market. For instance, equity financing through the recently established KOSDAQ (equivalent to NASDAQ in the US) increased 10 times to US$15 billion in 1999 from US$1.5 billion in 1998.

[7] Studies on the control role of Japanese main banks report that Japanese main banks appoint external directors to troubled firms, and appointments of directors from banks increase with negative earnings (Kaplan, 1994; Kaplan & Minton, 1994). Further, Morck, Nakamura, and Shivdasani (2000) show that there is a certain relationship between main bank ownership and corporate performance. Little has been studied about the bank's control of troubled firms in Korea. However, bank control is in general not as tight as that of Japanese main banks.

Blockholders are defined as those stockholders who hold more than 5% of the holdings. These investors are required to report to the authorities once they obtain more than 5% of the holdings and whenever their holdings change by more than 1%. The blockholders' role in Korea is rather limited compared with that in the US since minority shareholders' rights are not well protected in Korea.

3. The relationship between ownership structure and earnings informativeness

3.1. The owner–largest shareholder and earnings informativeness

As discussed, the relationship between ownership and earnings informativeness can possibly be explained using two opposing views suggested in the finance literature—convergence of interest and management entrenchment hypotheses. The former is based on the classic agency theory by Jensen and Meckling (1976). The researchers suggest that agency costs decrease as owner's ownership interest increases. Investors may perceive that the owner–largest shareholder behaves in a way to maximize firm value when the owner's holding is large, and in this case, convergence of interest between the owner and outside investors occurs.

Therefore, investors will impose fewer contractual constraints on the firm, and the owner is less motivated to manage earnings. Also, owners will maintain a disclosure policy that is consistent with firm value maximization. Investors will perceive the earnings quality of these firms to be high. Under the scenario of convergence of interest, we expect that the higher the owner's holdings, the greater the earnings informativeness—a positive relationship. This is consistent with evidence by Warfield, Wild, and Wild (1995) who report that earnings informativeness is positively related to insider holdings.[8]

The opposing view is that management entrenchment could occur when insider holdings are high (Morck et al., 1988), causing a moral hazard and information-asymmetry problem between the insiders (owner–manager) and outside investors. Management decisions will likely be made to benefit the personal wealth of the owner, and expropriation of minority shareholders by the controlling owner could also occur.[9]

Under a weak governance system, monitoring will be more difficult to perform as the owner's holdings increase. Outside investors will be motivated to impose more accounting constraints on the firm, but owners who have complete discretionary power could respond by manipulating earnings through discretionary accruals, thus lowering the reliability of earnings and earnings quality. This will result in the reduction of stock price informativeness of those earnings. Under this scenario, there will be a negative relationship between the owner's holdings and earnings informativeness.

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[8] The study by Warfield et al. (1995) is in a diffuse ownership setting. The results could be different in a concentrated ownership setting like Korea.

[9] Shleifer and Vishney (1997) argue that when ownership concentration increases to a level where an owner obtains effective control, the nature of agency problems shifts away from conflicts between the manager and shareholders to conflicts between the controlling owner and minority shareholders.

We examine the relationship between holdings by the owner–largest shareholder and earnings informativeness using the following regression:[10]

$$R_i = a_0 + a_1 E_i / P_{it-1} + a_2 \text{OWN}_i \times E_i / P_{it-1} + e_i \qquad (1)$$

where R_i = stock return of firm i for the 12-month period to the fiscal year-end, calculated as $(P_{it} - P_{it-1} + D_{it})/P_{it-1}$. P_{it} is the stock price of firm i at t and D_{it} is dividend of firm i at t; E_i = earnings per share (before extraordinary item) of firm i; OWN_i = a dummy variable for holdings of the owner–largest shareholder of firm i—1 if owner's holding is greater than the sample median number, 0 otherwise; e_i = random error.

We measure earnings informativeness by examining the magnitude of the earnings coefficients. The coefficient a_1 measures a traditional return–earnings relation. The coefficient a_2 measures a differential earnings informativeness according to the level of ownership by the owner–largest shareholder. The positive coefficient on a_2 indicates that earnings informativeness increases as an owner–largest shareholder's proportionate ownership increases.

3.2. Institutional holdings/blockholdings and earnings

We examine two opposing views on the role of institutional holders—active monitoring and strategic alliance hypotheses. Proponents of the active monitoring hypothesis contend that institutional investors are long-term investors with significant incentives to actively oversee managers. However, little evidence exists in favor of the active monitoring hypothesis.

On the other hand, the strategic alliance hypothesis suggests that institutional investors and owners find it mutually advantageous to cooperate. This cooperation reduces monitoring, which might benefit the firm value, and investors' perception of earnings quality could decline, resulting in a negative relation between earnings informativeness and institutional holdings.[11]

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[10] Alternative return and earnings measures could be considered. However, Korean studies (Han, 1998; Kim, 2000) show that return–earnings relation is robust for alternative measures of return (12-month window ending at fiscal year-end or after earnings announcement) and earnings (the change or level of earnings). We rely on these studies and use a return measure that ends at fiscal year-end and the level of earnings model, following Warfield et al. (1995).

[11] There is another hypothesis on the role of institutions—the transient investor hypothesis. It suggests that institutions are transient investors without significant incentives to monitor firm management. Institutions are likely to sell the firm stock in the absence of current profits instead of trying to monitor management to adopt value-increasing policies. Graves (1988) argues that fund managers cannot afford to take the long view in their investment decisions since they are reviewed and rewarded on the basis of quarterly or, at most, annual performance measures. Evidence on institutional transience is mixed. Graves reports that firm's investment in R&D systematically decreases with institutional ownership. On the other hand, Bushee (1998) finds no evidence to indicate that institutional owners stifle R&D expenditures. Further, Kim, Krinsky, and Lee (1997) report that there is greater stock return volatility and trading volume surrounding earnings announcements with high institutional ownership, supporting institutional transience. Under the transient hypothesis, earnings informativeness is negatively related to institutional holdings. See Rajgopal, Venkatachalan, and Jiambalvo (1999) for more details.

A similar argument can be applied to blockholders. Shleifer and Vishney (1986) argue that equity blockholders can work as an effective device for monitoring management. Therefore, the presence of a large-block equityholder will have a positive effect on firm value and earnings quality. On the other hand, the strategic alliance argument can also apply to blockholders, resulting in a negative relation between earnings informativeness and holdings of blockholders.

The influence of institutions/blockholders is important in Korea because the owner–largest shareholder has the ultimate control, and external market forces to discipline the owner—through the capital market, the market for corporate control, and the labor market—are not well developed.[12] However, the influence of institutions/blockholders could be limited in Korea because the owner–largest shareholder is dominant, and minority interests are not well protected.

We examine the effect of institutions/blockholders on earnings informativeness using the following regression model:

$$R_i = a_0 + a_1 E_i/P_{it-1} + a_2 \text{OWN}_i \times E_i/P_{it-1} + a_3 \text{INST}_i \times E_i/P_{it-1} + a_4 \text{BLOCK}_i$$

$$\times E_i/P_{it-1} + e_i \qquad (2)$$

where INST = a dummy variable for institutional holdings by banks, insurance, and security companies—1 if the institutional holding is greater than the sample median, 0 otherwise; BLOCK = a dummy variable for holdings by blockholders—1 if the blockholding is greater than 5% and 0 otherwise.[13] All other variables are previously defined.

Positive and significant coefficients on a_3 and a_4 support active monitoring by institutions/blockholders.

3.3. Earnings informativeness of chaebols vs. nonchaebols

Chaebols, large business groups in Korea, are highly diversified in business, but heavily concentrated in ownership. Thus, having both control rights and ownership vested in one individual, chaebol could minimize the agency problem that arises from the separation of ownership and control in the Jensen and Meckling (1976) framework. On the other hand, however, it could create another type of agency problem. Since the owners–managers of chaebols have substantial discretionary power over all important strategic decision making, they can easily expropriate outside minority shareholders by investing the firm's resources to maximize their own personal wealth and the overall value of the entire group.

La Porta, de Silanes, and Shleifer (1999) conclude that "...the central agency problem in large corporations around the world is that of restricting expropriation of minority shareholders

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[12] For instance, hostile takeovers have been allowed in Korea since the early 1990s, but only a few successful hostile takeovers have occurred in Korea.

[13] For blockholdings, we used a 5% cut-off point, not a median. This tests the effect of existence vs. nonexistence of blockholdings because blockholdings are defined as holdings of more than 5% in Korea. We believe that a cut-off point using a median is not very meaningful.

by controlling shareholders..." This agency problem between controlling and restricting expropriation of minority shareholders can be particularly serious when there are few mechanisms to protect minority investors and to control the discretionary power of large shareholders. Johnson et al. (2000) further argue that the controlling shareholders have strong incentives to siphon resources out of the firm to increase their wealth.[14] Thus, they can easily expropriate minority investors in the chaebol by investing the firm's resources to maximize their own or the group's wealth, even when such investments do not maximize the value of the individual firm.

This type of management entrenchment could occur in many ways. One way is through nonarms' length transactions among chaebol affiliates. For instance, unlisted shares of an affiliate owned by the owner–largest shareholder could be purchased at a price much higher than its fair value, enriching the owner at the expense of the firm.

Also, complicated intercompany transactions with an affiliate, which are not included in the consolidated financial statement, are difficult to identify, thus making it difficult to understand the overall financial picture of the entire chaebol group. Further, chaebol companies often exercise influence for their benefits in negotiations when there are accounting conflicts with the auditor.[15] These will make accounting numbers of chaebol affiliates less transparent and reliable, reduce earnings quality, and dampen the positive effects of the owner–manager's holdings on earnings informativeness.

3.4. Control variables

The return–earnings relationship discussed in the previous sections is influenced by other factors that should be controlled. We consider two types of control variables—agency and earnings quality variables. Variables from the agency theory include firm size, risk, and debt. Numerous studies report that these variables affect the firm's accounting choice decisions (see Watts & Zimmerman, 1990 for a review of this issue). Firm size is motivated by the political cost theory. Watts and Zimmerman argue that managers of large corporations are politically sensitive and are more likely to exploit accounting discretion to reduce political costs. The risk variable is considered because high-risk firms possess greater incentives to exploit accounting discretion (Zmijewski & Hagerman, 1981). Evidence indicates that leverage is positively related to an accounting choice decision. The higher the leverage, the more likely managers choose income-increasing methods. Also, the leverage variable captures the firm's default risk that is not captured by the equity beta (Billings, 1999).

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[14] To describe the transfer of resources out of firms for the benefit of their controlling shareholders, Johnson et al. use the term "tunneling." They show that tunneling can take many forms. For example, it can take the form of outright theft or fraud. It can also take more subtle legal forms, such as diluted share issues that discriminate against minority shareholders and mergers between affiliated firms to siphon resources out of the bidder or the target.

[15] One of the major CPA firms in Korea, Sandong, was dissolved in early 2001 in connection with fraud in the audit of now bankrupt Daewoo, one of the big three chaebols in Korea. They allegedly cooperated with their client company in overstating assets and omitting foreign liabilities.

Table 1
Summary of sample selection criteria

Panel A: Number of firm-years by sample selection criteria

Selection criteria	Number of firm-years
Firms listed on the KSE	4258
Less firms with ownership data not available for the period of 1996 and 1998	(375)
Firms with ownership data available	3883
Less firms with missing financial data	(648)
firms with missing return data	(415)
Total firms included in the sample	2820

Panel B: Number of sample firms by year

Year	Number of firms
1993	373
1994	463
1995	492
1996	504
1997	514
1998	465
Total	2820

For earnings quality considerations, we include variables for growth and earnings persistence. These variables have been found to affect the informativeness of earnings (Collins & Kothari, 1989; Easton & Zmijewski, 1989; Kormendi & Lipe, 1987). Eq. (3) shows the full model for all variables including control variables:[16]

$$R_i = a_0 + a_1 E_i/P_{it-1} + a_2 \mathrm{OWN}_i \times E_i/P_{it-1} + a_3 \mathrm{INST}_i \times E_i/P_{it-1} + a_4 \mathrm{BLOCK}_i$$

$$\times E_i/P_{it-1} + a_5 \mathrm{SIZE}_{it} + a_6 \mathrm{RISK}_{it} + a_7 \mathrm{DEBT}_{it} + a_8 \mathrm{GRWTH}_{iti} + a_9 \mathrm{PERS}_{it} + e_i$$

$$(3)$$

where SIZE_i = firm size measured as logarithm of sales revenue; RISK_i = risk of the firm measured as a market beta. The market beta was calculated using daily returns for the past 2 years; DEBT_i = leverage of the firm measured as total debt divided as total assets; GRWTH_i = growth prospects of the firm, measured as Tobin's' Q ratio. The Q ratio is computed as market value of equity/book value of equity; PERS_i = persistence of earnings measured as the autocorrelation coefficient of earnings during the test periods, 1993–1998. Other variables are previously defined.

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[16] Warfield et al. (1995) use multiplicative variables with earnings for the control variables. That is, for size variable, they use $\mathrm{SIZE} \times E/P$. This has a different meaning from the specification in Eq. (3). The multiplicative variable signifies that the slope of earnings–response coefficient is higher or lower due to a size effect. On the other hand, the SIZE variable when used alone without E/P simply controls for the size effect. We use a model specification as in Eq. (3) because these variables are used as control variables.

4. Data

Sample firms are obtained from firms listed on the KSE from 1993 to 1998. The following data should be available during our sample period: the equity ownership data, the financial statements data, the daily returns, and the month-end prices. We collected these data for each fiscal year from the Korea Investors Service (KIS) database. The KIS as a professional rating agency developed the financial statements database based on Business Reports filed with the Korea Financial Supervisory Commission (KFSC) and makes it available for researchers.[17] It also provides market data for firms listed on the KSE.

By excluding financial companies, we initially obtained 4258 firm-years (760 firms). From these, we excluded firms whose ownership data were unavailable and whose financial and stock return data were missing, resulting in 2820 firm-year observations. The number of firms in each year ranges from 373 to 504 firms.[18] The sample selection procedures are reported in Table 1.

5. Results

5.1. Descriptive statistics

Selected descriptive statistics are reported in Tables 2 and 3. Table 2 shows the ownership variables. Panel A shows stockholdings by owner–largest shareholder, institutions, and blockholders by year. The average stockholding of the largest shareholder is 28.33%. It increased to 31.77% in 1997 and 33.14% in 1998. These are the years when Korea experienced an economic crisis due to the foreign exchange problem.

The mean institutional holdings of banks, insurance, and security companies are 15.83%. They consistently decrease over the years. The average holdings of the blockholders are 14.64%, and show a decreasing trend similar to that of institutional holdings. It is interesting to note that during the Korean economic crisis in 1997 and 1998, holdings of the owner–largest shareholder increased while those of institutions and blockholders substantially decreased. The stock market plunged during this period, and it is likely that institutions/blockholders decreased their portfolio in stocks, and the largest stockholders increased their holdings. Some companies may have purchased the stocks back from other shareholders to bolster their stock prices.

Panel B of Table 2 shows holdings by type of the owner–largest shareholder, classified by individuals, corporations, and foreign investors. The largest shareholder is an individual for

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[17] Firms that are registered with the KFSC must file Business Reports (equivalent to the US 10-K) with the KFSC within 90 days from the fiscal year-end. Business Reports are publicly available at the KFSC or at the electronic reporting system of KSE.

[18] Our initial sample had 2820 observations. For regressions, the sample size drops slightly in accordance with the particular model used due to missing additional variables or classificatory variables, such as individual vs. corporation largest shareholder, and chaebols vs. nonchaebols.

Table 2
Descriptive statistics of ownership by largest shareholder, institutional investors, and large blockholders

Panel A: Distribution of ownership by the owner–largest shareholder, institutional investors, and large blockholders by year

Variable	1993	1994	1995	1996	1997	1998	Total
Equity held by the	26.36[a]	25.89	26.11	26.25	31.77	33.14	28.33
largest shareholder	25.07[a]	25.05	24.73	25.44	30.26	31.48	27.30
	373[a]	463	492	504	514	465	2820
Equity held by the	22.23	18.63	17.08	16.02	13.72	8.70	15.83
institutional investor	22.39	17.48	15.06	14.05	11.42	7.09	13.59
	374	464	493	506	514	465	2820
Equity held by large[b]	17.31	15.69	14.81	14.28	12.96	12.71	14.64
blockholders	15.48	13.28	12.24	11.55	10.28	8.91	11.81
	205	273	288	294	251	188	1499

Panel B: Descriptive statistics of ownership by type of largest shareholder

Owner–largest shareholder	Summary statistics					
	Mean	Median	S.E.	Min	Max	n
Individuals	28.52	28.01	0.29	0.00	89.95	2075
Corporation	28.64	25.58	0.64	0.00	99.00	609
Foreign investors	27.92	33.40	2.01	8.01	57.77	49
Others[c]	21.19	16.28	2.20	1.80	77.57	87
Total	28.33	27.30	0.45	0.00	99.00	2820

Panel C: Frequency of ownership by type of largest shareholder

Type of largest shareholder	Distribution of ownership (α[d])						
	$\alpha \leq 10.0$	$10.0 < \alpha \leq 20.0$	$20.0 < \alpha \leq 30.0$	$30.0 < \alpha \leq 40.0$	$40.0 < \alpha \leq 50.0$	$\alpha > 50.0$	Total
Individuals	154	439	579	488	304	111	2075
	7.42	21.16	27.90	23.52	14.65	5.35	100.00
Corporation	63	111	201	102	77	55	609
	10.34	18.23	33.00	16.75	12.64	9.03	100.00
Foreign investors	6	12	5	18	7	1	49
	12.24	24.49	10.20	36.73	14.29	2.04	100.00
Others[e]	37	16	16	8	0	10	87
	42.53	18.39	18.39	9.20	0.00	11.49	100.00
Total	260	578	801	616	388	177	2820
	9.22	24.49	28.40	21.84	13.76	6.28	100.00

Test statistics	χ^2 statistics $= 179.69$ ($P=.001$)

[a] Mean, median, and number of firms, respectively.
[b] Forty-seven percent of firms has no large blockholders.
[c] It includes banks, governmental, and nonprofit organizations.
[d] α represents the percentage of ownership.
[e] It includes banks, governmental, and nonprofit organizations.

Table 3
Descriptive statistics of study variables

Panel A: Univariate analyses of study variables by ownership

Variables	Mean	Median	S.E.	t statistic (p-value)
EP				
OWN = 0	− 0.0310	0.0274	0.0140	− 1.50
OWN = 1	− 0.0027	0.0272	0.0126	(.1338)
Total sample	− 0.0167	0.0273	0.0094	
SIZE				
OWN = 0	24.37	24.39	0.03	3.36***
OWN = 1	24.22	24.25	0.03	(.0008)
Total sample	24.30	24.32	0.02	
DEBT				
OWN = 0	0.74	0.71	0.01	5.98***
OWN = 1	0.66	0.66	0.01	(.0008)
Total sample	0.70	0.68	0.01	
RISK				
OWN = 0	0.98	1.00	0.01	− 4.56***
OWN = 1	1.02	1.03	0.01	(.0001)
Total sample	1.00	1.02	0.01	
GRWTH				
OWN = 0	1.16	0.84	0.08	− 0.29
OWN = 1	1.19	0.81	0.11	(.7731)
Total sample	1.18	0.82	0.07	
PERS				
OWN = 0	0.31	0.13	0.02	0.44
OWN = 1	0.30	0.07	0.02	(.6636)
Total sample	0.31	0.10	0.02	

Panel B: Correlation matrix of study variables

Study variables	RET	EP	EP × OWN	EP × INST	EP × BLOCK	SIZE	RISK	GRWTH
EP	.1819[a] (.0001)							
EP × OWN	.1362 (.0001)	.6761 (.0001)						
EP × INST	.2033 (.0004)	.4194 (.0001)	.1315 (.0001)					
EP × BLOCK	.1882 (.0001)	.5509 (.0001)	.2745 (.0001)	.4322 (.0001)				
SIZE	− .0541 (.0043)	.0354 (.0610)	.1447 (.0001)	.0879 (.0001)	.0820 (.0001)			
RISK	− .0126 (.5489)	− .0651 (.0018)	− .0334 (.1098)	− .0302 (.1486)	− .0405 (.0524)	− .5073 (.0001)		
GRWTH	.0757 (.0001)	− .0001 (.9953)	− .0039 (.8388)	.0015 (.9392)	.0042 (.8258)	− .1325 (.0001)	.0364 (.0817)	
PERS	− .0258 (.1736)	− .0958 (.0001)	− .0609 (.0013)	− .0474 (.0122)	− .0536 (.0045)	.0545 (.0038)	− .0327 (.1163)	− .0257 (.1743)

Table 4
Cross-sectional regression of stock returns on earnings

Explanatory variables	Positive earnings Model 1a	Negative earnings Model 1b	Total sample Model 1c	Positive earnings Model 2a	Negative earnings Model 2b	Total sample Model 2c
Panel A: OWN, INST, and BLOCK are measured as dichotomous variables						
EP	2.5408***	− 0.1172	0.4552***	0.4022	− 0.0874	0.0227
	(.0001)	(.1590)	(.0001)	(.1192)	(.3376)	(.7891)
EP × OWN	0.7131***	− 0.2151*	0.1019*	1.7914***	− 0.2536*	0.3551***
	(.0030)	(.0990)	(.0835)	(.0001)	(.0594)	(.0008)
EP × INST				4.0231***	− 0.3835*	0.9536***
				(.0001)	(.0551)	(.0001)
EP × BLOCK				1.3236***	0.2111	0.4982***
				(.0001)	(.2692)	(.0001)
Number of observations	2294	489	2783	1962	489	2783
Adjusted R^2 (%)	20.48	2.91	3.34	29.64	4.10	8.65
Panel B: OWN, INST, and BLOCK are measured as continuous variables						
EP	1.3912***	0.0131	0.4309***	0.6081*	− 0.0547	0.0132
	(.0001)	(.8772)	(.0001)	(.0630)	(.5437)	(.7064)
EP × OWN	0.0397***	− 0.0057*	0.0126*	0.0556***	− 0.0073**	0.0071**
	(.0001)	(.0259)	(.0937)	(.0001)	(.0052)	(.0302)
EP × INST				2.0587***	− 0.3141**	0.9370***
				(.0001)	(.0224)	(.0001)
EP × BLOCK				0.5271**	0.1773	0.4213***
				(.0116)	(.1037)	(.0003)
Number of observations	2294	489	2783	1962	489	2783
Adjusted R^2 (%)	19.18	2.06	3.26	22.15	2.88	5.76

Model: RET=a_0+a_1EP+a_2EP×OWN+a_3EP×INST+a_4EP×BLOCK+ξ_1.

* Statistically significant at the .10 level (see p-values in parentheses).
** Statistically significant at the .05 level (see p-values in parentheses).
*** Statistically significant at the .01 level (see p-values in parentheses).

2075 of 2820 observations (73.6%), followed by corporations for 609 observations (21.6%). Foreign investors are the largest shareholders in 49 observations (1.7%). The average stockholdings by each type of shareholder are approximately the same, however.

Panel C reports stockholdings by type of the largest shareholder. When the owner–largest shareholders are individuals, most of them own between 20% and 30% of the shares 27.90% of the time. When it is a corporation, 33% falls in the 20–30% range. Foreign owners are most concentrated in the 30–40% range. Chi-square test shows that the differences in the ownership distribution across each percent range are statistically significant (P=.001).

Notes to Table 3:
Refer to Exhibit 1 for definitions and notations of the variables.
[a] Coefficient (p-value).
*** Statistically significant at the .01 level (p-values in parentheses).

Table 3 shows summary statistics for selected financial variables, separated by the holdings of the largest shareholder (high and low holdings) and the total. The mean earnings per price (EP) is -0.0167, and is not much different between high and low holdings. The t statistics of the variables SIZE, DEBT, and RISK are statistically significant, suggesting that firms with high shareholdings by the owner–largest shareholder are smaller, less leveraged, and riskier than those with low shareholdings.

Panel B of Table 3 presents Pearson correlations of the study variables. The second column shows that RET is highly correlated with EP, EP × OWN, EP × INST, EP × BLOCK, and SIZE. This suggests that the ownership variables explain much of the variation of stock prices. The panel generally indicates low correlation among the study variables. However, correlations among EP and its interaction variables are high. This is expected because the interaction variables are multiplicative variables with EP.[19]

5.2. Regression results

5.2.1. Regression results for the ownership variables

Table 4 shows the regression of return on the earnings and ownership variables. Panel A reports the results when ownership variables are measured as dichotomous variables whereas Panel B uses continuous variables. We report the results for the total samples and two partitions of samples separated into positive and negative earnings according to Collins, Pincus, and Xie (1999) and Hayn (1995). Hayn reports that the earnings–response coefficient is low and not stable when earnings are negative. Collins et al. report that earnings–response coefficients on the negative earnings are negative.

For positive earnings in Panel A, Model 1a shows that both earnings (EP) and owner–largest shareholder (EP × OWN) variables are positive and significant with adjusted R^2 of 20.48%, suggesting that the greater the holdings of owner–largest shareholder, the more informative the earnings are. The EP × OWN variable remains significant when other ownership variables are added (Model 2a).[20] We interpret the results as supporting the convergence of interest hypothesis as Jensen and Meckling (1976) predict, but not the management entrenchment or the expropriation hypothesis.

The coefficient on the institutional holdings variable (EP × INST) in Model 2a is positive and significant, indicating that the higher the holdings of the institutions, the more informative the earnings are. This supports the active monitoring role of institutions as opposed to the strategic alliance hypothesis or the transient investor hypothesis.

Similar results are found of the blockholder variable (EP × BLOCK). We suggested earlier that blockholders, like institutional holders, can be an effective monitoring vehicle for management or, on the other hand, the strategic alliance argument can be applied. The

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[19] This could cause some multicollinearity problems. However, it will negatively affect our results.

[20] We used a median number (27.30%) in separating the holdings of the owner–largest shareholder. Alternatively, we partitioned the sample into three groups—high, middle, and low holdings of owner–largest shareholder—then repeated the tests with high and low group with the middle group eliminated. Further, we used another cut-off point of 20%, which we chose randomly. All these results were qualitatively similar.

positive and significant coefficient on the interaction between earnings and blockholders suggests that effective monitoring by blockholders improves earnings informativeness.[21,22]

The results for negative earnings are not consistent. The coefficient on the earnings variable is negative and the adjusted R^2 is quite low (2.91% for Model 1b and 4.10% for Model 2b). The negative coefficient on the earnings variable is not inconsistent with the existing literature (Collins et al., 1999). The results for the total sample are basically the same as those for the positive earnings except that the significance of earnings variable and adjusted R^2 decreases.

Panel B reports the results when ownership variables are measured as continuous variables. These results are not much different from those reported in Panel A, except that R^2 slightly declines. We choose to use dichotomous variables for ownership variables because our focus is to contrast high and low ownership groups, not to examine the sensitivity of earnings informativenss to ownership variables.

5.2.2. Regression results with control variables included

Table 5 shows the results of the models when control variables for the agency problem and earnings quality are added. For positive earnings (Model 3a), all the ownership variables remain positive and significant, similar to those reported in Table 4. For control variables, the size variable, measured as the logarithm of sales revenue, is negative and significant, indicating that earnings are less informative as the firm size increases, supporting the political hypothesis explanation. The leverage variable (DEBT) is negative, but not significant. The RISK variable has a negative and significant sign, as expected. The growth (GRWTH) variable

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[21] In the presence of a primary owner, the influence of institutions/blockholders may not be determined by their holdings alone. It will interact with the influence of the owner–largest shareholder. If the owner's holdings are large enough not to allow others to influence the firm's decisions, monitoring activities by institutions/blockholders will be limited compared with what is possible otherwise. The reverse is true if the owner's holding is low. The influence of institutions/blockholders will be accentuated in this case because of the lack of owner's control. The following regression examines the interaction effects between the owner's holdings and those of institutions/blockholders:

$$R_i = a_0 + a_1 E_i/P_{it-1} + a_2 \text{OWN}_i \times E_i/P_{it-1} + a_3 \text{INST}_i \times E_i/P_{it-1} + a_4 \text{BLOCK}_i \times E_i/P_{it-1} + a_5 \text{OWN}_i$$
$$\times \text{INST}_i \times E_i/P_{it-1} + a_6 \text{OWN}_i \times \text{BLOCK}_i \times E_i/P_{it-1} + e_i.$$

The coefficients on both these interaction variables (a_5 and a_6) are positive and significant, suggesting that the active monitoring role of institutional holders and blockholders is more pronounced when the holdings of both the largest shareholders and institutional holders/blockholders are high. This indicates that institutional holders/blockholders exert more effort as an effective monitoring mechanism when the holdings of the largest shareholders are high. However, these double multiplicative interaction variables are often difficult to interpret, and therefore should be interpreted with caution.

[22] Holdings of owner–largest shareholder and holdings of institutions and blockholders may not be mutually exclusive. However, we do not believe that such effect is significant.

Table 5
Cross-sectional regression of stock returns on earnings with inclusion of determinants of earnings response coefficients

Explanatory variables	Positive earnings Model 3a	Negative earnings Model 3b	Total sample Model 3c
EP	0.4134 (.1077)	− 0.1891 * (.0577)	− 0.0437 * (.0601)
EP × OWN	1.7585 * * * (.0001)	− 0.2295 * (.0877)	2.1304 * * * (.0001)
EP × INST	4.1010 * * * (.0001)	− 0.3641 * (.0731)	1.0393 * * * (.0001)
EP × BLOCK	1.2539 * * * (.0001)	0.0911 (.6408)	1.1713 * * * (.0001)
SIZE	− 0.0987 * * * (.0001)	− 0.0166 (.7094)	− 0.0563 * (.0616)
DEBT	− 0.0899 (.6257)	− 0.8213 * * (0.0186)	− 0.1438 (.5339)
RISK	− 0.3850 * * (.0169)	0.0683 (.8312)	− 0.1936 (.3794)
GRWTH	0.0358 * * * (.0001)	0.0188 (.2952)	0.1013 * * * (.0001)
PERS	− 0.0134 (.6470)	− 0.0850 (.1715)	− 0.0169 (.6532)
Number of observations	2245	467	2712
Adjusted R^2 (%)	31.09	5.75	15.75

Model: RET=b_0+b_1EP+b_2EP×OWN+b_3EP×INST+b_4EP×BLOCK+b_5SIZE+b_6DEBT+b_7RISK+ b_8GRWTH+b_9PERS+ξ_2.
Definitions and notations of the variables are given in Exhibit 1.
    * Statistically significant at the .10 level (see p-values in parentheses).
    * * Statistically significant at the .05 level (see p-values in parentheses).
    * * * Statistically significant at the .01 level (see p-values in parentheses).

is positive and significant, consistent with existing findings. The persistence variable (PERS) is not significant.[23]

The results for the negative earnings (Model 3b) do not show a consistent pattern. The earnings variables are negative and significant. Ownership variables are generally not significant. Most control variables are not significant, and the adjusted R^2 is substantially lower than that for the positive earning model.

The results for the total sample (Model 3c) are not much different from those for the positive earnings except that the risk variable becomes insignificant. In sum, the results in Tables 4 and 5 suggest that earnings are more informative with the increase in holdings of the owner–largest shareholder and institutions/blockholdings. This supports the convergence of interest hypothesis for the owner–largest shareholder and the active monitoring role for the institutions/blockholders.

5.2.3. Regression results by type of owner–largest shareholder

The owner–largest shareholder of a firm may be an individual or a corporation. Shleifer and Vishney (1986) report that corporate shareholders behave differently from individual shareholders. We repeat the regression analyses performed in Table 5 separately for the individual and corporate shareholders. The results are reported in Table 6.

For individuals (Model 3d), all the ownership variables are positive and significant, and control variables are generally significant with expected signs except for DEBT and PERS.

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[23] Because of data limitation, we measured the persistence based on six time series data. This could have caused the insignificance of the PER variable.

Table 6
Cross-sectional regression of stock returns on earnings by type of owner–largest shareholder

Explanatory variables[a]	Type of largest shareholder	
	Individuals Model 3d	Corporations Model 3e
EP	0.8668*** (.0089)	2.5347*** (.0001)
EP × OWN	1.1186*** (.0006)	2.3690*** (.0003)
EP × INST	4.9056*** (.0001)	0.7958 (.1749)
EP × BLOCK	0.6272* (.0521)	0.3349 (.5986)
SIZE	−0.1068*** (.0003)	0.0052 (.9143)
DEBT	0.0742 (.7319)	−0.6339 (.1044)
RISK	−0.4728** (0.0172)	−0.1016 (.7682)
GRWTH	0.0297*** (.0006)	0.2585*** (.0001)
PERS	−0.0028 (.9356)	−0.0389 (.4906)
Number of observations	2034	587
Adjusted R^2 (%)	30.70	37.40

Model: RET=b_0+b_1EP+b_2EP×OWN+b_3EP×INST+b_4EP×BLOCK+b_5SIZE+b_6DEBT+b_7RISK+b_8GRWTH+b_9PERS+ξ_2.

[a] Definitions and notations of the variables are given in Exhibit 1.

* Statistically significant at the .10 level (see p-values in parentheses).

** Statistically significant at the .05 level (see p-values in parentheses).

*** Statistically significant at the .01 level (see p-values in parentheses).

These results are similar to those reported in Tables 4 and 5 (when earnings are positive). When the largest shareholder is a corporation, the ownership variables do not show a consistent pattern. The owner–largest shareholder variable remains positive and significant, consistent with the results for individuals. However, the institutions and blockholders variables do not show significance, which is inconsistent with our previous finding that institutions are active monitors. This result suggests that institutions play a more active monitoring role when the largest shareholder is an individual than when it is a corporation.

5.2.4. Regression results for chaebol vs. nonchaebol groups

A Korean chaebol is characterized as a large conglomerate that involves many different lines of businesses in different industries. Its inefficiencies as a company have been criticized as a major reason for the Korean economic crisis in 1997. Since then, some chaebols have been dissolved while others underwent restructuring. Since companies that are parts of the chaebol group could display different corporate behavior from that of nonchaebol companies, we separate the sample firms into two groups, chaebol affiliates and nonchaebol affiliates.

The Korea Fair Trade Commission (KFTC) defines a chaebol as "a group of companies of which more than 30% of its shares are owned by the group's controlling shareholder and its affiliated companies." Each year, the KFTC ranks business groups according to the size of their total assets and identifies the 30 largest business groups (hereafter "Top 30 chaebols"). The Top 30 chaebols have been Korea's most prominent chaebols during the past three decades.

The results are reported in Table 7. For nonchaebol affiliates (Model 3f), ownership variables are in general positive and significant, consistent with previous results suggesting a

Table 7
Cross-sectional regression of stock returns on earnings by membership of Korean chaebols

Explanatory variables[a]	Affiliation with chaebol	
	Nonchaebol affiliates Model 3f	Chaebol affiliates Model 3g
EP	1.8215*** (.0001)	0.5702 (.3199)
EP × OWN	0.4941 * (.0546)	1.1857 (.2347)
EP × INST	3.4329*** (.0001)	3.5508*** (.0001)
EP × BLOCK	2.0230*** (.0001)	0.3603 (.5214)
SIZE	− 0.1490*** (.0001)	0.0443 (.3596)
DEBT	0.1321 (.5162)	− 0.9744 ** (0.0314)
RISK	− 0.5535*** (.0035)	0.2330 (.4623)
GRWTH	0.0306*** (.0003)	0.2277*** (.0002)
PERS	− 0.0118 (.7742)	− 0.0262 (.5199)
Number of observations	1663	582
Adjusted R^2 (%)	34.40	27.17

Model: $RET = b_0 + b_1 EP + b_2 EP \times OWN + b_3 EP \times INST + b_4 EP \times BLOCK + b_5 SIZE + b_6 DEBT + b_7 RISK + b_8 GRWTH + b_9 PERS + \xi_2$.

[a] Definitions and notations of the variables are given in Exhibit 1.
* Statistically significant at the .10 level (see p-values in parentheses).
** Statistically significant at the .05 level (see p-values in parentheses).
*** Statistically significant at the .01 level (see p-values in parentheses).

convergence of interest between owner–largest shareholder and outside investors. For chaebol companies (Model 3g), however, the owner–largest shareholder variable is not significant, inconsistent with the convergence of interest hypothesis. We interpret the insignificance of the owner–largest shareholder variable as an indication that management entrenchment and/or expropriation of minority shareholders has occurred in the chaebol companies, and their negative effects offset the positive effects from the convergence of interest effects. Bae, Kang, and Kim (in press) also find similar results related to the expropriation hypothesis. They report that when a chaebol-affiliated firm makes an acquisition, its stock prices on average go down. However, they find that the controlling shareholder benefits because the acquisition enhances the value of other firms in the group that the controlling shareholder controls.

The result for chaebol companies is also consistent with our conjecture (as discussed earlier) that complicated intercompany transactions among affiliates of chaebol companies make it difficult to understand the overall picture of the entire chaebol group, and that chaebol companies often use influence for their benefit in negotiations when there are accounting conflicts with the auditor. These will make accounting numbers of chaebol affiliates less transparent and reliable, and thus reduce earnings quality and its informativeness.[24]

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[24] Fan and Wong (2000) report that earnings informativeness decreases as holdings of the controlling shareholders increase for the seven Asian countries they studied. They explain this by expropriation of minority shareholders by controlling shareholders. For Korean samples, however, they report insignificant results. Our results suggest that the expropriation hypothesis holds for only chaebol companies. For the total sample, the convergence of interest hypothesis is a more appropriate explanation. Our result for Korean chaebol companies is not inconsistent with Fan and Wong's.

Although the Top 30 chaebols are organized in similar ways, they are not homogeneous with respect to the diversity and complexity of operations. We split the chaebols into two subsamples based on two criteria. The first criterion is the size of chaebols ranked by the KFTC (Top 5 vs. those ranked between 6 and 30). The Top 5 chaebols (Samsung, Hyundai, LG, Daewoo, and SK) display more distinctive characteristics of the chaebol than those ranked between 6 and 30 with respect to the complexity of operations. We expect that the transparency of management and the quality of earnings will be lower for the Top 5 chaebols.

The second criterion for splitting the sample is the number of affiliates. We hypothesize that a chaebol with a large number of affiliates has more complicated and sophisticated transactions among its affiliates, introducing more noise in earnings compared with a small number of affiliates. We code 1 if a chaebol has a number of affiliates greater than 28, the median of the 30 chaebols, and 0 otherwise. Table 8 shows that Top 5 chaebols have more than twice as many affiliates as the bottom Top 5 chaebols do.

Table 9 presents the regression results for subsamples of chaebol affiliates. The first two columns (Models 3h and 3i) compare the results between the Top 5 and non-Top 5 chaebols. The Top 5 chaebols do not show a consistent pattern for ownership variables. The owner–largest shareholder variable is not significant, and the institutions variable has an opposite sign. On the other hand, for the non-Top 5 chaebols, the owner–largest shareholder is weakly significant. For institutions, it is positive and significant, and the blockholders variable is not significant. These results indicate that the insignificance of the owner–largest shareholder variable for chaebol companies reported in Table 7 is largely driven by the Top 5 chaebols, which have more distinctive characteristics of chaebols.

A similar inference is drawn from the results reported in the last two columns of Table 9 (Models 3j and 3k) that compare chaebols based on the number of affiliates. The chaebols with a larger number of affiliates (that are more characteristic of the chaebol) do not show significance on the owner–largest shareholder variable consistent with the model for the Top 5 chaebols. Other ownership variables are also similar to those reported in the first two columns. The results reported in Tables 7 and 9 suggest that expropriation of minority shareholders and/or management entrenchment tends to occur in chaebol companies as the owner–largest shareholder's holdings increase, and earnings informativeness decreases. This

Table 8
Number of affiliates for Korean chaebols

Summary statistics	Classification		
	Top 5 Chaebols	Chaebols ranked between 6 and 30	Top 30 Chaebols
Mean	50.90	23.70	33.30
Median	58	25	28
S.E.	10.43	6.33	15.28
Min	31	7	7
Max	59	36	59
t statistics	− 41.89 (.0001)	− 41.89 (.0001)	–

Table 9
Cross-sectional regression of stock returns on earnings for Korean chaebols

Explanatory variables	Chaebol classification			
	Top 5 based on total assets		Number of affiliates	
	Top 5 Chaebols Model 3h	Non-Top 5 Chaebols Model 3i	Above the median Model 3j	Below the median Model 3k
EP	4.4990 * (.0765)	1.3508 * * (.0437)	3.3326 (.1115)	1.1803 * (.0897)
EP × OWN	1.6876 (.5038)	0.9892 * (.0726)	1.6172 (.4317)	1.4269 * * (.0446)
EP × INST	− 0.6704 (.7897)	2.8308* * * (.0005)	0.8282 (.6876)	2.2416 * * (.0129)
EP × BLOCK	4.9135*** (.0001)	− 0.5775 (.3782)	2.6725*** (.0050)	− 0.4187 (.5651)
SIZE	− 0.0193 (.8060)	0.0140 (.8379)	− 0.0119 (.8645)	0.0231 (.7637)
DEBT	− 0.3987 (.6625)	− 0.7901 (.1538)	− 0.6398 (.3445)	− 0.8409 (.1887)
RISK	− 0.2096 (.7214)	0.3021 (.4204)	− 0.0965 (.8510)	0.4604 (.2675)
GRWTH	0.1332 (.2227)	0.2580*** (.0004)	0.2123 * * (.0121)	0.2216 * * (.0133)
PERS	0.1907 (.4292)	− 0.0140 (.7161)	0.1670 (.4639)	− 0.0092 (.8201)
Number of observations	206	376	291	291
Adjusted R^2 (%)	32.12	24.09	32.54	23.84

Model: RET=b_0+b_1EP+b_2EP×OWN+b_3EP×INST+b_4EP×BLOCK+b_5SIZE+b_6DEBT+b_7RISK+ b_8GRWTH+b_9PERS+ξ_2.

Definitions and notations of the variables are given in Exhibit 1.

   * Statistically significant at the .10 level (see p-values in parentheses).

   * * Statistically significant at the .05 level (see p-values in parentheses).

   * * * Statistically significant at the .01 level (see p-values in parentheses).

phenomenon is stronger for the group of sample firms with more distinctive characteristics of the chaebol.

6. Conclusion

This study examined the relationship between earnings informativeness and corporate ownership structure in Korea. Korean ownership structure is characterized by the dominant role of an owner–largest shareholder. The owner–largest shareholder in Korea, typically a founder or his immediate family, usually participates in firm management directly or indirectly, and influences most of the management decisions.

We first examined the relationship between the holdings of owner–largest shareholder and earnings informativeness. In the Jensen and Meckling (1976) framework, there is a reduction in agency costs as the owner–manager's holdings increase. If the market perceives that the owner–largest shareholder's holdings are value-increasing, convergence of interest between the owner–manager and outside shareholders occurs and a positive relationship is expected between earnings informativeness and the holdings of owner–largest shareholder. On the other hand, management entrenchment could occur as owner–manager's holdings increase. In this case, we expect earnings quality and earnings informativeness to decrease. The results in general support the convergence of interest hypothesis and the positive relationship between earnings informativeness and the owner–largest shareholder.

We then examined the role of institutions and blockholders, proposing two opposing hypotheses—an active monitoring role and a strategic alliance hypothesis. The results, as manifested in earnings informativeness, suggest that institutions and blockholders generally play an active monitoring role. Also, we showed that the positive relationship between earnings and the holdings of owner–largest shareholder is more obvious when the owner–largest shareholder is an individual rather than a corporate shareholder.

Finally, we investigated earnings informativeness for chaebol companies as opposed to nonchaebol companies, and find that the owner–largest shareholder variable for chaebol companies is insignificant while it is positive and significant for nonchaebol companies. The results appear to indicate that expropriation of minority shareholders and management entrenchment dominate convergence of interest for chaebol companies, reducing earnings quality and informativeness. The phenomenon is more apparent for the group of sample firms with more distinctive characteristics of chaebol companies, i.e., the Top 5 chaebol companies and chaebols with a large number of affiliates.

Exhibit 1
Definitions of variables used in the study
Dependent variable

RET	annual returns of stocks; measured by subtracting the stock price at the beginning of year from the fiscal year-end stock price, which is deflated by the beginning-year stock price.

Independent variables

EP	earnings per share deflated by the stock price at the beginning of the year.
OWN	coded as 1 if the percentage of stocks held by the owner–largest shareholder is above the median of the sample firms and 0 otherwise.
INST	coded as 1 if the percentage of stocks held by institutional investors is above the median of the sample firms and 0 otherwise; institutions include banks, security firms, and insurance companies.
BLOCK	coded as 1 if the percentage of stocks held by large blockholders is greater than 5 percent and 0 otherwise; large blockholders are defined as the investors who own at least 5% of stocks.
SIZE	logarithm of sales revenue.
RISK	risk of a firm measured as market beta.
GRWTH	growth prospect of a firm measured as Tobin's Q; the Q ratio is computed as the market value of equity divided by book value of equity.
PERS	persistence of earnings measured by the autocorrelation coefficient of earnings during the period 1993–1998.

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Harmonization of the auditor's report

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Abstract

International efforts to harmonize the audit report, spearheaded by the International Auditing Practices Committee of the International Federation of Accountants (IFAC), culminated in the issuance of International Standard on Auditing (ISA) 13 in 1983. The stated purpose of ISA 13 was to: "provide guidance to auditors on the form and content of the auditor's report issued in connection with the independent audit of the financial statements of any entity." The purpose of this paper is to assess whether ISA 13 has resulted in greater international harmonization of audit reports. We assess the level of harmonization both by examining the extent to which countries have adopted ISA 13 and by the extent to which the content of the auditor's report has changed. A survey of IFAC's member organizations in 86 countries netted 50 responses. Eighty-six percent of respondents (and 93% of respondents from developing and emerging economies) said they have achieved harmonization with ISA 13. We compared the auditor's reports (in financial reports) of 450 companies in 33 IFAC member countries on two different dates (a pre-ISA 13 date and a post-ISA 13 date). The results suggest a higher degree of conformity with the standard for the post-ISA 13 reports. Finally, cluster analysis was conducted to explore the dynamics of clustering from pre-ISA 13 to post-ISA 13 regimes. A slight drop in the divisiveness coefficient (DC) was observed for the total audit report elements as well as for the form elements, suggesting a less cohesive cluster structure for the post-ISA 13 regime. The empirical evidence, taken as a whole, shows reduced diversity of practices and standards involving the

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audit report since the issuance of ISA 13. This conclusion should provide encouragement for international standard-setters.

1. Introduction

The globalization of capital markets and the growth of international capital flows have heightened the significance of cross-national comprehension of corporate financial reports as well as the associated audit reports. The accounting literature is replete with assessments of the harmonization efforts and the international differences in the financial accounting area (Archer, McLeay, & Dufour, 1989; Doupnik & Taylor, 1985; Evans & Taylor, 1982; Guenther & Hussein, 1995; McKinnon & Jannell, 1984; Nair & Frank, 1981; Nobes, 1987). However, there have been only three previous attempts to study the international differences and harmonization in the auditing area (Archer et al., 1989; Hussein, Bavishi, & Gangolly, 1986; Jones & Karbhari, 1996). This paper extends the work in the latter three studies by assessing the impact of International Standard on Auditing (ISA) 13[1] on the harmonization of audit reports. Since ISA 13 has been in effect for almost two decades, it seems a valuable exercise to examine its impact on the harmonization of audit reports. An assessment of the success of harmonization efforts and the extraction of any insights that can improve the process should be of value to regulators, standard-setters, corporate executives, and the accounting profession.

International efforts to harmonize the audit report spearheaded by the International Auditing Practices Committee of the International Federation of Accountants (IFAC), culminated in the issuance of the ISA 13 in 1983. The stated purpose of ISA 13 was to "provide guidance to auditors on the form and content of the auditor's report issued in connection with the independent audit of the financial statements of any entity" (paragraph 2). The committee believed that "a measure of uniformity in the form and content of the auditor's report is desirable because it helps to promote the reader's understanding." While nearly two decades have passed since the issuance of ISA 13, to our knowledge, there has been no study of its impact on harmonization. Our objective in this paper is to fill that void.

The harmonization of the auditor's report is important because the report is a primary tool auditor's use to communicate with financial statement users. The Cohen Commission (AICPA, 1978) has emphasized the importance of the auditor's report (p. 71): "The auditor's

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[1] At the time of issuance of ISA 13, IFAC used the term International Auditing Guidelines but later changed to International Standards on Auditing (ISA). In this paper, we use the term ISA to be consistent with the current terminology.

report is almost the only formal means used both to educate and inform users of financial statements concerning the audit function." The Cohen Commission noted the importance the profession put on a standardized report (p. 73): "Since 1933, the profession has supported the use of a standardized report, the variation from which an auditor could be called upon to justify." Finally, the importance of the auditor's report is confirmed by the fact that 4 of the 10 generally accepted auditing standards are devoted to audit reporting.

The recognition of the importance of the auditor's report is not limited to the United States. For example, a commission set up by the Irish Institute of Chartered Accountants (1992) recommended a greatly expanded auditor's report that should outline the steps taken in the audit.

While the auditor's report is important in its own right, it also can contribute to the improvement of accounting and auditing standards. The changes to the report to address the expectation gap have brought to the forefront many of the issues of conducting the audit and have led to many changes in GAAS. As another example, the Fourth Directive of the European Community requires that the auditor's report include whether the financial statements present a "true and fair view." By requiring auditors to attest that the financial statements present a "true and fair view," the Fourth Directive has motivated EU accountants and auditors to pursue changes in accounting and in the auditing process necessary to ensure that the statements reflect a "true and fair view." Zeff (1993) reported that the Fourth Directive's requirement not only sparked debate in Continental Europe but also among British accountants: "U.K. accountants and auditors share the dilemma of Continental EC accountants in trying to understand how to apply the 'true and fair view' when judging financial statements" (p. 404).

Finally, by requiring the auditor to express an opinion about whether the financial statements "give a true and fair view (or presents fairly)," ISA 13 requires the auditor to conduct the necessary auditing procedures to support his or her expressed opinion or risk legal liability. When disclosure and auditing standards and procedures do not help the auditor reach an opinion with confidence, there will be pressure to change those standards and procedures.

In this article, we assess the impact of ISA 13 on audit reports by seeking answers to questions such as: Has ISA 13 accomplished harmonization in that the audit reports worldwide are now more uniform than they were prior to its issuance? Has such harmonization been accomplished only in terms of the conformity of IFAC's member-countries' standards to ISA 13 (de jure harmonization) or has such harmonization also permeated audit-reporting practice to yield ISA 13 compliant audit reports (de facto harmonization)? The de jure/de facto distinction is important because the enforcement of auditing standards cannot be expected to be uniform across different countries. Moreover, some international auditing firms may have encouraged their multinational clients to adopt international standards even when their home countries may not have embraced those standards. We also examine the shifts in the groupings of countries, from the pre- to the post-ISA 13 regimes, derived from a statistical analysis of audit-report-characteristics data on 450 corporations from 33 countries. This analysis is important since earlier studies (e.g., Hussein et al., 1986) have shown the existence of coalitions (such as US-influenced countries, the British Commonwealth,

Continental Europe, and so on), and one consequence of international harmonization efforts is the realignment of countries in such coalitions.

In the next section, we discuss the importance of harmonizing auditing standards, especially the auditor's report and describe ISA 13. In Section 3, we present the empirical study. In Section 4, we provide concluding observations.

2. Importance of harmonization

In this section, we provide arguments as to why harmonization of audit reports is important, and briefly discuss the primary attempt at such harmonization in ISA 13. It is well known that the audit report is the primary means of informing users of financial statements about the results of the audit function (American Institute of Certified Public Accountants, 1978), that it enhances the credibility of the information in corporate financial reports (Jones & Karbhari, 1996), and that to be effective, the audit report should be clear, unequivocal, and comprehensive (Stamp & Moonitz, 1978). We offer at least three arguments why harmonization of the audit report assumes an even greater importance in an international setting: (1) information asymmetry, (2) information search, and (3) standard-setting costs.

2.1. Information asymmetry

Since the legal, regulatory, and business environments (including accounting and auditing) vary considerably from country to country, financial statement users will typically be more familiar with reports issued by domestic entities than those issued by foreign entities. This gives rise to information asymmetries between these two classes of financial statement users. Differences in the accounting and auditing standards as well as in the audit report exacerbate such information asymmetries (see, for example, Archer et al., 1989). Harmonization of the accounting and auditing standards in general and that of the audit report in particular help alleviate such information asymmetries. Harmonization, consequently, can lead to more efficient and effective allocation of resources in international capital markets.

2.2. Information search

Information asymmetry imposes search costs on all users of foreign corporate financial statements. Investors have to incur costs to investigate investment opportunities, and preparers have to incur costs to meet the credibility thresholds of capital suppliers from many countries. Often, such costs have to be borne by those least able to bear them, for example, firms from less developed countries. Harmonization reduces such costs.

2.3. Standard-setting costs

Developing standards is expensive, and in an international setting, the cost of communicating and educating the rest of the world on the reasonableness of such national standards

can be prohibitive. Such costs can impose an undue burden on both the suppliers and consumers of capital in the international markets. Harmonization of standards benefits both these classes in that it reduces the search costs for suppliers (often from the developed countries) and also reduces the standard-setting costs for consumers (often from the less developed countries). The general acceptance of international standards by many developing countries lends support to this argument.

2.4. Literature review

While the focus in accounting literature has been on the harmonization of accounting, three studies have dealt with the harmonization of the audit report. The first study, by Hussein et al. (1986), investigated the similarities and differences in the audit reports issued in 27 countries in the context of their conformity with the then exposure draft of ISA 13. They found differences between the audit reports of various countries. Based on those differences, countries in the study were clustered into five broad groups: US-influenced group (including Canada); the British Commonwealth (including the Netherlands, but excluding Canada); Austria and Germany; Italy and Spain; and the rest of Europe.

Archer et al. (1989, p. 79) compared the audit reports used in the annual reports of European multinationals and documented "considerable variations in audit report practice between countries, including EC member states, as well as certain reduction of variations." Finally, Jones and Karbhari (1996) compared the English language versions of 1989 reports in France, Germany, Japan, the Netherlands, the United Kingdom, and the United States. They also found considerable diversity across countries and some diversity within countries. While ISA 13 was not yet implemented at the time of the Hussein et al. (1986) study, for the other two studies, it was perhaps too premature to account for its impact so soon after its promulgation.

2.5. ISA 13: the auditor's report on financial statements

An exposure draft on the auditor's report was issued in February 1982 and ISA 13 was finally promulgated in October 1983. Motivated by the belief that "a measure of uniformity in the form and content of the auditor's report is desirable because it helps to promote the reader's understanding" (paragraph 3), the stated purpose of ISA 13 was "to provide guidance to auditors on the form and content of the auditor's report issued in connection with the independent audit of the financial statements of any entity" (paragraph 2). Since its issuance, ISA 13 has been revised twice (in 1989 and in 1993) to address issues related to the form of the audit report and to provide clarifications of the standard (IFAC, 1995).

The ISA 13 requires the auditor's report to include the following elements (paragraphs 3–13):

- Title: An appropriate title to help readers identify easily the report within an annual report.
- Addressee: The report should be appropriately addressed as required by the circumstances of the engagement and local regulation.

- The report should identify the financial statements that have been audited, including the name of the entity and the date and periods covered by the financial statements.
- The report should indicate the auditing standards or practices followed in conducting the audit. Unless otherwise stated, the auditing standards or practices are presumed to be those of the country indicated by the auditor's address.
- The report should clearly set forth the auditor's opinion on the presentation in the financial statements of the entity's financial position and the results of its operations.
- Signature: The report should be signed in the name of the audit firm, the personal name of the auditor, or both as appropriate.
- Auditor's address: The report should name a specific location, which is usually the city in which the auditor maintains his office.
- Report date: The report should be dated to inform the reader that the auditor has considered subsequent events about which he became aware up to that date.

An important feature of ISA 13 is that it requires the auditor to express an opinion on whether the financial statements give a true and fair view of the financial position of the entity. This requirement helps ensure that the information satisfies the need of the international users of financial statements. It describes four types of audit opinions that can be expressed by the auditor: unqualified, qualified, adverse, and disclaimer of opinion. It also discusses circumstances that may result in other than an unqualified opinion, which include limitation of scope, disagreement with management, and uncertainty. The appendices to the standard include suggested expressions for the different types of opinions. Although one can debate whether ISA 13 is the best standard to meet the needs of the international users of financial statements, it is the standard that IFAC member countries are expected to follow.

3. Empirical study

3.1. De jure harmonization

Promulgation of ISA by the IFAC usually sets in motion a process toward harmonization in all member countries by the affirmation of such standards by individual countries through amendment of laws or national standards. We call this de jure harmonization. On the other hand, we define de facto harmonization as the result of global economic and competitive forces that lead to following such international standards in practice.

The IFAC member organizations examine their current standards to determine what is required to bring them in harmony with the ISAs. Since the regulatory and professional environments vary from country to country, one would expect variations in the harmonization across IFAC membership. While it is perhaps more appropriate to measure harmonization at the level of practice as Tay and Parker (1990) have suggested, we consider an examination of de jure harmonization to be important since it sheds light on the seriousness with which IFAC members view the ISAs. While de facto harmonization is dictated by the competitive and economic considerations of international capital markets, de jure harmonization provides

insights into the political viability of the harmonization process. The importance of assessing the de jure harmonization is underscored by IFAC's survey of its members' adoption of ISAs (*IFAC Quarterly*, April 1999).[2] However, IFAC's survey does not report separately the level of harmonization of each ISA. As a result, one cannot tell from IFAC's survey which countries have adopted ISA 13. Hence, there is still information to be gained in reporting the de jure harmonization of ISA 13. Furthermore, reporting both de jure and de facto harmonization in the same paper gives the reader a more complete picture of the harmonization of the auditor's report.

The data for the de jure harmonization study were obtained by writing to IFAC member organizations in 86 countries and asking them whether:

- They have a standard on the auditor's report, and
- If they have a standard on the auditor's report, whether it is harmonized with ISA 13.

They were also asked to provide a sample of the model auditor's report as well as a copy of the current standard and/or regulation. The first survey was mailed in mid-1995. Forty-four countries initially responded to the survey. A second mailing was sent, in mid-1996, to the organizations that did not respond originally or when responses were not clear. The second mailing increased the number of responses from 44 to 50 countries (58% response). We classified the responses as either harmonized or not harmonized, based on Tay and Parker's (1990) definition of harmonization as "complete agreement or significant agreement." Some of the respondents did not answer the question on harmonization directly but sent us copies of their standards and/or a sample auditor's report. Some of the standards did not mention the international standard explicitly, but comparisons showed a high level of agreement with ISA 13. For example, the US is classified as harmonized because the AICPA includes the ISA in the same publication as its Professional Standards and provides a comparison between US standards and the international standards. A comparison between ISA 13 and US standards reveals no significant differences. On the other hand, Germany is classified as not harmonized because the statutory report is not harmonized with ISA 13. However, German auditors are allowed to report in accordance with the international standard. Therefore, if a German auditor takes advantage of such an opportunity, this is a case of de facto harmonization rather than a de jure harmonization. In one case (Belgium), we were not able to determine whether the country has harmonized or not, and classified it as "not known." The results are in Table 1. Eighty-six percent (43 of 50) of the responding countries have harmonized.

International standards are seen as more important to the developing countries where the poor quality of financial reporting may impede their ability to attract foreign investors. In assessing the problems facing international investors in Africa's stock markets, *The Economist* (1997, January 11–17, p. 67) observed: "Poor company

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[2] IFAC's survey results show that 28% of the 65 respondents adopt ISAs in total, another 43% use ISAs in developing their standards and have no significant differences, while the rest (29%) either have significant differences or have not identified the differences.

Table 1
De jure harmonization of the auditor's report

		Audit report standards in conformity with ISA 13?		
		Yes	No	Not Known
Does the country have audit report standards?	Yes	Australia, Bahrain, Bangladesh, Barbados, Canada,[a] Chile, China, Cyprus, Denmark, Finland, France, Greece, Hong Kong, Ireland, Israel, Jamaica, Japan,[a] Jordan, Kenya, Luxembourg, Malawi, Malta, Netherlands, New Zealand, Norway, Pakistan, Philippines,[a] Singapore, South Africa,[a] Spain, Sri Lanka, Sudan, Swaziland, Switzerland, Tanzania, Thailand, Trinidad and Tobago, United Kingdom, United States,[a] Venezuela, Zimbabwe	Austria, Germany,[b] Italy, Saudi Arabia, Sweden	Belgium
	No	Botswana, Nigeria	Egypt	(None)

[a] Harmonization implicit in the text of the standard or in the sample auditor's report.
[b] The law allows the auditors to issue reports in compliance with ISA 13.

reporting and weak accounting rules make matters difficult [for foreign investors]." For the developing and emerging countries, adopting international standards is a less costly alternative to developing their own standards. Twenty-five of the 27 developing countries that responded have harmonized. Among them are Nigeria and Botswana, which have no auditing standards of their own but have adopted ISA 13. We consider this evidence that developing countries find international standards a valuable resource for improving their accounting and auditing practices. Up to 86% of all respondents (and 93% among the developing respondents) have achieved harmonization with ISA 13. Thus, the conclusion that the current audit reports as required under the national standards are substantially harmonized is perhaps justified.[3]

3.2. De facto harmonization

While de jure harmonization of the audit report is important, the ultimate objective of harmonization is to bring about some measure of uniformity in accounting and auditing practice. In as much as the enforcement of standards is not uniform across countries, an analysis of the content of actual audit reports can provide important information about the

[3] Of the 36 nonresponding countries, 8 are from Africa, 10 from Asia and the Middle East, 14 from Latin America, and 4 from Europe. The high nonresponse from developing countries might have some impact on the survey results.

variability of enforcement and the level of conformity with the international standard. It is with this in mind that this part of the study was initiated.

The sample is comprised of audit reports in the annual reports of 450 companies from 33 countries found in the collections of The Center for Transnational Accounting and Financial Research (CTFAR) at the University of Connecticut and the Baker Library of Harvard Business School. Table 2 reports the number of companies from each country and provides industry and size data on the sample firms. The sample companies are large in terms of sales and assets, many of them are in manufacturing, with a smaller number in the financial and

Table 2
Sample description (1992/1993)

Country	Mfg	Fin	Svcs	Total	Mean sales (in US$ mil)	Mean total assets (in US$ mil)
Australia	7	2	2	9	2800	10,841
Austria	6	2	1	9	1959	11,422
Belgium	7	2	2	11	2489	5262
Brazil	7	2	1	10		
Canada	33	8	4	45	5706	8901
Denmark	4	3	1	8	1093	8143
Finland	2	1	0	3	1386	5494
France	14	3	2	19	4819	23,389
Germany	18	3	2	23	7571	19,221
Greece	4	7	0	11	623	7047
Hong Kong	3	6	2	11	563	5916
India	9	0	1	10	662	3416
Ireland	6	2	1	9	1622	5688
Italy	2	3	0	5	2897	5736
Japan	21	10	3	34	13,139	66,889
Korea	3	3	0	6	1705	11,888
Malaysia	8	1	2	11	369	1334
Netherlands	18	5	3	26	2295	12,760
New Zealand	7	2	1	10	971	2641
Norway	7	1	2	10	3037	5015
Singapore	4	2	4	10	446	3665
South Africa	13	1	1	15	1315	1997
Sweden	12	5	3	20	2546	12,019
Switzerland	3	4	2	9	2095	41,073
Taiwan	8	1	1	10	4252	6784
Thailand	5	4	1	10	864	3884
Turkey	1	3	0	4		
United Kingdom	29	6	2	37	3335	12,179
United States	13	1	3	17	4911	10,962

For non-US firms, their sales and total assets numbers were converted into US$ using the exchange rates prevailing at the financial statement dates. Foreign exchange data were obtained from the Federal Reserve Bank of St. Louis. Due to currency changes and/or highly inflationary environments, we are unable to convert data for firms domiciled in Brazil and Turkey.
Sales and assets for fiscal year 1992/1993.

service industries. The main criteria for the inclusion of a country in this study are that the country must be an IFAC member, and that the annual report collection contain at least two annual reports of two companies from that country. Also, at least one annual report each had to be in the collection for the pre-ISA 13 period (1983–1984) and the post-ISA 13 period (1993–1994). The reason for choosing the two dates was to compare the conformity to ISA 13 of reports issued a decade after its promulgation to those issued prior to ISA 13. We assume that a decade is sufficient time for the standard to be assimilated by the audit profession in the IFAC member countries.[4]

As might be expected, many of the annual reports were in languages other than English. International students enrolled in a full-time MBA (accounting concentration) Program translated the foreign language audit reports into English. The content audit reports was analyzed for conformity with ISA 13 by accounting doctoral students using a standardized form based on ISA 13 elements (see Appendix A). Each element in Appendix A is binary in that an audit report either has the element or does not (coded as 1 and 0, respectively). The total score is computed as the sum of all 1's. This score is then used as a measure of the extent of harmonization between an auditor's report and ISA 13. Both Hussein et al. (1986) and Archer et al. (1989) used similar measures.

3.3. Overall data characteristics

The comparison across countries is made simpler by the fact that a high percentage of corporations received an unqualified audit opinion. Of the 450 audit reports, 418 in pre-ISA 13 reports and 425 in post-ISA 13 reports included unqualified opinions. The majority of qualified opinions were due to the use of inappropriate accounting principles. Table 3 summarizes the data set in terms of the scores on the various elements of the audit report mandated in ISA 13. A comparison of the pre- and post-ISA 13 data reveals that the disclosure that "the financial statements are management's responsibility" increased from 0 to 157 reports, the disclosure that "the audit provides a reasonable basis for opinion" increased from 28 to 152 reports, and the number of audit reports that have separate introductory/scope/opinion paragraphs increased from 191 to 280 reports. Also, the use of the phrases "present fairly" or "true and fair view" has increased significantly in several countries: in Austria from zero to eight of nine reports, in Germany from one to 19 of 23 reports, in Italy from zero to two of five reports, and in Denmark from five to eight of eight reports. Only two countries (Sweden and Finland) did not use such phraseology in their audit reports. Apparently, the European Community's Fourth Directive mandating the use of such phraseology might have had an important role in this behavior in Austria, Denmark, Germany, and Italy. Finland and Sweden joined the EU in 1995 after the period of the study.

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[4] Another reason is that when we attempt to use more recent years for the post-ISA reports, we lose a significant number of firms in our sample because they have either been merged/taken over or went out of business.

Table 3
Analysis of individual elements in auditor's report

Item	Description	Pre	Post	Change
1.	Opinion	450	450	
Auditor's report:				
2.	Title	406	436	+ 30
3.	Addressee	313	322	+ 9
4	Report indexed	258	258	0
5.	Auditor's signature	442	446	+ 4
6.	Auditor's address stated	306	320	+ 14
7.	Date of auditor's report stated	439	447	+ 8
8.	Introductory, scope and opinion paragraphs separate	191	280	+ 89
Introductory paragraph:				
9.	Financial statements audited identified	261	255	− 6
10.	Entity audited identified	270	297	+ 27
11.	Period covered stated	323	326	+ 3
12.	Financial statements—responsibility of management	0	157	+ 157
Scope paragraph:				
13.	Reference to auditing standards followed	285	381	+ 96
14.	Audit provides reasonable basis for opinion	28	152	+ 124
Opinion paragraph:				
15.	Present fairly or true and fair view	357	397	+ 40
16.	Conformity with accounting standards	220	273	+ 53
17.	Conformity with the law	249	275	+ 26

3.4. Dispersion of total score and ISA 13

The primary aim of harmonization efforts, in the context of the audit report, is to bring about uniformity. Effectiveness of such harmonization efforts can be measured by the reduction in the dispersion of audit-report elements. We use the Kolmogorov–Smirnov (KS) test and the Wald–Wolfowitz (WW) test (Siegel, 1956) to test the null hypothesis that there is no difference in the dispersion of audit reports between the two regimes (pre-ISA 13 and post-ISA 13).[5] The KS test compares the two cumulative distributions for differences in the dispersions between pre- and post-ISA 13 audit reports, whereas the WW test uses the

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[5] Before performing statistical tests, we conducted tests for normality of data by computing skewness (symmetry around the mean) and kurtosis (steepness of the distribution around the mean) for the data set. The skewness measures for the total scores of both pre-ISA 13 and post-ISA 13 regimes are negative, revealing a high rate of conformity with the standard. The negative kurtosis measure for the post-ISA 13 total scores suggests a platykurtic distribution (i.e., a flatter distribution with fat tails). Since both test results indicate a departure from normality, we used nonparametric tests for testing the various hypotheses.
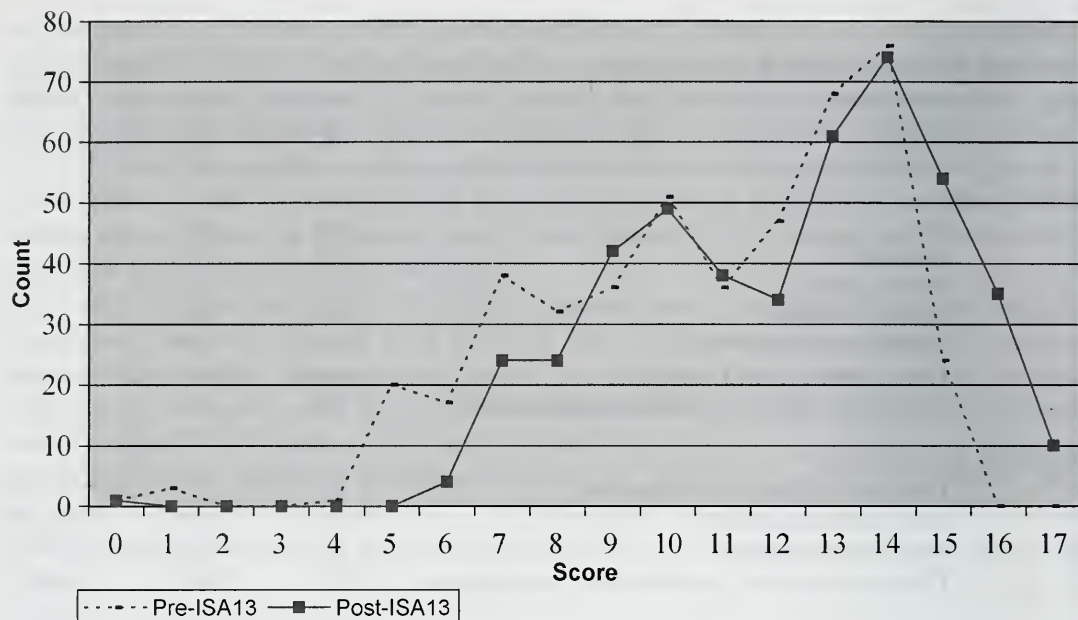
Fig. 1. Frequency distribution of firms pre- vs. post-ISA 13 scores. A score of 17 is a 100% agreement with ISA 13 (see Appendix A for the scoring form).

rank orders of the observations in the two samples to determine whether there is a difference in the dispersions. The null hypothesis that there is no difference between the two regimes is rejected by both the KS and WW tests ($Z = 3.33$, $P < .01$; $Z = 16.74$, $P < .01$, one-tailed, respectively). Therefore, we conclude that post-ISA 13 audit reports do differ from the pre-ISA 13 audit reports in terms of dispersion.

Fig. 1 provides a plot of the frequency distributions of the total scores for the pre- and post-ISA 13 regimes. It can clearly be seen from that figure that the distribution of scores has shifted to the right since the implementation of ISA 13, suggesting an increased conformity with the standard. There is ample evidence in our data set to suggest that the dispersion in the audit reports has changed since the implementation of ISA 13.

3.5. Pre-/Post-ISA 13 differences in conformity with ISA 13

If ISA 13 was successful in its harmonizing efforts, one would expect a larger number of audit reports to be in conformity with the standard for the post-ISA 13 regime. We tested the null hypothesis of no difference between the total scores of the two regimes using the Wilcoxon signed-rank test. This is more powerful than the sign test since it uses rank information as well (Daniel, 1990, pp. 38–39). A comparison of the pre- and post-ISA 13 pairs of audit reports of the 450 corporations from 33 countries shows a statistically significant difference (Wilcoxon signed-rank test statistic = 12.83, $P < .01$, two-

tailed) leading to a rejection of the null hypothesis. Also presented in Table 4 are country-specific comparisons. For 21 of the 33 countries, the differences between the pre-ISA 13 data and the post-ISA 13 data are marginally significant ($P < .10$). However, in cases of Greece and India, their pre-ISA 13 scores are higher than the post-ISA 13 scores. The countries for which the null hypothesis cannot be rejected all have a small number of firms in our data set (Finland with three, Italy with five, Turkey with four, and Spain with only two).

Table 4
De facto harmonization results

	Pre > Post	Post>Pre	Pre = Post	Total	$Z*$	P value**
Full sample	71	284	95	450	12.83	.0000
Non US	71	268	94	433	12.28	.0000
Australia	0	10	1	11	2.80	.00511
Austria	0	8	1	9	2.52	.0117
Belgium	2	9	0	11	1.51	.1307
Brazil	0	9	1	10	2.67	.0077
Canada	0	44	1	45	5.78	.0000
Denmark	3	4	1	8	0.68	.4990
Finland	0	1	2	3	1.00	.3173
France	7	6	6	19	0.94	.3454
Germany	1	18	4	23	3.70	.0002
Greece	8	1	2	11	2.13	.0330
Hong Kong	0	4	7	11	1.83	.0679
India	6	0	4	10	2.20	.0277
Ireland	3	7	0	10	1.84	.0665
Israel	2	8	0	10	2.34	.191
Italy	1	3	1	5	1.29	.2012
Japan	12	13	9	34	1.63	.1036
Korea	2	2	3	7	0.00	.9999
Malaysia	0	4	7	11	1.83	.0679
Netherlands	2	23	1	26	4.02	.0001
New Zealand	3	3	4	10	0.11	.9165
Norway	0	9	1	10	2.67	.0077
Pakistan	0	7	1	8	2.37	.0180
Philippines	0	10	1	11	2.80	.0051
Singapore	0	10	0	10	2.80	.0051
South Africa	0	15	0	15	3.41	.0007
Spain	0	2	0	2	1.34	.1797
Sweden	6	8	7	21	1.00	.3152
Switzerland	1	6	2	9	2.03	.0425
Taiwan	3	5	2	10	1.19	.2340
Thailand	3	2	5	10	0.41	.6858
Turkey	0	1	3	4	1.00	.3173
UK	6	16	17	39	2.78	.0055
US	0	16	1	17	3.52	.0004

* Based on the Wilcoxon signed-rank test.
** Two-tailed.

Table 5
Auditor's report harmonization and auditor type

Auditor type	Pre-ISA 13 mean rank	Post-ISA 13 mean rank
Big-6/8	243.89 (153)[a]	240.14 (284)[a]
Non-Big-6/8	216.03 (297)[a]	200.45 (166)[a]
Mann–Whitney U	19,907.5 (.0302) **	19,413.0 (.0017) **

[a] Number of observations.
** Two-tailed P value.

3.6. Big-6 audit reports conformity with ISA 13

The importance of the harmonization of the audit report to the large international accounting firms is well documented in the accounting literature. The requirements of large multinational corporations that usually engage large accounting firms for audit services, and the need to control audit costs (and standardization does reduce audit costs) provide unique incentives to the large accounting firms to influence as well as benefit from harmonization. It follows that the audit reports issued by the large (Big-6/8) accounting firms tend to be better harmonized relative to those of smaller accounting firms. We first segregated the data set by the type of auditor and tested the differences, using the Mann–Whitney U test, for the pre- as well as the post-ISA 13 reports between the Big-6/8 and non-Big-6/8 auditors. The results, in Table 5 show no difference between the two groups of auditors (Mann–Whitney U statistic = 19,908, $P < .03$) for the pre-ISA 13 and (Mann–Whitney $U = 19,413$, $P < .01$) post-ISA 13 data.

While the above results are significant, our data set includes inconsistencies. We examine the audit reports at two different dates and the audit reports for any company at those two dates may be issued by different accounting firms. To account for such inconsistencies, we analyze the data set considering four cases: both pre- and post-ISA 13 reports by Big-6/8 auditors, both pre- and post-ISA 13 reports by non-Big-6/8 auditors, audit reports with switches from a non-Big-6/8 auditor in the pre-ISA 13 period to a Big-6/8 auditor in the post-ISA 13 period, and finally, the audit reports with switches from a Big-6/8 auditor in the pre-ISA 13 period to a non-Big-6/8 auditor in the post-ISA 13 period. We tested the null hypothesis (of no difference between pre- and post-ISA 13 data) for these four cases using the Mann–Whitney U test. The results indicate significant differences between pre- and post-ISA 13 data for all the cases except for the corporations that switched from a Big-6/8 auditor in the pre-ISA 13 regime to a non-Big-6/8 in the post-ISA 13 regime. The data set provides some evidence that the large accounting firms, with substantial stakes in the harmonization efforts, issue auditor's reports that adhere closely to IAS 13.

3.7. Clustering of countries by audit report characteristics

The process of harmonization in accounting and auditing takes place in a political environment where cultural and economic influences exert pressures on countries to form

blocs of similar practice, a fact widely accepted in the accounting literature (see Nobes & Parker, 1998). One can therefore expect to observe a reduction in the diversity of practice as well as the movement of countries from bloc to bloc depending on their economic, trade, and cultural attributes. Our results in the earlier sections in this paper indicate a measure of success of the harmonization efforts in bringing about a reduction in the diversity of practice. In this section, we analyze our data set to explore the dynamics of clustering of countries from pre-ISA 13 to post-ISA 13 regimes.

Hussein et al. (1986) examined corporate audit reports issued during pre-ISA 13 years in terms of their conformity with the ISA 13 exposure draft. They found three primary clusters of countries: the British Commonwealth, Continental Europe, and US-influenced countries. That study further concluded that there were substantial differences within the European group, to support viewing Italy and Spain on the one hand and Germany and Austria on the other as distinct groups within Europe. Since that study was conducted before the promulgation of ISA 13, it did not assess the harmonization of the audit report after the issuance of ISA 13. In this study, since we had information on audit reports at two different dates (pre- and post-ISA 13), we subjected our data set to statistical analysis to derive the cluster structure. For the rest of this paper, we discuss the results of this analysis.

In this study, we performed divisive clustering[6] using DIANA[7] and confirmed the results using agglomerative clustering.[8] The results of divisive clustering in DIANA, like those of other hierarchical clustering methods, are usually displayed in the form of dendrograms. A dendrogram shows graphically the order in which the cluster division takes place, as well as the diameter of the clusters. The results are summarized in a "divisiveness coefficient" (DC). The DC measures the strength of support for the cluster hypothesis, and is measured on a

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[6] There are basically two kinds of hierarchical clustering methods: (1) *agglomerative methods*, which start with data points as individual clusters and then successively derive larger clusters by grouping such basic data points based on the measures of similarities/dissimilarities, and (2) *divisive methods*, which at the outset treat the entire set of data points in the data set as a single cluster and then successively divide it into smaller clusters by separating data points which are least similar (or most dissimilar). Studies in the social sciences typically confirm the results of one method, say divisive clustering, using another method, say agglomerative clustering. Divisive methods that employ complex clustering algorithms are computationally very intensive. Therefore, until recently, they have not been very popular in spite of their attractive features. However, the increased sophistication of computer hardware and software has made divisive clustering viable and, in fact, attractive (Kaufman & Rousseeuw, 1991).

[7] Based on the divisive clustering algorithm of McNaughton-Smith et al. (1964) described in Kaufman and Rousseeuw (1991) and implemented in the exploratory data analysis language S-Plus (Venables & Ripley, 1996). Divisive clustering is attractive because of the natural interpretation of coalition formation in the political arena provided in Kaufman and Rousseeuw: the algorithm proceeds the way a political party might split due to inner conflicts; the most discontented member leaves the cluster and starts a splinter group, others follow suit until an equilibrium is attained. This is implemented by identifying the most discontented member as the one whose average dissimilarity with the rest of the members in the group is the highest.

[8] We used the agglomerative nesting algorithm of Kaufman and Rousseeuw (1991) as implemented in the program AGNES in S-Plus.

Clustering tree of diana (tot80data.matrix)
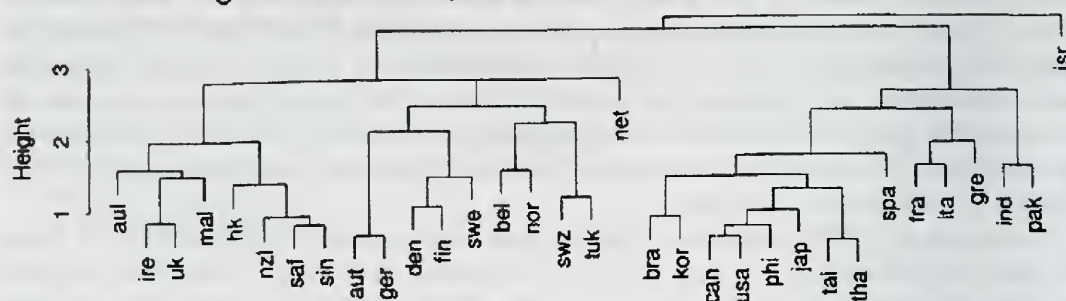
Clustering tree of diana (tot90data.matrix)
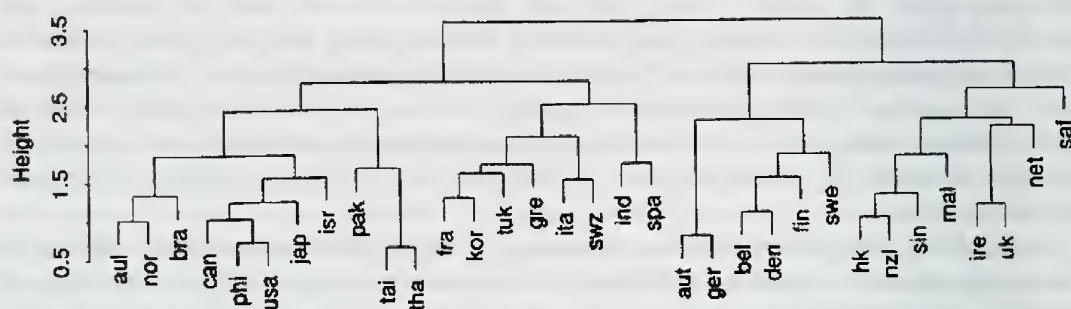
Fig. 2. Clustering trees for total scores.

scale that lies between 0 and 1. The closer a DC is to 1, the greater is the strength of support for the cluster hypothesis. Kaufman and Rousseeuw consider a DC of 0.6 for analysis using DIANA to be good support for the cluster hypothesis in the social sciences. In the natural sciences, where the clustering is determined by natural laws, such coefficients are usually larger.

For each element of the audit report and for each country, we computed the percentage of conformity with ISA 13. An element was considered in the analysis only if at least one country was different (i.e., not all countries were fully conforming or fully nonconforming to ISA 13 for that element). Based on this cluster analysis, the DC's are 0.66 versus 0.63 for the pre- and post-ISA 13 regimes, respectively. This suggests relatively fewer cohesive clusters in the post-ISA 13 regime compared with the pre-ISA 13 regime.[9] This observation provides a measure of support for the hypothesis that the

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[9] Hierarchical clustering is a non-deterministic procedure and not based on any statistical assumptions, and therefore there are no statistical tests of significance for the divisiveness coefficients. However, as we have stated before, the higher the DC, the higher the support for cluster hypothesis.

Table 6
Divisive clustering results for the total score of audit report elements

Group or movement	Countries
Core British Commonwealth (BC) group	Ireland, United Kingdom, Malaysia, Hong Kong, New Zealand, South Africa, Singapore
Core US-influenced group (US)	Brazil, Canada, United States, Philippines, Japan, Taiwan, Thailand, Pakistan
Core European group	Austria, Germany, Belgium, Denmark, Finland, Sweden, Switzerland, Turkey
Moved BC group to US group	Australia
Moved US group to a separate group	Korea, Spain, France, Italy, Greece, India
Moved European group to US group	Norway
Outliers moved to US group	Israel, Netherlands

old-fashioned clustering of countries around geopolitical areas may be slowly breaking down, a precondition for harmonization.

Fig. 2 shows the dendrogram results of cluster analysis using DIANA for the total score of the audit report for both pre-ISA 13 (tot80data.matrix) and post-ISA 13 (tot90data.matrix) data. It can be seen from the dendrogram results for pre-ISA 13 data that at an appropriate height in the hierarchy, say 2.6, there are three clusters consisting of British Commonwealth (Australia, Ireland, United Kingdom, Malaysia, Hong Kong, New Zealand, South Africa, and Singapore), Europe (Austria, Germany, Denmark, Finland, Sweden, Belgium, Norway, Switzerland, and Turkey), and the US-influenced group (Brazil, Korea, Canada, United States, Philippines, Japan, Taiwan, Thailand), and a number of countries who were classified in different groups in earlier studies (Hussein et al., 1986), viz., Spain, France, Italy, Greece, India, and Pakistan. The Netherlands and Israel are clearly outliers.

Based on the clustering results in Fig. 2, we identify in Table 6 core countries for the three groups (British Commonwealth, US-influenced, and European). Core countries are defined here as those that did not change clusters from pre-ISA 13 to post-ISA 13 regime. As can be seen from Table 6, the significant movements are of Australia to the US-influenced group (from the British Commonwealth), Norway from the European group to the US-influenced group, and the move to a new group (separate but closer to the US group than to any other group), of countries (Korea, Spain, France, Italy, Greece, and India) whose classification for the pre-ISA 13 regime differed from that of earlier studies in Hussein et al. (1986), as can be visualized from the dendrograms in Fig. 2.

To summarize the clustering results, we find some weak support for a gradual breakdown of the pre-ISA 13 clusters as evidenced by a reduction in the DCs from 0.66 to 0.63. We also find, at the level of audit reports as a whole, some support for movement of some countries (especially Australia and Norway to the US-influenced group, and the movement of outliers, Israel and the Netherlands, also towards the US-influenced group).

This result seems justified in light of the dynamics of international political and trade relations.

4. Concluding observations

In this paper, we attempt to determine whether there is an association between the ISA 13 and the harmonization of the audit report standards and the audit reports issued, by surveying IFAC members and analyzing the audit reports of 450 companies from 33 countries at two different points in time, pre- and post-ISA 13. Eighty-six percent of the member countries who responded have harmonized their audit-reporting standards to ISA 13; the percentage is even higher (93%) for developing countries. The analysis of audit reports suggests greater conformity with the ISA 13 for the post-ISA 13 regime. However, when we compare the audit reports issued by Big-6/8 firms with those issued by non-Big-6/8 firms, we find lower levels of harmonization for firms that switched from Big-6/8 auditors to non-Big-6/8 auditors. This, in our view, reflects the role that the large accounting firms play in the harmonization of the audit report. Cluster analysis was performed to see whether the groupings found in the Hussein et al. (1986) study have been impacted by ISA 13. The results suggest less cohesive cluster structure for the post-ISA 13 reports. Based on this analysis, we conclude that the harmonization of the audit report has increased since the issuance of ISA 13.

Harmonization is influenced by many factors. For example, the EC's Fourth Directive and the increasing rate of global capital market activities may also have enhanced the increased harmonization of the auditor's report. However, the presence of an international organization (IFAC) makes harmonization more efficient by reducing duplication of efforts. Furthermore, it provides a valuable service to developing countries that may not have the resources to develop their own accounting and auditing standards.

Finally, the paper uses data from several sources, and employs a number of statistical techniques, including cluster analysis. We hope these will be useful to researchers of accounting and auditing harmonization.

Acknowledgements

Appendix A. Summary of form for scoring extent of harmonization with ISA 13

Name of Company_____
Country_____
Year of Annual Report_____
Sales_____
Assets_____

Auditor's Name_____	International Firm	[ ]
	Domestic Firm	[ ]

1.   Opinion*   [ ]

Auditor's Report:
2.   Title   [ ]
3.   Addressee   [ ]
4.   Report Indexed   [ ]
5.   Auditor's Signature   [ ]
6.   Auditor's Address Stated   [ ]
7.   Date of Auditor's Report Stated   [ ]
8.   Introductory, Scope & Opinion Paragraphs Separate   [ ]

Introductory Paragraph:
9.   Financial Statements Audited Identified   [ ]
10.   Entity Audited Identified   [ ]
11.   Period Covered Stated   [ ]
12.   Financial Statements – Responsibility of Management   [ ]

Scope Paragraph:
13.   Reference to Auditing Standards Followed   [ ]
14.   Audit Provides Reasonable Basis for Opinion   [ ]

Opinion Paragraph:
15.   Present Fairly or True and Fair View   [ ]
16.   Conformity with Accounting Standards   [ ]
17.   Conformity with the Law   [ ]

Note:
    * Types of opinions include unqualified, qualified (inappropriate accounting method, inadequate disclosure, and scope limitation) disclaimer of opinion, and adverse opinion.

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The effect of cash flow statement format on lenders' decisions

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Abstract

This study investigates bank loan officers' use of financial information and reports, in particular, cash flow information and the statement of cash flow (SCF), in making lending decisions. Subjects were drawn from four groups of frequent users of financial reports–bank loan officers, auditors, financial analysts and accounting academics. Each subject was presented with the annual reports of two loan applicant companies to make two independent lending decisions based on the information provided. The SCF of one of the companies was presented in the direct format, while the other was presented in the indirect format. The indirect format of SCF was used as a surrogate for the funds flow statement. Results show that, while cash flow was the second most used financial information, the majority of the subjects obtained this information from financial statements other than the SCF, notably, the balance sheet. In terms of financial report usage, notes to the financial statements, rather than the SCF, was most frequently used. No subject made use of the incremental information provided in the SCF presented in the direct format. The results suggest that loan officers do not use the cash flow information provided by the SCF, but rely on the accounting information provided in the FFS and accrual-based financial reports.
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1. Introduction and objective

In this paper, I present the findings of a study on the usefulness of the statement of cash flows (SCF) in lending decisions, and whether the decisions are affected by the information provided by the two different methods of SCF presentation.

Financial reports provide information to help present and potential investors, creditors and other users in assessing, among other things, cash receipts from dividends, interest and proceeds from the sale, redemption or maturity of securities and loans. Financial statements have evolved to include a SCF, which, in many developed countries, displaced the statement of changes in financial position (FFS). The displacement was viewed as necessary for several reasons: (a) to create an obscure connection between income and cash flows for the average user; (b) to allow the term "funds" flow to mean several types of flows, including cash flow; and (c) to accommodate the general ambiguity of the purpose or use of the statement (Heath, 1978; Ketz & Kochanek, 1982; Sorter, 1982). At the same time that standard setters and regulators were beginning to listen to the concerns of financial statement users about the ambiguity of the FFS, academic researchers (Donleavy, 1992; Maness, 1989; Staubus, 1989) examined these concerns. Others (e.g., Emmanuel, 1988; Mahoney, Sever, & Theis, 1988; Zega, 1988) provided evidential support showing the superiority of the "cash flow" statement over the "funds" flow statement in terms of data reliability and usefulness.

SCF is of direct relevance for specific decisions in the commercial lending area (Basu & Rolfes, 1995; Boyd, 2000/2001; Clarke, 1996; Egginton, 1982; Foster, 1986). Therefore, the change in the presentation from FFS to SCF should be meaningful to commercial loan officers because they need to perform additional steps to convert FFS to arrive at the net cash flow from operations.

The objective of this study is to evaluate the extent to which commercial loan officers rely on the information provided by net funds from operations while ignoring the information provided by net cash flow from operations, which could convey the extra information. This leads to the first hypothesis tested in this study. If decision-makers ignore the additional information conveyed by the SCF, is it likely that some decision-makers make the adjustment from FFS to SCF? If so, does this cognition leads to their making different decisions? The two hypotheses tested in this study are:

Hypothesis 1: Commercial loan officers ignore the information in the SCF that is incremental to that in the funds flow statement.

Hypothesis 2: Cognitively converting from the funds flow statement to cash flow affects the decisions made by commercial loan officers.

The question of interest in this study is whether the form of reporting affects the evaluation made by commercial loan officers. Thus, the task consists of asking loan officers to examine client financial information, assess cash flow objectives and recommend a loan. The variable manipulated in the study is the form of reporting–FFS or SCF. To accomplish the objective of this study, internal validity must be ascertained so that the changes in the loan decision are attributed to the change in the explanatory variable (FFS or SCF). Therefore, subjects were

asked to "think aloud" so that a verbal protocol analysis could be performed to establish the causal links between the explanatory variable and the decisions made (Bouwman, 1985; Ericsson & Simon, 1984, 1993). This methodology should illuminate the reasoning process used by the subjects in making their choice of accounting variables and ultimately, the action they decide to take.

2. Literature review

The literature of relevance in this study relates to the use of the SCF, an issue of concern to accounting standards and users: specifically, commercial loan officers' use of cash flow information in lending decisions.

2.1. Research on cash and funds flow statements

The evolution of the funds statement can be traced from the end of the last century through the issuance of Opinions of the Accounting Principles Board (APB) 3 and 19 to the publication of SFAS 95 in 1987.

The funds flow statement existed in a primitive form prior to AICPA's official pronouncement on the funds statement. APB No. 3 (1963) recommended the Statement of Sources and Application of Funds as supplementary information in accounts, but it did not give a clear definition of the statement and its usefulness, nor did it make the statement mandatory.

As an attempt to rectify the confusion brought about by APB 3, APB 19 mandated the statement of funds flow, or FFS, in 1973. APB 19 (paragraph 8) stated that the FFS "should be based on a broad concept embracing all changes in financial position." It required that any changes in the working capital component had to be reported as a source or use of funds (paragraph 15), and also required the disclosure of financing and investing activities without netting or combining (paragraph 13). APB 19, however, was also the target of criticism because it inadequately defined the term "funds" and did not provide clear objectives for the statement (Bryant, 1984; Clark, 1983; Ketz & Kochanek, 1982; Swanson & Vangermeersch, 1981).

In 1981, the FASB issued an exposure draft proposing a cash to a working capital focused FFS. And, in 1982, APB issued a statement that allowed companies to change from a working capital to a cash basis FFS without requiring a qualified audit report for breach of the consistency principle. The increased use of the cash flow format for the FFS and the lack of comparability between the working capital basis of funds flow and cash flow during the early 1980s acted as the primary forces that brought about the FASB exposure draft on the SCF in July 1986 and SFAS 95 in November 1987.

Under SFAS 95, there are two methods of presenting the SCF. The direct method requires the disclosure of major components of cash flow from operations, while the indirect method allows the netting off of many items but focuses on the difference between net profit and cash flow. Most countries' accounting standards recommend the direct rather than the indirect format of the SCF presentation but allow the use of either approach (United States, SFAS 95; Canada, CICA 1540; United Kingdom and Ireland, FRS 1 and FRED 10; Hong Kong, SSAP

15; International Standards, IAS 7; among the others). As the indirect method requires no more recording or ledger manipulation than that is provided in ordinary accounting systems, it is used in countries where the direct method is not mandatory.

Many researchers favored the direct approach and criticized the indirect format as indistinguishable in any important respect from the FFS. Drtina and Largay (1985) demonstrated that cash flow from operations calculated by the indirect method is, at best, an estimate of actual cash provided by operations, and Heath (1978) recommended that firms be required to report cash flow from operations using the direct method. On the other hand, various studies have failed to find general support that the cash flow information in the SCF provides incremental usefulness to the FFS (Bowen et al., 1987; El Shamy, 1989; Jacob, 1987; Jennings, 1990; Rayburn, 1986).

In a recent study, Boyd (2000/2001) examined how to use the SCF to improve credit analysis. He distinguished the information on a company's operating activities provided under the accrual and the cash basis of accounting, i.e., the income statement and the SCF. Cash flow from operations, he said, can give the analyst a better understanding of the quality of the firm's earnings, and is generally subject to less distortion than net income. He also considered reporting income on an accrual basis to provide a superior method for measuring profit than does the matching of operating cash receipts and payments, and that the cash effects of earning activities provide useful information to the financial analysts. The latter is provided in the section on operating activities of the cash flow statement. Boyd described the direct method as approaching the income statement from top to bottom, by making adjustments beginning with revenues and then expenses, working its way down the income statement. The indirect method approaches the income statement from the bottom, making adjustments to net income. "Regardless of the method used, the end result is the same. Both approaches aim to answer the question: How was cash generated and used?" (Boyd, 2000/2001). Of the two methods of preparing the SCF, Boyd preferred the direct method. Boyd did not investigate whether credit analysts actually use the quality information provided by the SCF, and whether the preference of the direct over the indirect method is justified.

2.2. Research on lending decisions and verbal protocol analysis

This study examines commercial bank lending decisions. Compared to other loan officers (mortgage and personal loans), commercial loan officers make more sophisticated use of financial statements. They focus on the "five Cs," character of management, credit worthiness, cash flow, credit history and collateral, to assess a would-be borrower's ability to repay debt. Some of the processes that commercial loan officers adopt in making this assessment involve ratio analysis, analysis of cash flow sources and analysis of the firm's plans for using the proceeds from the loan (Basu & Rolfes, 1995; Clarke, 1996; Egginton, 1982; Fisher, 1982). Bernstein (1993) argues that cash flow analysis has three objectives: (1) to supplement the statistical measure used to assess short-term liquidity by means of a short-term cash flow forecast; (2) to analyze the SCF in order to assess the implications of sources and amounts of cash on solvency (i.e., long-term cash flows); and (3) to discern cash flow patterns over time.

Few studies investigated the use of cash flow information by the lending profession using the verbal protocol analysis method. Stephens (1980) examined how financial statement information was used in bank lending decisions. His research had two purposes: (1) to study whether and how bank lending officers use financial-statement information to provide data for those concerned with setting accounting standards and (2) to increase the scope of decision process research. Both the Delphi panel approach and the verbal protocol analysis method were used.

The protocols supported the findings of the Delphi panel study that bank lending officers: (1) make initial determinations of information adequacy operationalized as "properly prepared" financial statements; (2) exhibit a lack of preference between presently acceptable inventory valuation and depreciation methods; and (3) exhibit a lack of preference for inflation-adjusted financial statements.

Reither (1994) examined the decision processes of bank lending officers as they evaluated the financial information of a loan applicant. The use of the SCF under SFAS 95 was specifically studied. Eight subjects, four senior credit analysts and four loan officers from two Dallas banks, were presented with a package containing the financial information and other pertinent data of a commercial applicant applying for a working capital loan.

Results show no significant patterns emerged to signify that lenders used cash flow information in any standard way. Only one subject failed to refer to or use the SCF during the decision process. Of the seven subjects that used the SCF, only two recalled that information during their final decision phase. One major finding is that lenders are not using SFAS 95 cash flow information in conjunction with other financial statement data. The lenders did not compute any ratios incorporating cash flow data with itself or with other financial variables. The banks' software systems did not provide any ratios incorporating cash flow data. It seems that the SCF is being regarded as an independent financial statement.

3. The task

3.1. Subjects and instrument

While the subject of this study is to examine the decision-making process that goes into the granting of a loan, the demands that verbal-protocol analysis (our method) imposes on loan officers' time limited the number of commercial loan officers participating in the study. Accordingly, other financially sophisticated users are also used as subjects. A total of 20 commercial loan officers, financial analysts, academics and auditors participated in the study, five from each group. Each subject examined the annual reports of two firms applying for loans, one firm reporting SCF and another firm reporting FFS. Thus, verbal protocol was used to examine a total of 40 lending decisions.

The subjects who assumed the role of loan officers in this experiment are residents of Hong Kong and are expected to be knowledgeable of the firms listed on the Hong Kong Exchange. To avoid biasing the subjects' responses by prior knowledge, the two client firms chosen to apply for commercial loans are from New Zealand and South Africa. There are several reasons why this choice was made. First, both New Zealand and South Africa follow

accounting standards similar to International Accounting Standards, which is consistent with the Hong Kong system. Second, these firms are unknown to the participating subjects, so their knowledge of these firms as loan clients was limited to the information provided to them. Third, the annual reports prepared by firms in New Zealand and South Africa are more elaborate and provide more detailed disclosures than the annual reports of a comparable firm in Hong Kong. Finally, and more important, firms in New Zealand and South Africa follow different methods in reporting cash flows. South African standards allow the use of either the direct or indirect method of presenting the cash flow statement (AC 118, 1996), although the indirect method of cash flows is more frequently used for reporting. In contrast, accounting standards in New Zealand mandate the use of the direct method of presenting the cash flow statement (SSAP 10, 1987; FRS-10, 1992). The instrument, therefore, consisted of financial statements with different methods of presenting cash flow: the direct method for the firm from New Zealand and the indirect method for the firm from South Africa.

3.2. The experiment

The participants who acted the role of commercial loan officers were given actual, unaltered, financial statements as attachments to the loan applications. Each participant was given the experimental instrument in his office, which allowed each subject to talk aloud without influencing the decisions of others. Before beginning the task, the method of verbal protocol analysis was explained to the subjects. The use of tools such as calculators, personal computers and other reference materials were allowed during the experiment. Additionally, questions about the process were allowed. The researcher operated a tape recorder at each of these 20 settings and prompted the subject to resume "thinking aloud" if he/she remained silent for more than a few seconds. The researcher also took notes of any activity that might not be vocalized, such as which financial report was being used at the time or when a different report was consulted to seek other data.

No time constraint was imposed; the subjects were told to take as much time as they needed to reach a decision with which they would be comfortable. On average, the subjects used about 90 min to complete the analysis and make a decision.

3.3. Coding the protocols

The integrity of the coding process is essential for successful analysis of the verbal protocol. Thus, all recorded "thoughts" are coded in a meaningful way prior to analysis. Following the recommendation of Ericsson and Simon (1984) and Todd and Benbasat (1987), a coding procedure was developed prior to conducting the experiment and then all the verbalized thoughts were strictly analyzed according to that coding scheme. This process avoids contaminating the coding procedure with ex post knowledge of the results. Except for making adjustments to accommodate the nature of the lending task, the coding scheme used in this study is consistent with that used in prior studies (Biggs & Mock, 1983; Bouwman, 1983; Klersey & Mock, 1989). The coding scheme (reported in Appendix A) allows for the identification of (a) a component of financial reports (e.g., accounting policies, divisional or

segment report, notes to the financial statements); (b) a component of nonfinancial reports (e.g., auditor's report, the CEO's report or report to shareholders); (c) a particular information cue (e.g. current ratio, net income numbers. . .); and (d) missing or bewailing cues, (i. e., unavailable cues that subjects inquired about. Missing or "negative" cues are technological or intangible factors not evident in the body of the financial reports. Bewailing cues represent information that the subjects considered important and useful to their making loan decisions but were not provided in the financial reports. These cues help evaluate the validity of the study. Clustering these cues provides an indicator of the degree to which the instrument was adequate for the task.

Because coders assume that the simple inferences they make from listening to the verbal protocol are equivalent to the inferences intended by the decision-makers (Ericsson & Simon, 1984), the quality of coding is crucial. To ensure that such inferences are harmonious, two research assistants were given the coding schemes and asked to code each of the 40 cases independently. The quality of coding is judged by the extent to which these two independent coders arrive at the same inferences about all the verbalizations. To assess intercoder reliability, the κ coefficient of concordance (Cohen, 1960) was estimated using the results of the two coders. A coefficient value of .664 was obtained for this study, which compares favorably with the concordance results obtained in prior verbal protocol studies. Coding differences were discussed with the two coders and most were resolved between them without interference from the researcher. The researcher intervened only on those items that the two coders could not agree on. The reconciled data were used for the analysis that follows.

4. Results and discussion

4.1. Information cues

The information cues used by all participants are disclosed by type in Table 1 and by function in Table 2. A total of 10,837 information cues were captured in the verbal protocols. To reduce these to a more manageable number, information cues with low frequencies (under 1.5% of the total information cues) and those that were more or less similar were combined under one common name. This resulted in reducing 6731 cues to 89. The 89 cues are grouped under the name of "others," a partial listing of which is shown in Table 1. Only four cues under "others" were marginally over 1.5% in usage: "company," "financial statement/accounts," "forecast data" and "management buyouts" (MBO).

Panel A of Table 2 shows that "business/industry" and "cash flows" are the two most used information cues.

4.2. Comparing the use of various reports

4.2.1. The reports
The most used report is notes to financial statements (notes), which accounts for 14.3% of the total reports used (Table 2, Panel B). The balance sheet ranks second at 12.2% and is followed by divisional or segmental reports at 11.6%. SCF ranks fourth at 10.7%.

Table 1
Partial listing of information cues, "others"

Information item codes	Definition	Frequencies
FS	Financial situation	29
GG	Geography/country	162
GO	Growth/growth rate	98
GR	Gearing	106
GW	Goodwill	34
IC	Interest cover/coverage ratio	86
IF	Inflation	104
IM	Information	140
IR	Interest rate/lending rate	68
IS	Interest expense	70
IV	Inventory/stock	77
LA	Layout/format/structure	82
LB	Liabilities	103
LE	Leasing	21
LF	Liquid fund	74
LI	Listed	37
LS	Loss	64
MA	Macro/international/global	9
MB	MBO	226
MP	Management policy	32
NC	Net cash generated from operations	131
NI	Net income/net profit	111
NK	Economy	97
NO	Notes	45
OE	Operating expenses	15
OG	Organization structure/chart	13
OL	Operating leases	6
OP	Operation/operating	30
OR	Operating revenue/income	23
PC	Price/product price	86
PD	Product/new product	139
PE	Pension	23
PL	Profit/loss	43
PM	Profit margin	233
PN	Production	27
PT	Parent company	48
RI	Ratio	107
RK	Risk	128
RS	Return on shareholders' fund	66
SA	Shareholder/stockholder	139
SB	Short-term borrowing	91
SC	Security	155
SG	Segmental information	69
SH	Share/stock	145
SI	Shareholder's interest	50
SO	Stock offer/share offer	26

Table 1 (*continued*)

Information item codes	Definition	Frequencies
ST	Stock	11
SU	Subsidiaries	108
SV	Saving	1
TE	Technical	10
TT	Trend	55
TX	Tax	71
VU	Valuation	138
WC	Working capital	26
XR	Exchange rate	131
Total		6731

Table 2 (Panel C) shows that the subjects referred to the SCF as the major source of providing cash flow information. The balance sheet and notes were also used for cash flow information. (The revelation that the subjects used other financial reports to obtain cash flow information is possible because verbal protocol analysis was used.) Panel C shows that the subjects in 27 of the

Table 2
Information cues and reports used by participants (partial)

Panel A: Information cues used		
Information cues	Frequency	%
1. Business/industry	825	7.6
2. Cash flows	360	3.3
3. Executive directors	330	3.0
4. Market	260	2.4
5. Long-term debt	241	2.2

Panel B: Financial reports used		
Reports	Frequency	%
1. Notes to financial statements	835	14.3
2. Balance sheet	712	12.2
3. Divisional/segmental reports	679	11.6
4. Statement of cash flows	605	10.7
5. Long range, comparative summaries	441	7.5
6. Income statement	436	7.5

Panel C: Reports used to obtain cash flows information	
Report	Cases
Statement of cash flows	27
Balance sheet	19
Notes to the financial statements	16
Long range, comparative summaries	11
Income statement	3

40 lending decision cases used the SCF. This does not mean that the subjects in these 27 cases made use of the SCF report exclusively, i.e., they read or looked at the SCF during their review of the financial reports. The subjects of the 13 cases that did not use the SCF were from all four professional groups: five from CPA, three each from bank loan officers and financial analysts, and two from accounting academics. Other reports from which cash flow information was obtained are the balance sheet, notes, long-range summary reports and income summary. Among these, the balance sheet and notes were used in 19 and 16 of the cases, respectively.

4.2.2. The protocols

An examination of the protocols confirms the results in Table 2 (Panel C) discussed above. For example, rather than utilizing the SCF, one bank loan officer noted the increase in borrowing from the company's balance sheet and inferred that had increased interest expenses. In processing another company's accounts, the same subject obtained information on investment in a subsidiary, cash from borrowings and net cash increase/decrease from the notes. Another loan officer obtained cash flow information from the balance sheet through changes in working capital, borrowings and acquisitions, equity structure, share issuance and reserves. Similarly, one financial analyst explored the balance sheet for debt position, cash, liquidity and depreciation to determine the cash position of the two borrowing companies. Another financial analyst commented "...awful cash position" while reviewing the balance sheet portion in the company's long-range summaries report, revealing that he was extracting cash flow information from the balance sheet.

Results from the information cues, reports and protocols confirm that the subjects turned to other financial reports, in particular, the balance sheet and notes to extract cash flow information. They also indicate that the subjects cognitively converted the information provided in these reports to the cash flow information they required.

The indirect format of SCF was a surrogate for the FFS in this study. In the experimental materials, the title or label of the SCF of the South African company (presented in the indirect format) was changed to read "funds flow statement." This was to find out if the subjects noticed the difference in the two reports (FFS and SCF) presented to them. The protocols showed that only one of the subjects noticed the name change, but did not question or investigate the reason; nor did he check to see if the statement was indeed a FFS. In addition, none of the subjects made use of the extra information provided in the cash flows from operations part of the SCF (presented under the direct format).

Hypothesis 1 suggests that commercial loan officers ignore the information in the SCF that is incremental to that in the statement of funds flow. The subjects' failure to distinguish between the FFS and SCF and use the extra information provided in the cash flow from operations part of the SCF confirms Hypothesis 1 as correct.

4.3. Missing (bewailing) cues

Bewailing or missing cues are those information cues that the subjects requested but were not available in the materials provided. The verbal protocol method enabled the capture of these missing cues. The researcher infers that the subjects placed a value on these missing

Table 3
Missing (bewailing) cues related to cash flow information

Group subject		Information required	Reports being reviewed
1	A2	Future investment information	Directors' report
	B3	Cash flows projection	
	C5	Investment and future operations	SCF
	F3	Pro-forma cash flows reports	
	F4	Cash flows model or spreadsheet	
2	A5	Cash flows performance	Chairman's report
	B3	Whether money from property market was used to redeem liabilities or pay dividends	Notes
	B4	Detailed cash flows information	
	C3	Overall generation of cash	Balance sheet
	F2	Debt position	SCF
	F3	Breakdown of investment in subsidiary to show the amount of cash paid	Accounting policies

A = Accounting academics, e.g., A2 is participant 2 from accounting academics; B = bank loan officers; C = CPA or auditors; F = financial analysts.
Group 1 shows cash flow information considered by the subjects as useful, but such information is not provided in the cash flow statement.
Group 2 shows the reports that the subjects reviewed in search of cash flow information, instead of turning to the statement of cash flow for such information.

items of information. These cues also indicate that the subjects take their task seriously. If there were no interest in the task, they would have been contented to use the information on hand.

The missing cues related to cash flow information fall into two groups (Table 3). Group 1 shows cash flow information that the subjects (A2, B3, C5, F3 and F4) found useful; however, such information is not provided in these financial reports, not even in the SCF. They indicate the inadequacies of the financial reports for making lending decisions. The subjects under Group 2 of Table 3 (A5, B3, B4, C3, F2 and F3) either looked for cash flow information in the wrong reports or were unaware that the information they wanted is provided in the SCF. This shows that the subjects were unfamiliar with the SCF and suggests that they lack training in using this report.

Table 4
Missing (bewailing) cues classified by direct and indirect format of presenting SCF

		BS	CF	DI	ET	MG	OT	SH	Total
Direct	Count	21	32	9	290	7	25	40	424
	Proportion	50	75	21	684	17	59	94	1000
Indirect	Count	5	44	2	244	30	29	32	386
	Proportion	13	114	5	632	78	75	83	1000
Total	Count	26	76	11	534	37	54	72	810
	Proportion	32	94	14	659	46	67	89	1000

BS = Balance sheet; CF = statement of cash flow; DI = divisional/segmental report; ET = extraneous data, e.g., environment data, industry information; MG = management/directors' data; OT = others, e.g., format and layout of reports; SCF = the statement of cash flow; SH = share data and statistics.

Table 5
Missing (bewailing) cues classified by professional groups

Professional groups		BS	CF	DI	ET	MG	OT	SH	Total
Academic	Count	3	21	2	171	11	16	41	265
	Proportion	11	79	8	645	42	60	155	1000
Banker	Count	11	37	2	171	6	10	21	258
	Proportion	43	143	8	663	23	39	81	1000
CPA	Count	2	13	1	71	15	12	0	114
	Proportion	18	114	9	623	132	105	0	1000
Analyst	Count	10	5	6	121	5	16	10	173
	Proportion	58	29	35	699	29	92	58	1000
Total	Count	26	76	11	534	37	54	72	810
	Proportion	32	94	14	659	46	67	89	1000

BS = Balance sheet; CF = statement of cash flow; DI = divisional/segmental report; ET = extraneous data, e.g., environment data, industry information; MG = management/directors' data; OT = others, e.g., format and layout of reports; SH = share data and statistics.

The incidents of missing cues varied between types of reports and the profession of participating subjects. As shown in Tables 4 and 5, the largest proportion of missing cues falls under "extraneous data," regardless of the profession of the participants. "Extraneous data" are data not provided in the experimental material such as environmental data and industry information. In comparison to CPAs or financial analysts, bank loan officers and accounting academics asked for more information that was not presented in the experimental material. The large number of bewailing cues shows that participants generally found that the information provided in the reports was inadequate for making sound lending decisions.

5. Conclusion

The high usage of "cash flows" among the information cues (Table 2, Panel A) and the relatively low usage of the SCF among the reports (Table 2, Panel B) indicate that, while the subjects used cash flow information during their decision processes, not all this information was obtained from the SCF. Results on the use of reports substantiate that the balance sheet, notes and other reports are used to obtain cash flow information (Table 2, Panel C).

Analyses of the missing cues (Table 3) show that some subjects searched for cash flow information in the wrong reports. Others asked for missing cash flow information even though such information could be found in the SCF (Table 3, Group 2). This confirms Hypothesis 1 as true: commercial loan officers ignore the information provided in the SCF that is incremental to that in the FFS.

The results also show that while the subjects referred to cash flow information in the decision processes, most of them did not make actual use of this information. Nearly all subjects merely looked at the SCF during the sequential reading of the financial reports. None of them recalled cash flow information during the final decision phase when the reasons for granting or refusing the loan applications were substantiated.

All the subjects ignored the information provided in the SCF (presented under the direct format), and tried to obtain cash flow information from the FFS and other financial reports. In other words, the subjects had to cognitively convert the FFS to the SCF. As the two reports do not provide the same information, the conversion was difficult, if not impossible. And, in doing so, the subjects found some information to be missing or distorted. This has an impact on the lending decision, as a loan officer would be less likely to grant a loan to a company that does not provide sufficient information on the company. This validates Hypothesis 2: cognitively converting from the funds flow statement to cash flows does affect the decisions made by commercial loan officers. The fact that none of the subjects referred to the SCF or cash flow situation of the applicant companies suggests that they were uncomfortable with the information in this report.

A possible reason why the subjects relied on the balance sheet for cash flow information is because the balance sheet has been around for decades while the replacement of the FFS with the SCF was mandated more recently. Like the balance sheet and the income statement, the FFS is based on the accrual method of accounting and focuses on working capital while the SCF is not.

Another reason for subjects not utilizing the SCF may be their lack of training in using this statement. This is evidenced by the fact that none of the subjects noticed the difference between the SCF and the FFS, or the direct from the indirect format of SCF presentation. Moreover, none of the subjects made use of the extra information provided in the cash-flow-from-operations section under the direct method. This lack of training is inevitable given that the teaching materials of the banking industry (Basu & Rolfes, 1995; Clarke, 1996) place little importance on the SCF and fail to explain fully how to utilize the information provided in this report.

These results imply that the SCF is superfluous regardless of the claims of its usefulness asserted by standard setters (SFAC No. 5, 1984; FASB ED, 1986; SFAS 95, 1987) and the banking profession (Emmanuel, 1988; Hamm, 1996; O'Leary, 1988; Price, 1992). For accounting academics and banking professionals, more emphasis needs to be placed on the value of the information content of the SCF. New instructional materials should be developed covering the use of the SCF for cash flow information and SCF ratio analysis. Standard-setting bodies should reconsider mandating only the direct format of presentation and issuing guidelines on the classifications in the SCF.

Appendix A. Coding scheme (partial)

A.1. Reports

A report code identifies the specific section in an annual report from which the information item code is derived. The major reports in an annual report are the BS, the P&L, the SCF, notes to financial statements, chairman's report and auditor's report. Depending on the disclosure requirements, other statements or reports may be provided in the annual report,

such as the directors' report, the segmental report, summary reports, etc. A two-lettered notation is assigned to each report.

A.1.1. Report codes

Financial reports	
AP	accounting policies
BS	balance sheet
DI	divisional/segmental report
FS	financial summary (2 years comparative figures)
LR	long-range summaries (over 2 years comparative figures)
NO	notes to financial statements
P&L	profit and loss accounts
SCF	statement of cash flows
ST	statistics and processes of statistics (including calculations and ratios)
Nonfinancial reports	
AU	auditors' report
CR	chairman's report, report to shareholders
DR	directors' report, group financial review
ET	extraneous data
MG	management/directors' data and information
MS	others (not sure which report or page)
SH	share statistics

A.1.2. Information cues

An information item code identifies the information item, or cue, that is used, or referred to, by the subject, e.g., net income, sales, current ratio. One hundred and four information item codes were used.

A.1.3. Missing (bewailing) cues

These are negative or missing cues. They represent information that is considered important to the decision task, but is not available in the annual reports. Examples include information on the reputation of the company and its executives, and information relating to the economic and technological environment. As these missing cues are vital and indispensable to the loan decision task, they are an integral part of the verbal protocols and have to be captured. Missing cues are specifically created in this coding scheme to capture the missing cues identified by the subjects during the experiment.

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Professor Stephen A. Zeff
Rice University, USA

Book reviews

Asset measurement bases in UK and IASC standards
By Christopher Nobes, Certified Accountants Educational Trust, London, 2001, 55 pp.

This report was commissioned by the Association of Chartered Certified Accountants, a British-based body with many overseas members and international interests. The author uses this spread of membership to justify his concentration on UK and IASC standards, but there are times when greater reference to other sources of terms and concepts would have been appropriate, particularly in the discussion of "fair value." The topic of measurement was on the International Accounting Standards Board's agenda in June 2001 when staff was asked to prepare an inventory of measurement bases used in International Financial Reporting Standards. This report was designed to be of assistance in this task and in the subsequent debate.

After a brief introduction, theoretical aspects of capital maintenance and asset measurement are discussed in Chapter 2. This provides the basis for much of the analysis of UK and IASC requirements that are outlined in the following five chapters on tangible and intangible fixed assets, investment properties, agricultural assets, inventories, and, finally, financial assets. The eighth and last chapter provides a synoptic view of UK and IASC measurement bases and outlines some suggestions for a way forward. In both Chapters 2 and 8, diagrams are provided illustrating the different measurement bases for assets.

To the extent that the report provides a listing of the measurement bases adopted by UK and IASC standards for the assets mentioned above, it provides a useful service. It is in the theoretical and analytical discussion that statements are made which are at the very least contestable and in some cases misleading. For example, in the discussion of capital maintenance, no distinction is made between the concept of capital in the sense of net assets and that of capital maintenance. The latter is concerned with how the opening balance, allowing for additions and distributions, is to be adjusted (if at all) before comparison with the closing balance to determine profit. This is far from a matter of mere semantics. Nobes refers to Chambers' model based on the use of net realizable values for assets (Chambers uses the term "current cash equivalents"). Nobes then states that "The capital maintenance concept here is the current cash equivalent (adaptive capacity) of an enterprise's assets" (p. 10). In fact, Chambers' concept of *capital* is based on the current cash equivalent of the enterprise's assets (less the face value of its liabilities). His concept of capital *maintenance* is the general purchasing power of the opening balance adjusted for additions and distributions. Chambers actually charged a "capital maintenance adjustment" calculated in this way in the determination of net profit.

This confusion pervades the whole report. For example, "The point is that the capital maintenance approach determines which things one is going to call gains and losses" (p. 16) and "Once it has been decided to value different assets using different models, the idea of capital maintenance must be abandoned" (p. 18). With different valuation bases for different assets, it may be difficult, if not impossible, to explain the concept of capital in use, but a capital maintenance adjustment may still be made if desired.

Another example where I find Nobes' approach unsatisfactory is more contentious because he has the support of Canadian and, to a more limited extent, US rules. His point is that, "under historical cost accounting, no recognition of impairment is necessary unless the cost cannot be recovered" (p. 22). Discounting of expected cash flows to determine recoverable amount "is not appropriate under this model." Note the emphasis on recovery of cost under this approach. This leads to nonsensical results and is inconsistent with the historical cost reporting of financial assets and liabilities at expected future cash flows discounted at the rate implicit in the original contract. In the absence of doubt about collection of proceeds, the undiscounted amount expected to be recovered from a financial asset will far exceed its cost, but by discounting the cash flows at the rate in the original contract we will arrive at that "cost."

In addition, I would argue that the historical cost system reports assets at their original cost less amounts already charged against revenue except where some ill-defined concept of "value" is below that residual cost. If it is accepted that some concept of "value" to the entity is relevant, rather than an extraordinarily narrow concept of "cost to be recovered," then there is no question that the expected future cash flows must be discounted. The old "lower of cost or market" rule for the inventory of a continuing entity is adapted for fixed assets to be the lower of unamortized cost and the best estimate of what the market value would be for this asset as part of the sale of a going concern. In my opinion, an asset's value (however vaguely defined) has clearly been impaired if the discounted cash flows expected from its use and eventual disposal are below its book value.

Another area where I believe that the reader may be misled arises with the discussion of "fair value" in the report. "When the term is used precisely by the IASC or in the UK, it means a current market value. However, it is neither an entry price nor an exit price because, unlike replacement cost or NRV, no transaction costs are added on or taken off" (p. 11). Nobes is absolutely correct in his literal interpretation of the definition, but if this is so, why not just use the description "current market value?" There is considerable confusion over the term "fair value" in the accounting standards, and this must be recognized by readers, not hidden from them. Nobes dismisses the confusion with a couple of throw-away sentences on page 12: "Annoyingly, the literature sometimes uses 'fair value' as a generic term for current value. In this report, the term will be used for the particular version of current value defined above." The fact remains that sometimes the standards (not just "the literature") use "fair value" in the vague sense of "what is a reasonable value to report," and IAS 32 gives definitions for both "fair value" and "market value" as though there may be some difference, although the definitions provided do not reveal it. The term "fair value" has been used in the United States for many years, long before it first appeared in UK and IASC standards. Unfortunately, there has been an equal lack of precision with regard to its meaning. In a work

that aims to set forth the measurement bases in use in UK and IASC standards, it is a pity that the different meanings attributed to "fair value" in specific standards are not referred to explicitly.

Chris Warrell[1]

The Professional Accountancy Bodies and the Provision of Education and Training in Relation to Environmental Issues
by Rob Gray and David Collison, with John French, Ken McPhail, and Lorna Stevenson, The Institute of Chartered Accountants of Scotland, Edinburgh, Scotland, 2001, xv+220 pp.

This book, a research report commissioned by the Institute of Chartered Accountants of Scotland, focuses on the nexus between the various accounting professions in the UK, the state of university education in the UK, and environmental issues. The central question of the book is: "What do accountants need to know about the environment?" (p. 2). Following from this is a subsidiary question: "How are accountants to acquire this environmental knowledge and/or appropriate environmentally-related skills?" (p. 2). More explicitly, the authors state that they have four aims that they wish to accomplish:

- to review the current state of environmental education and training in accounting and other disciplines;
- to identify reasons for this current state of play;
- to explore the degree to which environmental issues need to be incorporated into accounting education and training; and
- to suggest ways in which improvements to the present situation might be made.

In order to gather the material to fulfill these aims, the authors take a multimethod, multiperspective approach to their inquiry, utilizing the following sources:

- conversations with accounting and nonaccounting academics;
- a questionnaire survey of accounting lecturers;
- a questionnaire survey of students over their choice of options;
- interviews with recruiters;
- a questionnaire survey of recruiters;
- interviews/conversations with senior members of the profession, key staff members of the professional bodies and other "opinion formers";

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[1] Mr. Warrell is a former member of Australian Accounting Standards Board and of the Department of Accounting, The University of Melbourne, as well as former Senior Adviser Accounting to the National Companies and Securities Commission.

- reviews of the accounting and nonaccounting literature; and
- reviews of education documents from the professional bodies.

This material has been organized into eight chapters. Chapter 1 provides an introduction and an outline of the book. Chapter 2 looks at environmental issues, the concept of sustainability, and how accounting is implicated in environmental degradation. Chapter 3 examines what is meant by education, the pressures on education, and the experiences of other disciplines in the environmental area. Chapter 4 looks at accounting education in the universities by referring to prior research. Chapter 5 builds on this by incorporating more empirically focused material dealing with both student and academic perspectives. Chapters 6 and 7 turn to the perspectives of practitioners and professional bodies, with the former setting the stage by reviewing the profession's relationship with academe and the environmental agenda, and the latter incorporating empirical material. Chapter 8 draws the investigation together and offers several conclusions. An addendum to Chapter 8 provides some very practical suggestions about incorporating environmental issues into accounting syllabi.

It should be noted that, although the book focuses on UK data and the UK accounting professions, there is a more broad-based literature review. Reference is made to the accounting professions in the United States and Canada and, briefly, Australia. Very early on, the authors acknowledge four separate tensions that propel their inquiry, and it is these tensions and how they are dealt with that makes the book more appealing to a widespread audience. The four tensions are: (1) the extent of environmental problems; (2) the role of the profession; (3) the purpose of education; and (4) the need for relevant degrees. These tensions are polarized to make their nature more evident. The first tension deals with the basic question of whether our environmental problems call simply for better resource utilization (i.e., eco-efficiency) or a dramatic restructuring of society. Discussion on this topic transcends the UK setting and thus has an appeal to a diverse group of readers. Similarly, the third tension, the purpose of education, is a question that cuts across all locales and all disciplines: "Is university education primarily intended to prepare students for employment or is it about developing independent, critical minds for the broader good of society" (p. vii). The second tension, the role of the profession, is more limited in its appeal, as it is concerned with whether the accounting profession exists to serve client needs or the public interest. The fourth tension, relevant accounting degrees, will capture the narrowest reader interest, as it relates specifically to the need for a degree for the various UK accounting professions and whether or not a degree, if needed, should be an accounting degree.

The authors have not shied away from some very thorny aspects of their topic and have done a good job of outlining the basic issues. Sadly, the multifaceted evidence that they have gathered leads to three rather bleak conclusions. First, among accountants, there is little understanding of sustainability and its implications. Second, accounting education is at best training for employment and at worst irrelevant. Third, most members of the profession (including teachers, students, and practitioners) see accounting as entirely driven by client needs, having no independent life or values of its own.

Instead of seeing this situation as insoluble, the authors conclude with recommendations in three areas, the first two relating to marginal changes and the third relating to structural

changes. Under the heading of immediate concerns is the integration of environmental issues into the professional syllabi, something that is beginning to happen in the UK. The second marginal change relates to client-serving issues. The authors suggest that there needs to be a substantial vocational element in education and training that deals with client support and encourages "a more pro-active, innovative frame of mind in accountants" (p. 158). Toward this end, the detailed guidance in the addendum to Chapter 8 is provided. The recommendation dealing with structural change looks at long-term sustainability and states that it is "absolutely essential that all accountants have a good, deep, well-informed understanding on key issues" (p. 160). The most obvious are:

- accounting and the public interest;
- accounting theory and the nature of accounting;
- what is meant by sustainability and its implications for business and accounting; and
- the tensions between accounting education and training.

How achievable this is can be open for debate. As the authors themselves have pointed out, other exhortations for change, such as those coming from the Accounting Education Change Commission in the US, have been less than successful. How necessary this understanding of key issues is can also be open for debate. Such debates would please the authors, for they indicate that, as disturbing as the conclusions are, what is more disturbing is the lack of informed discussion. Perhaps this book will go some way to fueling such a dialogue.

With that hope, I recommend this book to accounting practitioners and university educators alike. Although the book deals specifically with environmental issues, it is structured in such a way as to serve as a valuable framework for studying the education and training of any key leading-edge issue. In the main, the authors have achieved their four aims for the book, and the result is a publication that offers much to think about that is applicable beyond the UK setting. Additionally, the book is well organized and very readable. Rob Gray is known for his extensive work and passion in the environmental and social accounting area. He and his coauthors have provided an even-handed, multiperspective approach that makes the book truly accessible.

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INSTRUCTIONS FOR AUTHORS

AIMS and SCOPE. The aims of *The International Journal of Accounting* are to advance the academic and professional understanding of accounting theory and practice from the international perspective and viewpoint. The *Journal* recognizes that international accounting is influenced by a variety of forces, e.g., governmental, political and economic.

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<div align="center">TABLE 1 ABOUT HERE.</div>

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   Hofstede, G., & Schreuder, H. (1987). A joint reply to Montagna. In: B. Cushing (Ed.), *Accounting and culture* (pp. 29–30). Sarasota, FL: American Accounting Association.

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BOOK REVIEWS

Analysts' forecasts of Japanese firms' earnings: additional evidence

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Abstract

This article examines analysts' forecasts of Japanese firms' earnings during Japan's economic burst period in the 1990s. Using the evidence of analyst earnings forecasts in the United States as a benchmark, the article documents the following three findings. First, whereas the forecast accuracy of U.S. analysts following U.S. firms improves over time, the forecast accuracy of U.S. and Japanese analysts following Japanese firms does not. Second, whereas decreases in forecast errors of U.S. analysts following U.S. firms are best explained by decreases in forecast bias of the analysts, increases in forecast errors of U.S. and Japanese analysts following Japanese firms are best explained by increases in the frequency of losses experienced by Japanese firms. Third, Japanese analysts forecast earnings less accurately than do U.S. analysts. These findings reflect the difficulty of producing accurate earnings forecasts during economic downturns. They also suggest that Japanese analysts are more bound than their U.S. counterparts by cultural ties that impede forecast accuracy.
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Keywords: Analyst ability; Earnings-forecast error; Economic downturns; Forecast accuracy; Japanese analyst; Japanese economy; Japanese forecast

1. Introduction

Several papers have examined earnings-forecast accuracy of Japanese firms. Such research is important because analysts' forecasts play an important role in equity pricing in Japan, which has the second largest capital market in the world (Elton & Gruber, 1990). Prior

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research found that Japanese analysts' forecasts were very accurate, indeed more accurate than those of U.S. analysts (Beckman, 1998; Conroy, Harris, & Park, 1993). The superior accuracy of Japanese analysts was attributed to Japanese earnings being easier to forecast (Conroy et al., 1993) and the greater ease with which Japanese firms can smooth earnings (Beckman, 1998), rather than the differential ability of analysts (Conroy et al., 1993). Additionally, Japanese managers' forecasts of their own firms' earnings contribute to the accuracy of analysts following Japanese firms (Brown & Higgins, 2001).

This article builds on prior research by comparing earnings-forecast accuracy of U.S. and Japanese sell-side analysts following Japanese firms. It is based on observational data of Japanese firms' forecasts and is best viewed as a demographic study.[1] It contributes to the literature by documenting some of the first evidence on analysts' earnings forecasts of Japanese firms during the country's economic burst period in the 1990s and by documenting new results that contrast with prior findings. The evidence in this article indicates a tendency toward increasing forecast errors, which is best explained by the increasing frequency of losses experienced by Japanese firms. The evidence also indicates that U.S. analysts are better than Japanese analysts at forecasting domestic and Japanese firms during the period of examination.

An important concern in studying earnings forecasts in one country relative to another relates to differences in accounting for earnings, i.e., whether accounting differences make earnings easier to forecast in one country versus another. Because accounting rules in Japan allow for the creation of special reserves, earnings of Japanese firms are allegedly easier to smooth and therefore are more predictable. Another concern is the difference in analysts' familiarity with accounting rules in the two countries. Analysts arguably are more familiar with domestic accounting rules. The third concern is the difference in the environment, which is likely due to cultural and economic differences.

To address these concerns, I group analysts' forecasts into three samples: (1) forecasts of U.S. firms by U.S. analysts (USbyUS), (2) forecasts of Japanese firms by U.S. analysts (JPbyUS), and (3) forecasts of Japanese firms by Japanese analysts (JPbyJP).[2] The yearly means of forecast errors for the three samples are used to determine trends. Factors such as firms' earnings volatility, firm size, frequency of losses, forecast lag, EPS magnitude, analyst following, and GDP growth are used to explore possible explanations for the observed trends. Cross-sectional regressions of forecast error against an analyst binary (1 if Japanese analyst, 0 if U.S. analyst) and other firm-specific variables are used to compare the forecast errors of Japanese and U.S. analysts.

I find that whereas the forecast accuracy of U.S. analysts following U.S. firms improves over time, the forecast accuracy of U.S. and Japanese analysts following Japanese firms does not. This trend reflects the earnings declines experienced by Japanese firms during the examination period (1989–1998), one of Japan's worst recessions (Sherman & Babcock,

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[1] In observational studies, data are collected on units that are available, rather than on units chosen according to a plan.

[2] Data on Japanese analysts following U.S. firms (USbyJP) were unavailable.

1997). Beginning in 1992, Japanese corporate earnings fell short of analysts' estimates (Conroy, Harris, & Park, 1998). Perhaps many large forecast errors occurred because analysts erroneously expected a rebound in earnings, encouraged by positive statements from the Japanese government and economic forecasts of Japan's output that underestimated short-falls.[3]

I also find that the smaller forecast errors of U.S. analysts following U.S. firms are associated with the decreased forecast bias of U.S. analysts and increased firm size, consistent with increased surprise management (Brown & Higgins, 2001) and a better information environment due to increased capitalization in the United States. On the other hand, increases in forecast errors of U.S. and Japanese analysts following Japanese firms are best explained by increases in frequency of losses experienced by Japanese firms (Hwang, Jan, & Basu, 1996; Moses, 1990a, 1990b; Teikoku Reports). The larger forecast errors of analysts following Japanese firms are also associated with factors reflecting Japan's declining GDP growth, increases in earnings volatility, and analysts' forecast optimism. The analyses reveal that many Japanese firms that perform poorly cease to be covered by analysts, which is consistent with prior evidence in U.S. studies (Moses, 1990a, 1990b).

Finally, I find that U.S. analysts are better earnings forecasters than Japanese analysts. Specifically, U.S. analysts are better at forecasting earnings of U.S. firms than Japanese analysts are at forecasting earnings of Japanese firms. This finding contrasts with prior results (Conroy et al., 1993) because I examine a more recent period, during which U.S. analysts' forecasts of U.S. firms have improved markedly. Japanese analysts' forecasts of Japanese firms for the same period have not. U.S. analysts are also better than Japanese analysts at forecasting earnings of Japanese firms. This finding is consistent with the evidence reported by Mande and Kwak (1996) and the popular belief that Japanese analysts are more bound by cultural ties, which impede their independence and accuracy than U.S. analysts.[4]

Overall, the findings reflect the difficulty of producing accurate earnings forecasts during economic downturns. The predictive failure of government and economic forecasters may affect the views of financial analyst because corporate forecasts largely stem from economic growth forecasts. At the firm level, slow economic growth is manifested through corporate losses and failures, impeding analysts' forecast ability. The result is large earnings-forecast errors, as documented in this case for Japan.

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[3] Many market observers noted that analysts counted on earnings rebounds that did not happen (Martin, 1991, 1999a). Analysts' beliefs may have been fostered by overly optimistic government reports. Government agencies that produced such reports were politically motivated, and they were severely criticized in hindsight (Teikoku Reports). Analysts' beliefs may also have been fostered by economic estimates that are flawed when applied to a sustained slump (Krugman, 1998).

[4] Based on 11 Japanese firms followed by both U.S. and Japanese analysts in 1989, 1990, and 1991, Mande and Kwak (1996) found that Japanese analysts were more optimistic than their U.S. counterparts in all of these cases. Non-Japanese analysts provide more realistic forecasts because they are freer than their Japanese counterparts to use their own judgment and analyses (Martin, 1999b). They have no special ties to the companies they follow. They are not members of any of the big Japanese business groups or *keiretsu*, which means they can ignore who owns a stock, they have no obligations to financial institutions, and, as foreigners, they are not bound by the cultural prohibitions against questioning Japanese *shachos* (company presidents).

The remainder of this article proceeds as follows: Section 2 discusses Japan's economy during the examination period, Section 3 describes the data, Section 4 presents the analyses and results, and Section 5 concludes the article.

2. Japan's economy during the examination period

This section draws on studies of Japan's economy and Japanese economic forecasts to establish that the economic conditions during the examination period were unprecedented and earnings decline and bankruptcies were widespread throughout the period. However, government and economic forecasting agencies failed to acknowledge these economic problems. Inaccurate economic forecasts likely led to large earnings-forecast errors by financial analysts. This section is important for the understanding of this article's results because it sheds light on the context of the findings and helps contrast these findings from those in prior studies. This section also helps interested academicians and professionals develop hypotheses about the reasons for Japan's economic malaise.

2.1. Economic slowdown

The period we examine (1989–1998) covers Japan's economic slowdown, one of the country's worst and potentially longest recessions in the post-war era (Sherman & Babcock, 1997). Following the phenomenal growth in the 1980s, a recession of this depth and duration is virtually unprecedented for a major industrial country since World War II (Bayoumi & Collyns, 2000).

Essentially, Japan's fundamental potential for productivity, which was based on low cost capital after the war, evaporated in the 1990s. Protectionism, which helped build Japan's industrial miracle in the 1950–1960s, became counterproductive beyond the 1970s (Katz, 1998).[5] Even at the height of its economy, Japan's productivity suffered because inefficient industries were sheltered from domestic and foreign competition. Later, economists would discover that Japan had compensated for its domestic inefficiencies with overinvestments made possible by cheap capital (Katz, 1998; Sherman & Babcock, 1997).[6] For a while, the cost of capital was effectively zero. Decades of success resulted in huge cash build-ups on corporate balance sheets (Kester, 1997). Companies using convertible bonds could repay their lenders with their highly priced stocks instead of cash (Katz, 1998). Companies also enjoyed the support of banks that lent according to industrial policies rather than according to the basic principles of risk management (Arayama & Mourdoukoutas, 2000).

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[5] Katz (1998) discussed how protectionism built infant industries in Japan into export stars. At the very point in the country's evolution when the "developmentalist" policies should have been loosened, they were reinforced. By the 1970s, when Japan matured economically, its industrial policies had turned counterproductive because it had shifted from promoting winners to protecting losers.

[6] Sherman and Babcock (1997) cited the results of Bank of Japan's Special Report No. 224.

Japanese businesses increasingly faced larger cost of capital as previously passive share-holders demanded greater returns (Sherman & Babcock, 1997). Pressure for greater returns was aggravated by unacceptably low yields on Japan's pension assets, the aging population, and competition from foreign investment firms (Field, 1997).[7] Deregulation and financial reform helped intensify competition from abroad (Alexander, 1997). The cost of labor also increased substantially faster than sales and GDP growth (Levy, 2000). The hollowing-out of Japan's productive potential led economic growth to slow down. Since 1990, the rate of slowdown was striking (Krugman, 1998). Data from International Financial Statistics indicate that Japan experienced rapid growth until 1991 at an average rate of 4.0% per year, then slowed until 1997 at an average rate of 1.4% per year. In 1998, Japan's economic growth turned from sluggish to negative, pushing the country into a true recession (Arayama & Mourdoukoutas, 2000). The slump in investment demand and the dramatic drop in asset values that ensued provided support for those who viewed the previous high prices as a "bubble" and the subsequent decline as a "burst" (French & Poterba, 1991). This article's findings pertain to the burst period, while most prior studies were based on the bubble period in Japan.[8]

2.2. Earnings declines and bankruptcies

The burst period was characterized by prolonged earnings declines and widespread bankruptcies. A broad cross section of Japanese companies suffered from earnings declines and losses (Martin, 1991). Japan's major manufacturing corporations experienced a substantial downtrend in profitability, yielding the lowest returns on investment in the post-war era (Watanabe & Yamamoto, 1992). The earnings drought for Japanese companies became the longest since the 1950s (Sherman & Babcock, 1997). Poor prospects of profits led to persistent decreases in Japanese equity prices (Levy, 2000).

During this period, the number and size of corporate bankruptcies rose steeply to record levels (Levy, 2000; Teikoku Bankruptcies Reports). Large bad debts resulting from the burst in asset values pushed the banking sector into crisis and stressed the corporate sector (Arayama & Mourdoukoutas, 2000). In the past, firms belonging to industrial groups could count on the support of their main banks when facing distress, and bureaucratic efforts prevented banks from failing.[9] However, persistent slowdown, the deteriorated financial standing of banks, and the weakening of corporate balance sheets changed this pattern. Many banks failed, and the rate of bankruptcies by Japanese firms soared.

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[7] Japan's aging society has helped to focus attention on the country's pension funding. Low investment returns from both the private and public pension schemes have led to the realization that without an improved return on pension assets, Japan will face severely underfunded pensions in the next century.

[8] Mande et al. (2001) investigated the optimistic bias of loss versus profit firms in the period 1988–1997. They found that analysts' forecasts, for firms reporting loss, have much larger forecast errors and more optimistic bias compared to firms reporting profits. Their results reflect the difficulty of forecasting negative earnings, consistent with this paper's argument that during periods of loss, earnings forecasts are extremely poor.

[9] For much of the postwar period, no bank failed. When one became insolvent, the banking bureau discretely managed its absorption into a healthier bank. Banks did not need to maintain the usual protections designed to minimize the impact of financial reserves.

2.3. Failure by government and economic forecasters

Despite the drastic situation, government forecasting agencies and economists remained overly optimistic about Japan's economy and the prospects of recovery for a long time. The Economic Planning Agency (EPA), Japan's organization responsible for economic forecasts, issued highly optimistic projections during most of the economic slowdown[10] (Brown, 1999). The agency often reassured the country that Japan's economy was enjoying a slow but steady recovery, and so did a succession of officials from the Ministry of Finance (Martin, 1997). This failure to acknowledge the seriousness of the economic situation eventually disappointed the public and increased distrust in the government.

Economic forecasts seriously underestimated Japan's output shortfalls (Krugman, 1998). Many of these estimates are based on economic filters that are severely flawed when applied to sustained slumps (Krugman, 1998).[11] The failure to predict recessions is not unique to Japan. In the United States, failures of economic forecasts are related to the incidence of contractions in general economic activity (Fintzen & Stekler, 1999; McNees, 1991; Zarnowitz, 1986, 1991). Similarly, GDP forecasts from a large number of countries show that economists generally underestimate the extent of slowdown (Loungani, 2001). Overall, the above studies show that the predictability of recession is extremely low, worldwide. This predictive failure could arise because economists lack the requisite information (real-time data or reliable models) or because they lack the incentives to predict recessions. Furthermore, governments' tendency to highlight economic developments may influence the views of economic forecasters.[12]

The discussion on Japan's economy in this section highlights widespread corporate losses, which result in large earnings-forecast errors according to prior research (Brown, 2001; Hwang et al., 1996). On the other hand, the discussion of Japanese economic forecasts contain serious errors (Krugman, 1998), which affect analysts' sales and earnings forecasts and result in large forecast errors. Consistent with the above discussions, the findings of this article show large

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[10] The EPA constitutes a bureaucracy captured by Japan's Ministry of Finance, a powerful administrative system that oversees the budget-writing process and regulates the financial markets. The ministry and its policies were highly esteemed by the Japanese population but have come under severe criticisms recently.

[11] Many of these estimates, notably those of the International Monetary Fund (IMF), are based on the Hodrick–Prescott filter, which has severe disadvantages when applied to an economy that undergoes a sustained slump (Krugman, 1998). The Hodrick–Prescott filter is a trend analysis approach that extracts trends using statistical "smoothing" techniques called filters. Prescott (1986) provided an early discussion of this filter, which is an econometric method to compute a smooth and flexible trend to establish output potential on the basis of actual past events. First, Hodrick–Prescott imposes the assumption that average deviations from potential output are zero over a period, so that when the economy slumps, the filter automatically reevaluates earlier periods as times of above-potential output, thus reducing the estimated shortfall. Second, any sustained drop in output is built into the estimated potential growth rate. As a result, it systematically understates the actual shortfall from potential. Despite its drawbacks, the Hodrick–Prescott filter is widely accepted and commonly used by economists.

[12] Loungani (2001) noted that economic forecasters of major international organizations such as the IMF, the World Bank, the Organization for Economic Cooperation and Development (OECD), and those of private sectors actually rely heavily on governments' projections. The reason is because forecasters lack either the information or the incentive to produce their own forecasts. The tendency of many governments to showcase economic developments results in overly optimistic forecasts in countries that experience downturns.

earnings-forecast errors for Japanese firms, reflecting the impact of continuous declines in corporate profitability and of inaccurate economic forecasts during the examination period.

3. Data

In this article, U.S. analysts are sell-side analysts located in the United States, working for U.S. brokerage firms. Background information on U.S. analysts, such as name, brokerage firm, and office location, were obtained from the *Nelson's Investment Research Directory* (1996, vol. I). Japanese analysts are sell-side analysts located in Japan and employed by Japanese brokerage firms. Background information on Japanese analysts was obtained from the *Nelson's Directory of Investment Research* (1998, vol. II). Data on U.S. and Japanese analysts' forecasts were subject to availability on Institutional Brokers Estimate System International (I/B/E/S).[13]

Forecasted earnings are retrieved from the I/B/E/S Detail files and reported earnings from the I/B/E/S Actual files. I/B/E/S attempts to put actual and forecasted earnings numbers on a common footing, generally using earnings prior to special items (I/B/E/S, 1996). As forecast and actual earnings data are from the same source, errors arising from database inconsistency are limited (Philbrick and Ricks, 1991). I/B/E/S is a more extensive source of Japanese forecasts than sources used by prior studies.[14] The use of the I/B/E/S Detail files allows tracing of a forecast number to an individual analyst whose background (United States or Japan) can be determined.

The forecasted earnings numbers used for each firm are the single most recent annual earnings forecasts by analysts (identified from the I/B/E/S Detail files) that are dated before the firm's earnings announcements. The advantage of using the most recent earnings forecast is that it is more accurate than the consensus estimate (O'Brien, 1988), and forecast errors based on it are more highly associated with stock prices than errors based on the consensus (Brown & Kim, 1991). Using forecasts dated before earnings announcements eliminates forecasts that are coding errors by I/B/E/S or that are unduly perfect because of hindsight.[15]

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[13] From manually collecting analysts' names, the analysts retrieved under the definition of Japanese analysts in this article appear to be Japanese nationals.

[14] Conroy et al. (1993) used Japanese firms in the first section of TSE, which did not include newly listed and smaller domestic Japanese stocks. Mande (1996) examined only 12 large Japanese firms listed in the U.S. Beckman (1998) collected data from the Japan Company Handbook 1991 and 1993.

[15] Analysts who publish their forecasts after knowing the actual earnings can artificially achieve zero error. Brown and Higgins (1999) showed that the number of forecasts that are exactly the same as the actual earnings numbers of international firms increase over time. They discussed that many of these perfect forecasts are due to analysts' self-reporting the actual earnings to I/B/E/S in earlier years. In this article, I address the self-report problem by considering only forecasts made before the earnings announcements to mitigate the presence of forecasts that are unduly perfect. Additionally, because perfect forecasts might be data errors that drive my results, I examine the frequency of small forecast errors excluding perfect forecasts. This examination shows that the frequency of small nonperfect forecast errors of Japanese firms have decreased over time, consistent with deteriorating forecast accuracy for Japanese firms over time. Therefore, it is unlikely that the self-report problem documented by Brown and Higgins (1999) drives my results.

Table 1
Data samples

	Number of analysts	Number of firms	Number of forecasts
Panel A: USbyUS			
83	235	643	1825
84	272	910	2765
85	320	1079	3690
86	364	1255	4345
87	453	1593	6141
88	493	1792	6911
89	499	2152	7751
90	492	2251	8036
91	478	2292	8218
92	494	2537	8672
93	564	2826	9694
94	624	3126	10,261
95	634	3289	10,036
96	592	3513	9681
97	520	3319	8405
98	460	2431	6086
Total	7494	35,008	112,517
Unique analysts: 783			
Unique firms: 6565			
Panel B: JPbyUS			
89	8	37	41
90	6	58	63
91	5	54	60
92	4	51	55
93	6	47	52
94	7	72	73
95	7	70	79
96	10	106	116
97	8	123	131
98	7	70	70
Total	68	688	740
Unique analysts: 18			
Unique firms: 264			
Panel C: JPbyJP			
92	1	13	13
93	21	173	180
94	30	509	551
95	45	709	757
96	51	686	800
97	40	620	695
98	36	367	415
Total	224	3077	3411
Unique analysts: 56			
Unique firms: 931			

USbyUS: Sample of forecasts for U.S. analysts by U.S. firms; JPbyUS: Sample of forecast for U.S. analysts by Japanese firms; JPbyJP: Sample of forecast for Japanese firms by Japanese analysts.

Forecast error is measured as $PCFE_{jt} = |(AE_{jt} - FC_{jt})/AE_{jt}|$, where AE_{jt} and FC_{jt} are the actual and forecast earnings per share for firm j in year t, respectively. Observations of forecast error larger than 20 times the earnings are deemed outliers and excluded from the analyses. Replications are performed on observations of forecast error truncated at one and two times the earnings.

Years that have less than 10 forecasted firms are removed from the analyses. The resulting samples span three periods, 1983–1998 (USbyUS), 1989–1998 (JPbyUS), and 1992–1998 (JPbyJP). As several tests involve comparing the mean forecast error among different samples, an examination of the relative frequency of large errors provides more assurance that a fair comparison is achieved after truncating outliers.[16] The percentages of large errors in all three samples in this article are comparable. The percentages of forecast errors larger than 20 times the earnings are 0.29%, 0%, and 0% for the USbyUS, JPbyUS, and JPbyJP samples, respectively. Because the distribution of larger observations is similar and small for all three samples, the cut-off choice is not likely to introduce bias in the results. The percentages of forecast errors in the range between 2 and 20 times the earnings are 3.16%, 2.38%, and 3.59%, respectively.

The sample of U.S. firms' forecasts by U.S. analysts (USbyUS) consists of 112,517 annual forecasts of 6565 U.S. firms by 783 U.S. analysts over the period 1983–1998. The sample of Japanese firms' forecasts by U.S. analysts (JPbyUS) consists of 740 annual forecasts of 264 Japanese firms by 18 U.S. analysts from 1989 through 1998. The sample of Japanese firms' forecasts by Japanese analysts (JPbyJP) consists of 3411 annual forecasts of 931 Japanese firms by 56 Japanese analysts from 1992 to 1998. A limitation of this study is that it may not be generalizable, because there are only a small number of analysts in the JPbyJP and JPbyUS samples. The data concerning analysts, firms, and forecasts are described in more detail in Table 1.

4. Analyses and results

4.1. Did U.S. analysts improve their forecasts of U.S. firms over time?

Insight into the forecast error trend in the United States highlights the significance of that trend in Japan as observed in subsequent analyses. Table 2 presents a temporal analysis of U.S. firms' annual earnings forecasts by U.S. analysts (USbyUS) by providing the distribution of forecast errors from 1983 to 1998. Forecast error measurements are truncated or deleted at 20 times the earnings. The columns show the year, the number of forecasts in each year, the forecast error mean, third quartile, median, and first quartile of forecast errors. As corroborated by their significantly negative correlation coefficients with year, forecast error measurements in the columns decrease significantly from 1983 to 1998. The pattern of decreased forecast error is robust in a replication using truncation at one and two times the

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[16] Conroy et al. (1993) truncated forecast error observations at 20. Mande (1996) truncated observations at 1 and 2. Brown (1999) winsorized forecast bias at 1.

Table 2
Distribution of forecast errors for U.S. firms by U.S. analysts

Year	N	Mean	P75	Median	P25
83	1825	0.28	0.16	0.06	0.02
84	2765	0.26	0.17	0.05	0.02
85	3690	0.38	0.19	0.05	0.02
86	4345	0.44	0.44	0.09	0.03
87	6141	0.42	0.30	0.08	0.02
88	6911	0.36	0.21	0.06	0.02
89	7751	0.42	0.25	0.07	0.02
90	8036	0.38	0.26	0.07	0.02
91	8218	0.36	0.22	0.06	0.02
92	8672	0.36	0.19	0.06	0.02
93	9694	0.25	0.16	0.05	0.02
94	10,261	0.27	0.13	0.04	0.01
95	10,036	0.24	0.12	0.04	0.01
96	9681	0.25	0.13	0.04	0.01
97	8405	0.22	0.13	0.04	0.01
98	6086	0.25	0.13	0.04	0.01
Total	112,517				
Average		0.32	0.20	0.06	0.02
Correlation with year		− .55**	− .51**	− .61*	− .71*

Forecast error is measured as $PCFE_{jt} = |(AE_{jt} - FC_{jt})/AE_{jt}|$, where AE_{jt} and FC_{jt} are the actual and forecasted earnings per share for firm j in year t, respectively. The forecasted earnings numbers for each firm are the single most recent earnings forecasts by sampled analysts before earnings announcements. Forecasted and actual earnings data are retrieved from I/B/E/S U.S. Detail and Actual files, respectively. N is the number of forecasts. P75 and P25 are the forecast errors at the third and first quartiles, respectively.

  * Significant at 1%.

  ** Significant at 5%.

earnings. This finding is consistent with prior research using U.S. quarterly forecasts (Brown, 1997).

    The correlation with year observed in Table 2 might be impacted by dependency among forecast data. Dependency occurs because each firm may be forecasted by many analysts. As all analysts' forecasts are included in the mean for the year, widely followed firms receive more weight and the correlation might only reflect the pattern in which firms that are easy to forecast attract more analysts over time. To avoid this "dependency" problem, I replicate Table 2 by using only one forecast per firm by one randomly chosen analyst for each year.[17] The distribution of forecast errors thus observed also displays a significantly decreasing pattern, corroborating the earlier result that U.S. forecasts of U.S. firms have improved over time. This finding is consistent with the contention and evidence reported by Brown (2001) and Brown and Higgins (2001) that U.S. managers manage analysts' earnings surprises to avoid negative valuation consequences to their stock prices. The forecast error trend in the United States serves as a benchmark to assess trends in Japanese analysts' forecast errors.

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[17] The number of forecasted firms thus obtained are used in subsequent analyses described in Table 5.

4.2. Did U.S. analysts improve their forecasts of Japanese firms over time?

Table 3 presents a temporal analysis of Japanese firms' forecasts by U.S. analysts (JPbyUS) by providing the distribution of forecast errors from 1989 to 1998. Forecast errors are truncated at 20 times the earnings. The columns are as in Table 2. As indicated by significantly positive correlation coefficients of the mean and the third quartile with year, forecast error does not decrease but rather increases over time. This finding is robust to truncation of forecast errors at one and two times the earnings, to a replication based on one forecast per firm by a random analyst in each year,[18] and to partitions into consolidated and parent-only forecasts. The overall evidence indicates that forecasts of Japanese firms' earnings by U.S. analysts have not improved but rather have deteriorated over time.

4.3. Did Japanese analysts improve their forecasts of Japanese firms over time?

To examine whether decreasing forecast ability also pertains to Japanese analysts, Table 4 presents a temporal analysis of Japanese firms' forecasts by Japanese analysts (JPbyJP) by providing the distribution of forecast errors from 1992 to 1998. The columns are as in the two previous tables and forecast errors are truncated at 20 times the earnings. Forecast error measurements in the columns increase over time, as corroborated by high and significantly positive correlation coefficients with year. This finding is robust to truncation of forecast errors at one and two times the earnings, to a replication based on one forecast per firm by a random analyst in each year, and to partitions into consolidated and parent-only forecasts. The overall evidence indicates that the forecasts of Japanese firms' earnings by Japanese analysts have not improved, but rather have worsened over time.

The combined findings in Tables 3 and 4 indicate that both U.S. and Japanese analysts have become less accurate at forecasting Japanese firms' earnings. To shed light further on these findings, the following analyses explore several firm and economic factors to seek explanations for the observed trends.

4.4. What factors explain the trends of U.S. and Japanese analysts' forecast errors?

Firms with high earnings volatility are inherently more difficult to forecast than those with smoother, less volatile income streams (Imhoff, 1978; Kross, Ro, & Schroeder, 1990). Compared to small firms, large firms have richer information environments, so there is less information asymmetry between management and analysts, which leads to superior analyst forecast accuracy (Bamber, 1987). Firms experiencing earnings losses are more difficult to forecast than firms reporting profits (Brown, 2001; Hwang et al., 1996). Forecast error measured as a percentage of EPS is smaller when the magnitude of EPS (the denominator) is larger. Firms followed by more analysts are forecasted with less error (Brown, 1997). Analyst bias affects forecast error (numerically, forecast error is the absolute measurement of forecast

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[18] This was done to remove potential dependency from including firm forecasts by multiple analysts.

Table 3
Distribution of forecast errors for Japanese firms by U.S. analysts

Year	N	Mean	P75	Median	P25
89	41	0.11	0.13	0.07	0.02
90	63	0.20	0.18	0.10	0.05
91	60	0.16	0.18	0.10	0.02
92	55	0.27	0.20	0.07	0.02
93	52	0.11	0.15	0.05	0.00
94	73	0.45	0.23	0.08	0.03
95	79	0.44	0.26	0.11	0.04
96	116	0.26	0.22	0.08	0.03
97	131	0.33	0.19	0.08	0.02
98	70	0.47	0.54	0.13	0.06
Total	740				
Average		0.28	0.23	0.09	0.03
Correlation with year		.71 *	.67**	.37	.44

Forecast error is measured as $PCFE_{jt} = |(AE_{jt} - FC_{jt})/AE_{jt}|$, where AE_{jt} and FC_{jt} are the actual and forecasted earnings per share for firm j in year t, respectively. The forecasted earnings numbers for each firm are the single most recent earnings forecasts by sampled analysts before earnings announcements. Forecasted and actual earnings data are retrieved from I/B/E/S International Detail and Actual files, respectively. N is the number of forecasts. P75 and P25 are the forecast errors at the third and first quartiles, respectively.
  * Significant at 1%.
  ** Significant at 5%.

bias). Forecast lag affects forecast error because analysts become more informed about the firm over time (Brown, Hagerman, Griffin, & Zmijewski, 1987; Conroy, Fukuda, & Harris, 1990; Kross et al., 1990). GDP growth represents the trend of national output, of which

Table 4
Distribution of forecast errors for Japanese firms by Japanese analysts

Year	N	Mean	P75	Median	P25
92	13	0.19	0.38	0.09	0.03
93	180	0.39	0.08	0.01	0.00
94	551	0.35	0.27	0.11	0.04
95	757	0.52	0.31	0.13	0.04
96	800	0.40	0.33	0.13	0.04
97	695	0.46	0.36	0.14	0.05
98	415	0.54	0.51	0.15	0.06
Total	3411				
Average		0.41	0.32	0.11	0.04
Correlation with year		.80**	.59	.75**	.77**

Forecast error is measured as $PCFE_{jt} = |(AE_{jt} - FC_{jt})/AE_{jt}|$, where AE_{jt} and FC_{jt} are the actual and forecasted earnings per share for firm j in year t, respectively. The forecasted earnings numbers for each firm are the single most recent earnings forecasts by sampled analysts before earnings announcements. Forecasted and actual earnings data are retrieved from I/B/E/S International Detail and Actual files, respectively. N is the number of forecasts. P75 and P25 are the forecast errors at the third and first quartiles, respectively.
  ** Significant at 5%.

corporate earnings are an important component. Correct expectation of GDP growth helps analysts forecast corporate earnings more accurately; however, if GDP growth is forecasted inaccurately, analysts' earnings forecasts deteriorate. Overall, earnings volatility, frequency of losses, and forecast lag are expected to be positively correlated with forecast error, whereas firm size, EPS magnitude, analyst following, forecast bias, and GDP growth are expected to be negatively correlated with forecast error.

Panels A–C of Table 5 present the yearly means of the above factors for all firms in the three samples. Measurements of real GDP growth are seasonally adjusted. Column 1 presents the year, column 2 the number of firms in each year, column 3 the mean analyst forecast error,[19] column 4 the mean random-walk forecast error, which is used to proxy for earnings volatility,[20] column 5 the mean market capitalization (size), column 6 the frequency of firms experiencing losses during the year,[21] column 7 the magnitude of mean EPS, column 8 the mean analyst following, column 9 the mean analyst forecast bias, column 10 the mean forecast lag, defined as the number of days between the forecast date and the earnings announcement date, and column 11 the real GDP growth. The correlations between the means of these factors and forecast error are used to explain the trends of forecast error. All data are retrieved from I/B/E/S, except for GDP data, which are retrieved from Datastream.

Table 5 shows the correlations between the factors with year and with forecast error. In the USbyUS sample (Panel A), the correlations with year indicate temporal increases in firm size (.82), forecast lag (.81), analyst forecast bias (.66, denoting decreased optimism), and frequency of losses (.55). The correlations with forecast error indicate that forecast error is negatively associated with analyst forecast bias (− .83) and size (− .64). The signs of these correlations are as expected. These results indicate that reduced analyst bias and richer information environment due to increased firm size partly explain the trend of reduced forecast errors during the period, despite the effects of increasing loss frequency and forecast lag. The mitigated analyst bias is consistent with the evidence by Brown (2001), who showed decreased bias in forecasts of quarterly earnings in the United States, and the contention by Brown and Higgins (2001) that U.S. executives manage earnings surprises to avoid price consequences to their companies' stocks. The increase in firm size reflects the increased capitalization of the U.S. market during the period.

In the JPbyUS sample (Panel B), the correlations with year indicate temporal increases in frequency of losses (.82), random-walk errors (.76), and EPS magnitude (.69), and temporal decrease in GDP growth (− .60). The correlations with forecast error indicate that it is associated with frequency of losses (.90), random-walk forecast errors (.71), and real GDP growth (− .64). The signs of these correlations are as expected. The results indicate that the increased frequency of losses and earnings volatility and reduced GDP growth partly explain

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[19] Only one forecast per firm by a randomly chosen analyst is retained for each year. These are the firms obtained for replicated analyses in Tables 2–4.

[20] Random-walk error indicates fluctuation of earnings from one year to another, and therefore is used as proxy for earnings volatility (Kross et al., 1990).

[21] The frequency of losses of U.S. firms determined in this article is similar to that reported by Brown (2001).

Table 5
Factors potentially explaining temporal changes in forecast error

Year	Number of firms	Forecast error	Random-walk error	Firm size	Frequency of losses	EPS magnitude	Analyst following	Forecast bias	Forecast lag	GDP growth
Panel A: Forecasts for U.S. firms by U.S. analysts (USbyUS)										
83	643	0.32	N/A	1491	0.09	1.41	12.34	−0.17	110.36	4.2
84	910	0.32	1.01	1581	0.07	1.45	11.64	−0.22	106.47	7.3
85	1079	0.39	0.72	1847	0.10	1.46	12.57	−0.29	105.99	3.9
86	1255	0.50	1.61	1565	0.15	1.43	11.93	−0.32	108.75	3.4
87	1593	0.52	1.19	1434	0.14	1.38	10.32	−0.32	110.09	3.5
88	1792	0.50	1.55	1639	0.12	1.68	10.31	−0.31	111.92	4.2
89	2152	0.52	0.94	1411	0.13	1.47	9.95	−0.34	117.72	3.5
90	2251	0.47	1.90	1719	0.16	1.22	9.48	−0.31	116.40	1.7
91	2292	0.45	0.98	1903	0.16	1.07	9.20	−0.25	119.59	−0.2
92	2537	0.43	0.96	2096	0.14	1.07	8.94	−0.19	116.42	3.3
93	2826	0.30	1.21	1967	0.14	1.14	8.90	−0.17	112.32	2.4
94	3126	0.30	0.80	2313	0.12	1.20	8.34	−0.14	112.64	4
95	3289	0.32	0.91	2754	0.13	1.29	8.21	−0.16	115.83	2.7
96	3513	0.32	0.99	3265	0.15	1.33	7.87	−0.15	121.52	3.7
97	3319	0.28	0.96	4046	0.15	1.42	7.98	−0.11	124.00	4.5
98	2431	0.28	0.92	4978	0.13	1.58	9.12	−0.11	119.83	4.3
Correlation with year		−.47***	−.29	.82*	.55**	−.24	.22	.66*	.81*	−.23
Correlation with forecast error (expected sign)		1* (+)	−.52 (+)	−.64* (−)	.29 (+)	.08 (−)	.32 (−)	−.83* (−)	−.25 (+)	−.33 (−)
Panel B: Forecasts for Japanese firms by U.S. analysts (JPbyUS)										
89	37	0.11	N/A	658,158	0.00	38.56	8.05	0.02	140.32	4.8
90	58	0.19	0.28	448,635	0.00	41.46	8.43	−0.05	137.14	5.2
91	54	0.16	0.25	347,493	0.00	46.81	10.20	−0.09	155.05	3.8
92	51	0.28	0.24	337,822	0.00	40.87	9.33	−0.23	119.47	1.0

Year	N									
93	47	0.12	0.22	370,364	0.02	40.75	10.89	−0.07	146.75	0.3
94	72	0.45	0.41	388,131	0.18	32.55	10.35	0.20	125.93	0.7
95	70	0.40	2.37	436,512	0.19	37.71	11.87	−0.13	180.32	1.4
96	106	0.27	1.08	610,548	0.12	56.71	8.60	−0.12	146.98	5.2
97	123	0.33	1.22	289,372	0.11	61.26	9.15	−0.23	132.27	1.6
98	70	0.50	2.27	369,655	0.20	70.13	7.77	−0.42	224.79	−2.5
Correlation with year		.76*	−.32	.82*	.69**	.02	−.53	.5	−.60***	
Correlation with forecast error (expected sign)	1* (+)	.71** (+)	−.32 (−)	.90* (+)	.34 (−)	.05 (−)	−.29 (−)	.46 (+)	−.64** (−)	

Panel C: Forecasts for Japanese firms by Japanese analysts (JPbyJP)

Year	N									
92	13	0.19	N/A	489,095	0.00	117.22	8.31	−0.16	80.15	1.0
93	173	0.32	0.48	203,356	0.15	35.55	5.92	−0.23	48.97	0.3
94	509	0.35	2.19	229,689	0.15	33.12	7.06	−0.12	136.17	0.7
95	709	0.54	1.61	272,048	0.17	34.30	6.81	−0.31	144.05	1.4
96	686	0.41	2.23	270,494	0.13	41.31	5.72	−0.10	220.38	5.2
97	620	0.48	1.62	215,168	0.13	45.19	6.54	−0.29	207.08	1.6
98	367	0.55	1.98	288,799	0.18	57.46	6.00	−0.44	168.60	−2.5
Correlation with year		.77**	−.43	.61	−.39	−.61	−.58	.82**	−.12	
Correlation with forecast error (expected sign)	1* (+)	.33 (+)	−.52 (−)	.80**(+)	−.58 (−)	−.57 (−)	−.69*** (−)	.63 (+)	−.18 (−)	

Random-walk error is forecast error using the random-walk method. Firm size is firm market capitalization in million US dollars (Panel A) and millions yen (Panels B and C). Frequency of losses is the ratio of the number of loss firms and the total number of firms in a given year. EPS magnitude is a firm's unsigned EPS number. Analysts following is the number of analysts using a firm's I/B/E/S consensus forecasts. Forecast bias is analyst forecast bias measured as (AE − FC)/|AE|, where AE and FC are the actual and forecasted earnings per share, respectively. Forecast lag is the number of days between the forecast date and the firm's earnings announcement date. GDP growth is the real, seasonally adjusted GDP growth rate in percentage.

 * Significant at 1%.
 ** Significant at 5%.

the trend of increased forecast errors over time. The magnitudes of these correlations indicate that the increase in forecast errors is most strongly correlated with the increased frequency of losses.

In the JPbyJP sample (Panel C), the correlations with year indicate a trend of increasing forecast lag (.82) and random-walk error (.77). The correlations with forecast error indicate that it is associated with frequency of losses (.80) and analyst forecast bias (− .69, denoting increased optimism). The signs of these correlations are as expected. The results indicate that the increased frequency of losses and analyst optimism account for the trend of increased forecast errors over the period. The magnitudes of these correlations indicate that the increase in forecast errors is most strongly correlated with the increased frequency of losses. The impact of forecast lag is near significance level and in the expected direction.

It is notable that the forecast lags of Japanese firms are very high, especially in recent years. Further examinations reveal that large forecast lags are due to forecasts made very early in the year. Conversations with I/B/E/S staff suggest that these forecasts are dated because analysts stopped covering them. Consistent with this argument, I find that the percentage of "stopped" firms in JPbyJP increases steadily from 1994 to 1998 based on data from the I/B/E/S Stop file. Many firms ceased to be followed in the year following a large forecast lag. The percentage of stopped firms in JPbyUS is large in some years, but does not follow any systematic trend. U.S. analysts are more likely to stop covering a small cap firm, whereas Japanese analysts are more likely to stop covering a loss firm.[22] Overall, forecast lags of many Japanese firms are large due to analysts' abandoning coverage of firms that perform poorly. In the United States, analyst coverage declines significantly for firms that subsequently fail (Moses, 1990a, 1990b). However, because stopped coverage may also occur due to shifts in forecast processes and analyst incentives or careers, future research is necessary to determine with more assurance the reasons why many analysts quit following Japanese firms during the examination period. Future research is also necessary to examine the linkage between corporate failures and earnings forecasts in Japan.

The combined results from Panels B and C indicate that the trend of increased forecast error of Japanese firms is best explained by their frequency of losses. Since loss firms are more difficult to forecast than profit firms because the frequency of loss firms increases during the examination period, analysts' forecasts worsen. The lower forecast accuracy of loss firms may result from managers taking large discretionary accruals (big baths) that are unexpected by analysts, rather than analysts' skills. In the United States, firms take big baths sometimes, resulting in large optimistic forecasts by analysts (Brown, 1997). However, Japanese managers are strongly encouraged to forecast current annual earnings. According to Brown and Higgins (2001), who found less large negative loss surprises in Japan than in 12

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[22] I compare stopped versus nonstopped firms using a paired t test on yearly means and a pooled t test. Stopped firms have significantly smaller market capitalization than do nonstopped firms in the JPbyUS sample. Stopped firms have a significantly higher loss frequency than do nonstopped firms in the JPbyJP sample.

other countries, Japanese managers tend to reveal impending losses via their forecasts, because their forecast accuracy may affect their reputation. Furthermore, Mande, Wohar, and Ortman (2001) investigated but did not find that big baths cause large forecast errors for loss firms in Japan. Therefore, it is unlikely that big baths drive my results.

The analyses reveal that many analysts stop covering Japanese firms during the examination period, consistent with poorly performing firms' efforts to deter analysts. The results also reflect the impact of Japan's economic context in the examination period, where earnings are volatile, GDP growth declines beyond expectations, and analysts are overly optimistic as they erroneously look for economic rebounds.

4.5. Were U.S. analysts better forecasters than Japanese analysts?

Prior research has addressed the above question by comparing U.S. firms' forecasts by U.S. analysts with Japanese firms' forecasts by Japanese analysts. Conroy et al. (1993) found that Japanese analysts forecasted Japanese firms more accurately than U.S. analysts forecasted U.S. firms.[23] There are three main differences between their study and mine. First, they used Toyo Keizai and consensus I/B/E/S forecasts, whereas I use I/B/E/S Detail forecasts for both Japanese and U.S. firms. Second, they used only the first section of the Tokyo Stock Exchange (TSE), which consists of larger Japanese firms than those on I/B/E/S. Finally, their examination period was short and pertained to the bubble economy, whereas I examine a longer time span within the burst period.

Prior research has also addressed the above question by comparing Japanese firms' forecasts by U.S. analysts with Japanese firms' forecasts by Japanese analysts. Mande (1996) found that, over 1987–1992, Japanese analysts provided superior forecasts of sales, but comparable forecasts of earnings to U.S. analysts. He used 12 large Japanese firms listed in the United States. Japanese analysts were those reporting in the Japan Company Handbook, and U.S. analysts were those reporting in Value-Line Investment Surveys.

In the following, I compare U.S. and Japanese analysts' forecasts of firms in their respective domestic countries (USbyUS versus JPbyJP) and their forecasts of Japanese firms (JPbyUS versus JPbyJP). The comparisons are based on cross-sectional regression of forecast errors pooled from the compared samples against a binary variable representing the analyst background (1 if Japan, 0 if U.S.). For example, to compare USbyUS with JPbyJP, I pool observations from the two samples for a cross-sectional regression of forecast error against the analyst binary. Then the binary coefficient is used to determine which analyst group forecast more accurately. To ensure that the results are robust to different matching schemes, the USbyUS and JPbyJP are pooled in two ways, (1) pooling the total samples and (2) pooling the whole of JPbyJP and a number of randomly selected observations from USbyUS so that each year has the same number of observations from

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[23] After comparing analysts' forecasts with random-walk forecasts from 1986 to 1988, the authors also found that U.S. analysts provided more improvement than Japanese analysts. However, the larger improvement in the United States might be related to the larger number of analysts using the U.S. consensus forecasts, which were then compared to the single analyst forecast in Japan.

both analyst groups. To compare JPbyUS and JPbyJP, besides the above two pooling methods, I use a third pool consisting of only firms that exist in both samples.

For completeness, I also compare U.S. analysts' forecasts of U.S. and Japanese firms (USbyUS versus JPbyUS) by regressing forecast error against a binary variable representing the firm's country (Japan 1, US 0). Factors that may impact forecast error presented in Table 5 are included in the regressions as covariates, with the addition of a binary variable representing parent-only or consolidated earnings (1 if parent-only, 0 if consolidated) to reflect that parent-only earnings are easier to forecast (Beckman, 1998). Year is also included to remove dependency from repeats of data over several years. Japanese firms' market values (size) are translated into U.S. currency based on fiscal year-end exchange rates when Japanese firms are pooled with U.S. firms.

Panel A of Table 6 presents the results of comparing analysts' errors in forecasting firms in their respective domestic countries (USbyUS versus JPbyJP). Numerous combinations of the covariates are used in this analysis, yielding similar results. For clarity of exposition, I report only the results of regressing the log of absolute forecast error against the log of firm size, a parent/consolidation binary (1 if parent-only, 0 if consolidated), the forecast lag, a loss binary (1 if loss, 0 if profit), an analyst binary (1 if Japanese, 0 if United States), and year.[24] The coefficient of the log of size is expected to be negative, while the coefficients of forecast lag and loss are expected to be positive, similar to the sign expectations for Table 5. The coefficient of the parent/consolidation binary is expected to be negative to reflect lower forecast errors for parent-only earnings. The coefficient of year may be negative to reflect decreasing forecast errors over time if U.S. firms drive the results and positive or insignificant otherwise. The coefficient of the analyst binary is used to determine which analyst group, U.S. or Japanese, produces better forecasts. Panel A shows two ways of pooling the USbyUS and JPbyJP samples. Pool 1 is based on the merging of the USbyUS and JPbyJP whole samples. Pool 2 is based on the JPbyJP sample and US firms randomly selected from the USbyUS sample so that each year has the same number of observations from both analyst groups. The regression results from both pools show that the coefficients of the covariates are significant in the expected signs. More importantly, the coefficient of the analyst binary is significantly positive, indicating that forecast errors by Japanese analysts are larger than are those by U.S. analysts.

Panel B of Table 6 presents the results of comparing analysts' errors in forecasting Japanese firms (JPbyUS versus JPbyJP).[25] Panel B has the same presentation and sign

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[24] Following BoxCox transformations, I use the log of forecast error to improve normality ($D=.10$). Then normality is further improved by taking the log of firm size ($D=.018$). The coefficient of the analyst binary is significantly positive in this transformed regression and in all other combinations, indicating that forecast errors by Japanese analysts are larger than are those by U.S. analysts. The coefficients of the covariates are significant in the expected signs in most combinations.

[25] The regression of forecast error yields a positive coefficient for the analyst binary, but the distribution of its standardized errors indicates nonnormality (Shapiro–Wilk's statistic=.31). BoxCox transformations and various transformations of the independent variables reveal that best normality is achieved by taking the log of forecast error (Shapiro–Wilk's statistic=.98).

Table 6
Comparisons of U.S. and Japanese analysts' forecast errors

	Intercept α	Log(Size) β₁	Lag β₂	Parent β₃	Loss β₄	Analyst β₅	Year β₆	Pr > Model F	Adjusted R² (%)	N
Expected sign		−	+	−	+	?	+/−			
Panel A: Comparing forecast errors of domestic firms (USbyUS versus JPbyJP)										
Pool 1	1.524*	−0.209*	0.002*	−0.659*	1.586*	1.958*	−0.035*	<.0001	22.45	61,573
Pool 2	−2.268***	−0.254*	0.003*	−0.735*	1.097*	1.067*	0.008	<.0001	24.33	6492
Panel B: Comparing forecast errors of Japanese firms (JPbyUS versus JPbyJP)										
Pool 1	−2.688	−0.315*	0.003*	−0.851*	0.784*	0.473*	0.042**	<.0001	14.31	3801
Pool 2	3.582	−0.336*	0.003**	−0.997*	0.948*	0.543*	−0.021	<.0001	19.32	1026
Pool 3	−6.349	−0.272*	0.005*	−1.074*	0.832*	0.433**	0.073	<.0001	19.34	376
Panel C: Comparing forecast errors of USbyUS versus JPbyUS										
Pool 1	2.605*	−0.207*	0.002*	−0.724*	1.660*	0.778*	−0.047*	<.0001	22.56	81,902
Pool 2	2.004***	−0.220*	0.002*	−0.787*	1.364	0.860*	−0.040*	<.0001	20.55	1428
Pool 3	−2.842	−0.212	0.003	−1.163***	0.930	1.166**	0.012	.1516	5.79	64

$\log(PCFE) = \alpha + \beta_1 \log(Size) + \beta_2 \log + \beta_3 \text{ parent} + \beta_4 \text{ loss} + \beta_5 \text{ firm} + \beta_6 \text{ year}$.

PCFE is forecast error measured as $PCFE_{jt} = |(AE_{jt} - FC_{jt})/AE_{jt}|$, where AE_{jt} and FC_{jt} are the actual and forecasted earnings per share for firm j in year t, respectively. Size is market capitalization in billion U.S. dollars (Panels A and C) and billion yen (Panel B). Lag is forecast lag, measured as the number of days between the forecast date and the earnings announcement. Parent is a binary variable for parent-only (1) or consolidated (0) earnings. Loss is a binary variable indicating loss (1) or profit (0). Analyst is a binary variable for Japanese analyst (1) or U.S. analyst (0). Pool 1 consists of nonzero forecast errors from USbyUS and JPbyJP in years where both samples have data (1992–1998) (Panel A), from JPbyUS and JPbyJP in years where both samples have data (1992–1998) (Panel B), and from USbyUS and JPbyUS in years where both samples have data (1989–1998) (Panel C). Pool 2 consists of nonzero forecast errors from JPbyJP and randomly selected from USbyUS so that each year has the same number of observations from both analyst groups (Panel A), from JPbyUS and randomly selected from JPbyJP so that each year has the same number of observations from both analyst groups (Panel B), and from JPbyUS and randomly selected from USbyUS so that each year has the same number of observations from both country groups (Panel C). Pool 3 consists of nonzero and randomly selected from USbyUS so that each year has the same number of observations from both samples. There are 96 such firms, resulting in 138 forecasts by U.S. analysts in forecast errors of firms (Panel B) and analysts (Panel C) that exist in both samples. There are 96 such firms, resulting in 138 forecasts by U.S. analysts in JPbyUS and 138 forecasts by Japanese analysts in JPbyJP over 1992–1998, and there are 11 such analysts, resulting in 32 forecasts in USbyUS and 32 forecasts in JPbyUS over 1989–1998.

  * Significant at 1%.
 ** Significant at 5%.
*** Significant at 10%.

expectations as in Panel A. Three ways of pooling the JPbyUS and JPbyJP samples are shown. Pool 1 is based on the merging of the two whole samples. Pool 2 is based on the JPbyUS sample and random selections from the JPbyJP sample so that each year has the same number of observations from both analyst groups. Pool 3 is based only on firms common to both samples. The results from all three pools reveal that the coefficients of the covariates are significant in the expected signs. More importantly, the coefficient of the analyst binary is significantly positive, indicating that the forecast errors of Japanese analysts are larger than those of U.S. analysts. The results are consistent based on numerous combinations of the covariates.

Panel C of Table 6 presents the results of comparing U.S. analysts' forecast errors of Japanese and U.S. firms (USbyUS versus JPbyUS). Instead of an analyst binary, a firm binary is used to distinguish between Japanese (1) and U.S. firms (0). The expected sign of the firm binary is positive, to reflect that Japanese firms are more difficult for U.S. analysts to forecast than are U.S. firms, especially during Japan's economic slowdown. The remaining covariates and their sign expectations are as in previous panels. Three ways of pooling the USbyUS and JPbyUS samples are shown. Pool 1 is based on the merging of the two whole samples. Pool 2 is based on the JPbyUS sample and random selections from the USbyUS sample so that each year has the same number of observations from both country groups. Pool 3 is based only on analysts common to both samples. The results from all three pools reveal that the coefficients of the covariates are significant in the expected signs. Not surprisingly, the coefficient of the firm binary is significantly positive, indicating that U.S. analysts make larger forecast errors when forecasting Japanese firms than when they forecast U.S. firms.

Overall, the results in Table 6 indicate that U.S. analysts are better forecasters than Japanese analysts are after controlling for several firm-specific factors. The finding that U.S. analysts are better than Japanese analysts at forecasting their respective domestic firms contrasts with prior research (Conroy et al., 1993) because I focus on a more recent period, during which U.S. analysts have improved markedly whereas Japanese analysts have not. U.S. analysts are also found more accurate than Japanese analysts in forecasting Japanese firms. This confirms the evidence reported by Mande and Kwak (1996) and strengthens the popular belief that Japanese analysts are more bound by cultural ties that impede forecast accuracy.

5. Summary and conclusion

Three analyses are performed in this article. The first analysis, which serves as a benchmark for comparative purposes, is a temporal examination of U.S. firms' earnings forecasts by U.S. analysts. Insight into the pattern of decreasing forecast errors in the United States highlights the significance of the pattern in Japan detected in subsequent analyses. Consistent with Brown (1997), I show that U.S. analysts' forecasts of U.S. firms' earnings have improved over time. Overall, the observed trend in the United States indicates that the process of managing earnings expectations in the U.S. market has

improved over time. Earnings volatility, size, frequency of losses, forecast lag, EPS magnitude, analyst following, and GDP growth are examined as potential explanations for the observed trend. I show that the decreases in forecast errors in the U.S. are possibly due to a reduction in optimistic bias of U.S. analysts. The mitigation of bias confirms the evidence of Brown (2001) and the contention by Brown and Higgins (2001) that U.S. executives manage earnings surprises to avoid negative valuation consequences to their stock prices. The decreased forecast errors in the United States are also associated with increases in firm size, consistent with richer information environments in the U.S. due to increased capitalization rate.

The second analysis is a temporal analysis of Japanese firms' earnings forecasts by U.S. and Japanese analysts. I show that forecasts of Japanese firms' earnings by both groups of analysts have not improved over time but, rather have worsened. By examining several factors, I find that the tendency of increasing forecast errors in Japan is best explained by the increasing frequency of losses reported by firms during the economic burst period. Loss firms and failing firms are difficult to forecast (Hwang et al., 1996; Levy, 2000; Moses, 1990a, 1990b; Teikoku Reports). The increases in Japanese forecast errors also reflect Japan's economic context of declining GDP growth, increased earnings volatility, and forecast optimism. The results reveal that many analysts stop covering Japanese firms during the examination period probably because of their poor performance.

The third analysis is a comparative analysis of U.S. and Japanese analysts' forecast errors. I show that U.S. analysts are better at forecasting U.S. firms than Japanese analysts at forecasting Japanese firms during the period 1992–1998. This finding contrasts with prior research (Conroy, Harris, & Park, 1990), perhaps because I focus on a more recent period, during which U.S. analysts' forecasts have improved markedly whereas Japanese analysts' forecasts have not. I also find that U.S. analysts are better than Japanese analysts at forecasting Japanese firms, confirming Mande and Kwak (1996) and the popular belief (Martin, 1999b) that Japanese analysts are less free to use their judgment and analyses and are more bound by cultural prohibitions than their foreign counterparts.

This article presents some of the first evidence on analysts' earnings forecasts of Japanese firms during the country's current economic burst period. The case of Japan represents a striking phenomenon relating to economic and earnings forecasts during economic downturns. The political pressure felt by many governments to highlight economic development leads them to deny problems and issue wildly optimistic projections (Brown, 1999; Loungani, 2001). In addition, certain economic estimates published by international organizations are unrealistically optimistic when applied to prolonged economic slumps (Krugman, 1998). Inaccurate economic forecasts likely affect the accuracy of financial analysts' corporate earnings forecasts. At the firm level, the economic impact is manifested through widespread corporate losses.

The analyses in this article are exploratory. Future research is necessary to study more thoroughly the factors driving the trend of forecast errors in Japan. The findings of this article are confined to the years that cover the burst period and the limited data available. Application of the time-series trends to a longer time frame should be made with caution.

The findings may not be generalizable because of the small numbers of analysts in the JPbyUS and JPbyJP samples.

Several implications can be drawn from this article's results. For the practitioner, if the trend of Japanese firms' earnings forecasts can be extrapolated into the future, market analyses of Japan should incorporate the effect of loss firms and adjust for potential optimism in earnings forecasts. During economic downturns, forecasters should seek information from all available sources and make adjustments to government forecasts and should revise their own estimates often to mitigate optimism. Furthermore, forecasters should be wary of economic indices that allegedly underestimate output shortfalls lest they affect firms' earnings forecasts.

For the academic researcher, the issue of analysts' superiority ("Are U.S. analysts superior to their Japanese counterparts?" and vice versa) should not be considered in the absolute, but should be considered in conjunction with time and economic and firm conditions. Future research should examine the forecasting process in Japan and the incentive and cultural issues facing Japanese analysts, especially when they follow failing firms. Such research will benefit the young and fast developing Japanese analysts' societies, investors in Japanese firms, and academicians interested in earnings forecasts in Japan.

Acknowledgements

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Cash from operations and earnings management in Korea

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Abstract

Our study investigates the relationship between the operating performances of Korean industrial firms and the behavior of discretionary accruals during the period 1994–1997. We hypothesize that the degree of earnings management will depend on the firm operating performances. We construct 10 "cash from operations (CFO)" portfolios to test if there are systematic differences in discretionary accruals across portfolios.

Four test methods (a mean accrual test, a correlation test, a regression analysis, and a sign-change test) are used to investigate if operating performances affect discretionary accruals differently. We compare three accrual estimation approaches (two discretionary accruals and total accruals) in testing the earnings management hypotheses.

The results support the hypothesis that Korean industrial firms manage earnings. When operating performance is poor, the firms tend to choose income-increasing strategies. In addition, when operating performance is extremely poor, some firms tend to take a big bath, while some of the exceptionally well-performing firms tend to select income-decreasing strategies.
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Keywords: Earnings management; Cash from operations; Total accruals; Discretionary accruals; Korean accounting practices

1. Introduction

Studies suggest that managers manipulate reported profits to fit their intentions by selecting certain accounting policies, changing accounting estimates, and managing accruals.

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Earnings management has become a concern not only in Korea but also in other countries. Arthur Levitt, US Securities and Exchange Commission (SEC) Chairman, recently stated that the accounting profession needs to get out of the "gimmick" business. Levitt blasted a process that has become "a game of nods and winks" among corporate managers, auditors, and analysts. During a recent speech, he described key illusions including "big bath" charges, cookie jar reserves, and revenue recognition that he felt were poisoning the financial reporting process (Levitt, 1998). The SEC has concluded that too many publicly held firms are abusing the financial reporting model and overly managing their earnings. Some firms may be improperly boosting earnings by manipulating both revenues and expenses. Auditors need a good understanding of their clients and business to recognize the warning signs of fraud (Carmichael, 1999). The difference between earnings management and reporting fraud may not be great (Brown, 1999).

The Korean Accounting Standards were first developed in 1958, after the Korea Stock Exchange opened in 1956. For many years, the Korean accounting system copied the Japanese system. In 1977, the Financial Supervisory Service, equivalent to the US SEC, began operations. Before then, the Ministry of Finance regulated all financial policies including the accounting system. Recently, after the financial crisis in 1997, a private sector standard-setting body, Korean Accounting Standards Board (KASB), was created in 1999. Now, the Korean accounting system in many respects follows the approaches for the US and the International Accounting Standards Committee (IASC) systems. For example, the Korean accounting system mandated a cash flow statement from fiscal year 1995, while the statement was adopted in the US in 1987. However, some of the US or IASC GAAP are not adopted or adopted much later.

The Korean economy has expanded very rapidly. The accounting system has not been improved proportionately. For example, evidence that investors and creditors use financial statements in a rational manner in their decision makings is not available. The Korean accounting system can be characterized before 1997 as a system of low-transparency, unreliable, and less-than-useful statements. Financial statements were believed to be part of a ritual that firms should go through once a year. Firms were given wide latitudes in selecting accounting choices to fit firms' arbitrary needs. For example, firms were allowed to revalue their fixed assets and choose to report foreign exchange losses as either an income statement item or as a capital adjustment item. Also, firms were allowed to estimate bad debt provision at a minimal level even though they expected much higher actual bad debt expense. In addition, corporate governance and various monitoring systems such as independent auditors and financial analysts had not been developed fully since the focus was on rapid growth and firm size expansion rather than on profitability or economic substance.[2]

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[2] For example, the number of KSE-listed firms as of the end of 1985, 30 years after the opening of the KSE, was only 342. The number increased to 776 as of the end of 1997. In 1988 and 1989, 239 firms went public, resulting in a 61% increase from 1987.

Economic conditions have changed a lot since Korean firms experienced the financial crisis in 1997. Now, efforts are being made to improve the transparency of financial reporting. Some key measures include the launch of the KASB, the mandatory imposition on listed firms of audit committee for which two-thirds of the committee members should be staffed with outside directors, and the mandated preparation of combined financial statements by top 30 conglomerates.

Our study investigates Korean industrial firms to examine any systematic differences in earnings management practices depending on their respective operating performances. Cash from operations (hereafter CFO) is difficult to manage unless cash accompanying revenues or expenses are deliberately deferred or front-loaded. We hypothesize that the degree of earnings management will depend on operating performances. We construct 10 CFO portfolios to detect any systematic differences in earnings management practices across portfolios.

The study employs four methods (mean accrual difference tests, correlation tests, regression analysis, and sign-change tests) to test the hypothesis that firms tend to manage earnings when operating performances, measured in terms of CFO, are below or above their acceptable range. In addition, the study uses three different accrual estimation approaches.

The results of our study support the hypothesis that the earnings management practices of the Korean industrial firms differ depending on their operating performances. When operating performance is negative, the firms tend to take income-increasing strategies. When operating performance is extremely poor, some firms tend to take big bath strategies. Some exceptionally well-performing firms tend to select income-decreasing strategies.

The rest of our paper is organized as follows. In Section 2, we discuss previous research that has been conducted in the earnings management area. Section 3 describes our test methods. In Section 4, our results are presented. In Section 5, we discuss our conclusions and possible limitations of our study.

2. Prior studies

Earnings management hypothesis can be decomposed into hypotheses related to income smoothing, management compensation, ownership control or management buyout, and political costs issues.

The income-smoothing hypothesis asserts that managers select accounting policies to minimize the variance of reported earnings. More specifically, managers may decrease reported earnings when operating performance is unusually high and increase reported earnings when operating performance is unusually low. Moses (1987) used accounting changes as a measure of discretionary accruals and found that smoothing is associated with firm size, existence of bonus compensation plans, and divergence of actual earnings from expectations.

The management compensation hypothesis claims that managers have incentives to maximize their compensation by selecting alternative accounting procedures. Hence, under this hypothesis, managers will attempt to increase reported earnings when earnings affect their respective financial compensation. When operating performance exceeds the upper

limit of bonus compensation, managers may have incentives to reduce reported earnings. On the other hand, when operating performance is so low that managers cannot "manipulate" earnings to exceed the lower limit of bonus compensation, then the managers may take so-called "big bath" strategies. Therefore, under the management compensation hypothesis, the variance of reported earnings may not be necessarily minimized because of the big bath possibility. Healy (1985), for example, reported that accrual policies of managers are related to income-reporting incentives of their bonus contracts and that changes in accounting procedures by managers are associated with the adoption or modification of their respective bonus plans.

The ownership control or management buyout hypothesis infers that managers will either increase or decrease, depending on the situation, reported earnings to protect the ownership control of firms. For example, if managers plan to increase their ownership percentage, then the managers may have incentives to decrease reported earnings. However, if managers are confronted with a threat by a third party's attempt to control their respective firm, managers will have incentives to increase reported earnings. DeAngelo (1986) hypothesized that managers of firms going private would have incentives to understate reported income in attempts to reduce the buyout compensation but failed to find support for this hypothesis. Perry and Williams (1994), however, document evidence of earnings management by increasing sample size for the same topic. DeAngelo (1988) discovered that managers of firms in proxy contests exercise their accounting discretion to paint a more favorable picture of their own performance to voting stockholders, and that, if elected, dissidents then tend to take an immediate earnings bath. The managers typically blame prior management for the previous poor operating performance.

Firms based on the political cost hypothesis may have incentives to manage earnings in such a way that their relative political interests are well protected. For example, rate-regulated firms will have incentives to decrease reported earnings when the firms want to have a rate increase approved by a regulatory agency. In addition, firms that are unfavorably affected by cheap imported goods may have incentives to decrease reported earnings when they lobby their governments to take certain actions to curb import of competitive foreign products. Cahan (1992) tested and found support for the political cost hypothesis that firms investigated for monopoly-related violations would have incentive to use accounting procedures that produce abnormally low level of income. Jones (1991) developed a seminal model to estimate discretionary accruals and applied the model to test if firms, by reducing earnings, would benefit from import relief attempts during import relief investigations by the US International Trade Commission. The findings of her study were consistent with the earnings management hypothesis. Liberty and Zimmerman (1986) found no evidence of the earnings management hypothesis that managers reduce reported earnings during labor union contract negotiations. Hall and Stammerjohan (1997), using the error component model, document that managers of oil firms facing potentially large damage awards choose income-decreasing nonworking capital accruals relative to managers of other oil firms. Han and Wang (1998) showed that firms expecting increases in earnings resulting from sudden product price increases used accounting accruals to reduce earnings and, thus, their political sensitivities.

3. Test methods

3.1. Portfolio construction

The study examines whether firms have different degrees of incentives to manage earnings depending upon their operating performances measured in terms of CFO. As discussed earlier, CFO is difficult to manage unless firms intentionally front load or defer the recognition of cash accompanying revenue or expense. Therefore, CFO should be a good indicator of a firm's operating performance. A bad performer may have a strong incentive to employ income-increasing accounting strategies, while a good performer in general may have relatively weak incentives to employ income-decreasing strategies except for some extremely good performers. Managers may have incentives to manage earnings to smooth reported earnings, to boost stock price, to decrease income tax expense, to make firms look better, to maximize managers' compensation, or to decrease political visibility.

With these underlying assumptions, we divided the sample firms into 10 portfolios based on relative CFO rankings as McNichols and Wilson (1988) did in their study.[3]

3.2. Estimation of discretionary accruals

Total accruals (TA) are defined as NI less CFO. TA can be decomposed into discretionary and nondiscretionary accruals. The discretionary component of TA is believed to represent the degree of earnings management. A model is needed to separate the discretionary component from TA. McNichols and Wilson (1988) provide a good discussion about experimental design issues to separate discretionary accruals from TA. They argue that because both the discretionary and nondiscretionary components are unobservable, it is impossible to separate measurement error from a discretionary accrual proxy.

Some researchers including Healy (1985) utilized the random walk model. Jones (1991) proposed a seminal model that has been widely used by other researchers. Dechow, Sloan, and Sweeny (1995) compared five accrual-based models (Healy model, DeAngelo model, Jones model, Modified Jones model, and an Industry model) for detecting earnings management. They found that the modified Jones model exhibits the most power in detecting earnings management even though all the models appear well specified when applied to a random sample of firm-years. Kang and Sivaramkrishinan (1995, KS hereafter) argue that many of the research methods used in previous studies were subject to simultaneity, errors-in-variables, or omitted variable problems. KS proposed an accrual balance concept and an instrumental variable approach (the generalized method of moments, GMM) that would avoid some of the problems. Using a simulation technique, KS document that the instrumental variable model

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[3] McNichols and Wilson (1988) construct 10 CFO portfolios and investigate whether there is any systematic difference in TA across CFO portfolios. It documents that CFO can be a very good partitioning variable for accruals. Table 1 of their study reports that the rank correlation between CFO and TA is − .69. Rayburn (1986) documents that the correlation between CFO and TA is − .81. For our sample, the Pearson and Spearman correlation coefficients between the two variables are − .77 and − .80, respectively.

performs better than the Jones model. In this paper, we use both the KS model and the Jones model. Furthermore, for comparative purpose, we also use a TA approach since TA should be free of model-fitting errors.

The two models are described below:[4]

The KS model

$$AB_{it}/NTA_{it-1} = \psi_0 + \psi_1(\delta_{1i}REV_{it})/NTA_{it-1} + \psi_2(\delta_{2i}EXP_{it})/NTA_{it-1}$$
$$+ \psi_3(\delta_{3i}GPPE_{it})/NTA_{it-1} + \nu_{it}. \tag{1}$$

The Jones model

$$TA_{it}/NTA_{it-1} = \theta_0(1/NTA_{it-1}) + \theta_2(\Delta REV_{it}/NTA_{it-1}) + \theta_3(GPPE_{it}/NTA_{it-1}) + \varepsilon_{it} \tag{2}$$

where, AB_{it} = accrual balance = $AR_{it} + INV_{it} + OCA_{it} - CL_{it} - DEP_{it}$; AR_{it} = receivables; INV_{it} = inventory; OCA_{it} = other current assets than cash, receivables, and inventory; CL_{it} = current liabilities excluding taxes and current maturities of long-term debt; DEP_{it} = depreciation and amortization; REV_{it} = net sales revenue; EXP_{it} = operating expenses (cost of goods sold, selling and administrative expenses before depreciation); $GPPE_{it}$ = gross property, plant, and equipment; NTA_{it} = net total assets; $\delta_{1i} = AR_{it-1}/REV_{it-1}$; $\delta_{2i} = (INV_{it-1} + OCA_{it-1} - CL_{it-1})/EXP_{it-1}$; $\delta_{3i} = DEP_{it-1}/GPPE_{it-1}$; $TA_{it} = (NI_{it} - CFO_{it})/NTA_{it-1}$.

The KS model implies that accrual balances will change in proportion to changes in REV (sales revenue), EXP (expense), and GPPE (gross property, plant, and equipment). That is, the second explanatory variable of the KS model can be expressed as "$AR_{it-1} \times REV_{it}/REV_{it-1}$." The expected balance of receivables at t is the previous year's balance of receivables times changes in sales revenue. The third variable controls for changes in operating expenses (excluding depreciation). The fourth variable predicts depreciation expense for the current period using gross property, plant, and equipment. All the variables in the KS model are deflated by the lagged net total assets.

The Jones model states that the changes in the accrual balance can be explained by the changes in sales revenue and the balance of the current period's gross property plant and equipment. Again, both variables are deflated by the lagged net total assets.

3.3. Examination of earnings management

Four test methods are used to examine the earnings management hypothesis.

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[4] For the KS model, we used a linear regression approach rather than the GMM approach in fitting TA to explanatory variables because the linear model performs well.

3.3.1. Mean accrual difference tests

Our study examines whether mean accruals are different between negative CFO firms and positive CFO firms. Under the null hypothesis of no earnings management, the mean accruals will be similar across the different portfolios. Under the alternative hypothesis of earnings management, however, the mean accruals will not be the same across the portfolios. More specifically, we expect to find positive mean accruals in the negative CFO portfolios. The magnitude of mean accruals should be the highest for the lowest CFO portfolio. We expect to see a gradual decrease in mean TA as we progress from the most negative CFO portfolio to the highest CFO portfolio. However, if some of the negative CFO portfolio firms take big bath strategies, then the mean accruals can be negative.

3.3.2. Correlation tests

We examine the correlation between CFO and NI for each portfolio. Under the null hypothesis, we expect to find a positive correlation between the two variables since both variables represent operating performance. McNichols and Wilson (1988), for example, reported a positive correlation of .54 between the variables. However, when firms manage earnings, we would not necessarily find this strong positive correlation. In some extreme cases, we expect to find a negative correlation.

3.3.3. Regression analysis

The relationship between accruals and CFO can be more directly examined by projecting the accruals on CFO and some control variables. When managers determine their final reported earnings levels, managers may take into account intermediate performance indicators such as CFO and operating profits (OP). Among others, CFO will be a major factor affecting firm's accounting decisions. Under the null hypothesis of no earnings management, we should not find any differences in the regression coefficients across different portfolios. Under the strict application of no earnings management, we will not expect to find any significant correlations between CFO and accruals. We project TA on OP, CFO, and a slope dummy for CFO. The slope dummy takes on the value of 1 if CFO is negative and 0 if positive. When firms manage earnings, CFO will, in general, affect firms' accruals negatively. OP, as an alternative performance indicator, will also affect firms' accrual policy. However, unlike CFO, OP can be the object of earnings management. Therefore, OP may have a positive relationship with TA, while CFO has a negative relationship with TA. We run the following regression for the current study:

$$TA_i = \beta_0 + \beta_1 OP_i + \beta_2 CFO_i + \beta_3 D^*CFO_i + \varepsilon_i \qquad (3)$$

where D is 1 if CFO is negative and 0 otherwise. The difference in earnings management across different CFO portfolios can be validated if we find a statistical significance for β_3. We hypothesize that $\beta_2 + \beta_3$ will be negative since CFO′ will in general affect TA negatively.

3.3.4. Sign-change ratio test

Our study also examines the proportions of sign change across the portfolios. Negative CFO firms may have incentives to report positive NI figures. Sign changes should be most frequently observed in Portfolios 3 and 4 (see Table 6). Since the magnitude of negative CFO will not be great for the firms in Portfolios 3 and 4, these firms can manipulate some accounting accruals relatively easily so as to report positive earnings. The firms in Portfolios 1 and 2 will have difficulties finding large-enough accounting accruals to report positive earnings since their CFOs are significantly negative. Hence, we expect higher sign-change ratios for Portfolios 3 and 4 than for other portfolios. On the other hand, we do not expect to find positive CFO firms reporting negative NI under normal circumstances. Managers should normally select accounting policies that avoid reporting negative earnings. Therefore, we expect a lower proportion of sign changes in the positive CFO portfolios. The sign-change test is a nonparametric test.

3.4. Sample and test period

In 1995, the Korean Accounting Standards mandated a ''cash flow statement'' to be included as part of the required financial statements. Early adoption of the statement was encouraged for 1994. The cash flow statement requirement superseded the existing working capital-based ''statement of changes in financial position.'' The CFO information became directly available from the cash flow statements for most companies starting in 1995. Our study investigates publicly held Korean industrial firms for the period of 1994 through 1997.

Data for 663 firms were provided by the KIS-FAS[5] financial statement database. The final sample of 2033 firm-year observations was selected as follows:

Industrial firms listed on the KSE as of December 31, 1997		663
Less: two-digit SIC code with less than five firms	28	
SIC code change in firms over 12-year period	5	
Firms with missing F/S information over 12-year period	84	(117)
Total final sample firms		546
Total final firm-year observations: 2033[6] (an average of 3.72 years of data per firm)		

Our study uses a panel data of 12 years (1986 through 1997) for each firm by each industry to estimate the discretionary accruals. To get reliable regression coefficients, we included in the sample only those two-digit SIC code industries that have at least five member firms so that each regression could have at least 60 firm-year observations. Twenty-eight firms were

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[5] KIS-FAS is the Korean counterpart of the Compustat Tape.

[6] We further eliminated 57 outliers in net income and TA. We first eliminated 20 net income outliers at each end and deleted 17 more TA outliers if they are less than − 0.4 or greater than 0.4 of beginning total assets. The reason for the elimination of these outliers is that they distort the overall profile of the entire sample. If we do not eliminate the 57 outliers, mean net income for the total sample is negative at − 0.0105 and the standard deviation of net income is larger than that of CFO, 0.1591 vs. 0.1296. This indicates that there are some firms employing severe big bath strategies.

excluded from the sample for not meeting the first criterion. Five firms were excluded from the sample because their SIC codes were changed sometime during the 12-year period of 1986–1997. Firms with missing financial statement information over the 12-year period were also excluded. The 546 firms that met the three criteria were included in our final sample.

Approximately 85% of firms adopted the cash flow statement in 1994. We ended up with an average of 3.72 observations per firm during the period of 1994 through 1997.

The panel data with 546 firms along with the 12-year time series data for each firm were used to compute nondiscretionary accruals by applying the two alternative models. The discretionary accruals are the residuals of the regression models. Since the KS model uses the accrual balance as the dependent variable, the regression residuals represent discretionary accrual balances rather than discretionary accruals. Therefore, we computed the discretionary accruals from the KS model by taking a first difference in the discretionary accrual balance. The first differences of the accrual balances provide us with the change in the accrual balance. The accrual balance is a level variable while the accrual is a change variable. These discretionary accruals are expressed as ΔKS in this paper.

The regression was fitted to each industry. Each industry should have at least five firms to have sufficient observations (a minimum of 60 firm-year observations) to obtain viable regression coefficients.[7] Twenty-five industries satisfied the five-member requirement.

The estimation period of the discretionary accruals is 1986 through 1997. The test period was 1994 through 1997.[8]

4. Results

4.1. Estimation of discretionary accruals

Table 1 reports the results of the two discretionary accrual estimation models: the KS model and the Jones model. We report the coefficients in the upper line with t ratios for each coefficient in parentheses in the lower line.

Table 1 indicates that the KS model is a reliable model in estimating the nondiscretionary accruals for Korean firms. The three explanatory variables for the KS model are statistically significant with the expected signs in most cases. The first two variables, REV and EXP, are highly significant with positive relationships with the dependent variable. The last variable, GPPE, does not appear to have as strong a relationship with the accrual balances as the first two variables. However, the results for the third variable are still statistically significant with the predicted signs most of the times. The adjusted R^2 for the 25 regressions are all quite high at above 30% level with one exception (14% for SIC digit 6100).

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[7] However, two industries originally having five firms in their membership lost one firm each in the sampling process. As a result, we have two industries with 48 firm-year observations.

[8] Since there is an overlap in the estimation and test periods, the results can be biased. However, when we use panel data, it is generally accepted that the overlapping of the two periods does not impose a serious methodological problem. Furthermore, use of TA is expected to mitigate the bias problem.

Table 1
Comparison of estimation models: KS model vs. Jones model

SIC digit	KS model					Jones model			
	Constant	REV	EXP	GPPE	Adjusted R^2	NTA^{-1}	ΔREV	GPPE	Adjusted R^2
1500	− 0.111	0.815	0.754	− 1.211	.60	0.949	− 0.108	− 0.109	.11
	(− 6.91)	(15.25)	(23.98)	(− 9.95)		(3.83)	(− 3.30)	(− 6.63)	
1700	− 0.105	0.884	0.869	− 0.658	.56	0.177	0.046	− 0.046	.02
	(− 7.59)	(11.69)	(24.60)	(− 4.94)		(1.18)	(1.57)	(− 3.77)	
1800	− 0.005	0.656	0.705	− 0.770	.47	− 0.313	0.058	− 0.001	− .01
	(− 0.20)	(7.06)	(10.92)	(− 1.32)		(− 0.84)	(1.26)	(− 0.02)	
1900	0.037	0.538	0.748	− 2.395	.61	0.580	− 0.025	− 0.024	− .02
	(1.08)	(3.06)	(8.05)	(− 3.73)		(0.91)	(− 0.58)	(− 0.48)	
2100	− 0.040	0.564	0.554	− 1.200	.49	0.062	0.072	− 0.081	.08
	(− 2.15)	(11.94)	(15.65)	(− 5.71)		(0.42)	(2.94)	(− 4.90)	
2300	− 0.162	1.054	0.716	− 0.288	.52	0.827	− 0.166	− 0.033	.19
	(− 3.25)	(7.09)	(6.62)	(− 0.44)		(2.35)	(− 2.93)	(− 1.00)	
2400	− 0.064	0.881	0.847	− 1.125	.71	0.508	− 0.051	− 0.049	.05
	(− 6.35)	(38.73)	(33.13)	(− 12.17)		(5.35)	(− 2.47)	(− 5.27)	
2500	− 0.020	0.508	0.633	− 1.367	.42	− 0.141	− 0.045	− 0.035	.02
	(− 0.82)	(5.16)	(10.67)	(− 5.03)		(− 0.43)	(− 0.81)	(− 1.14)	
2600	− 0.135	0.628	0.416	− 0.798	.35	0.373	− 0.024	− 0.068	.07
	(− 6.73)	(8.41)	(12.36)	(− 3.89)		(1.97)	(− 0.65)	(− 5.78)	
2700	− 0.087	0.957	0.845	− 0.887	.62	0.244	0.071	− 0.064	.04
	(− 5.87)	(17.17)	(24.51)	(− 6.34)		(1.08)	(2.50)	(− 4.01)	
2800	− 0.005	0.596	0.698	− 1.546	.43	0.104	− 0.003	− 0.069	.00
	(− 0.13)	(5.34)	(9.95)	(− 2.45)		(0.42)	(− 0.05)	(− 1.58)	
2900	0.012	0.579	0.737	− 0.915	.61	0.004	− 0.077	0.038	.04
	(0.63)	(11.82)	(19.64)	(− 3.79)		(0.04)	(− 3.24)	(1.77)	
3000	0.064	0.305	0.628	− 0.715	.41	− 0.633	0.069	0.021	.07
	(1.54)	(2.68)	(7.03)	(− 1.21)		(− 2.94)	(1.75)	(0.34)	
3100	− 0.028	0.756	0.828	− 1.251	.48	0.127	− 0.102	0.007	.05
	(− 1.09)	(8.89)	(13.32)	(− 3.73)		(0.70)	(− 2.97)	(0.27)	
3200	− 0.068	0.602	0.599	− 0.498	.41	0.289	− 0.019	− 0.069	.03
	(− 4.60)	(10.40)	(18.56)	(− 3.86)		(3.49)	(− 1.30)	(− 4.24)	
3300	− 0.161	1.067	0.776	2.102	.61	− 0.059	0.194	− 0.032	.02
	(− 2.12)	(5.21)	(5.92)	(1.17)		(− 0.23)	(1.50)	(− 0.25)	
3400	− 0.048	0.629	0.837	− 0.830	.64	0.247	− 0.119	− 0.045	.10
	(− 2.51)	(9.06)	(22.44)	(− 5.72)		(1.50)	(− 4.32)	(− 2.40)	
3500	− 0.117	0.633	0.804	− 0.184	.63	2.082	0.001	− 0.103	− .03
	(− 3.04)	(4.50)	(10.01)	(− 0.28)		(0.94)	(0.03)	(− 2.73)	
3600	− 0.025	0.763	0.772	− 1.493	.47	0.361	− 0.055	− 0.049	.02
	(− 0.74)	(8.35)	(8.82)	(− 2.27)		(1.79)	(− 1.09)	(− 1.23)	
4000	− 0.129	0.663	0.645	− 0.520	.45	− 0.045	− 0.084	− 0.022	− .00
	(− 4.32)	(4.67)	(8.45)	(− 1.50)		(− 0.08)	(− 1.04)	(− 1.13)	
4500	0.026	0.642	0.544	− 2.033	.32	1.220	− 0.010	− 0.043	− .01
	(1.79)	(5.09)	(15.86)	(− 4.27)		(2.34)	(− 0.32)	(− 0.87)	
5100	− 0.036	0.877	1.122	− 0.643	.70	− 0.575	− 0.006	0.082	.02
	(− 1.09)	(8.98)	(26.11)	(− 1.00)		(− 2.01)	(− 0.78)	(2.41)	

Table 1 (continued)

| SIC digit | KS model | | | | | Jones model | | | |
	Constant	REV	EXP	GPPE	Adjusted R^2	NTA^{-1}	ΔREV	GPPE	Adjusted R^2
5200	− 0.155	1.073	0.738	− 2.595	.80	− 1.290	0.029	− 0.151	.25
	(− 4.27)	(8.21)	(13.89)	(− 3.29)		(− 2.61)	(0.56)	(− 5.77)	
6000	− 0.163	0.589	0.731	0.751	.35	1.240	− 0.179	− 0.033	− .05
	(− 4.33)	(3.93)	(6.31)	(1.97)		(2.25)	(− 1.39)	(− 0.77)	
6100	− 0.183	0.544	0.408	− 0.536	.14	0.523	0.069	− 0.060	.02
	(− 2.94)	(1.19)	(2.57)	(− 0.73)		(0.28)	(0.34)	(− 1.12)	

For the Jones model, the third variable, GPPE, should have a negative relationship with the dependent variable. However, the results of the regression estimation show that only 10 of 25 (40%) regressions have statistical significance with expected signs. By construction, the first variable, which is the inverse of firm size, should not have a statistical relationship with the dependent variable.[9] However, in 9 of 25 cases, the first variable has a statistically significant relationship with the dependent variable. The predicted sign of the second variable, ΔREV, depends on the relative change of current assets and current liabilities associated with operations. Therefore, we do not expect the signs ex ante even though the variable must have a relationship with the accruals. The results support the alternating nature of the variable. In spite of the sporadic statistical significance of some of the explanatory variables, the goodness of fit of the Jones model seems to be significant for only one industry (SIC 5200). The results indicate that we may have a serious misspecification problem when we apply the Jones model to Korean firms. Therefore, the Jones model does not seem to be a reliable model.

4.2. Accruals by CFO portfolios

For the 2033 firm-year observations, 766 observations (37.7%) are negative CFO observations and the rest are positive CFO observations. We constructed 10 portfolios based on the CFO ranks. Four are negative CFO portfolios and six are positive CFO portfolios. The negative CFO observations are equally allocated to each of the four negative CFO portfolios. The positive CFO observations are assigned to six portfolios in a similar manner.

Table 2 presents the average NI, CFO, and accruals by portfolios with their respective standard errors in parentheses. The number of observations for each portfolio is given in parentheses in the first column of Table 2. By construction, the average CFOs for the first four portfolios are negative and positive for the last six portfolios. Without earnings management, the average NI should also show similar relationships. However, in the case of Portfolio 4, NI is positive and its average is even greater than Portfolio 5—0.0053 vs. 0.0030.

As expected, the worst- and best-performing CFO firms seem to employ more earnings management practices than the other firms do in Korea. Based on the results of the TA,

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[9] Econometrically, the correlation between A_{it}/NTA_{it-1} and $1/\text{NTA}_{it-1}$ should be equivalent to the correlation between A_{it} and 1. Therefore, the correlation between them should be approximately zero.

Table 2
Mean accruals by CFO portfolios

Portfolio (number of observations)	NI	CFO	Accruals			
			TA	Discretionary accruals		
				KS	ΔKS	Jones
1 (n = 192)	− 0.0827	− 0.2159	0.1332	0.0030	− 0.0100	0.0020
	(0.0104)	(0.0081)	(0.0099)	(0.0159)	(0.0156)	(0.0127)
2 (n = 192)	− 0.0189	− 0.0855	0.0666	0.0089	0.0021	0.0263
	(0.0057)	(0.0013)	(0.0057)	(0.0101)	(0.0119)	(0.0096)
3 (n = 191)	− 0.0085	− 0.0398	0.0312	0.0114	− 0.0016	0.0217
	(0.0045)	(0.0007)	(0.0045)	(0.0079)	(0.0106)	(0.0077)
4 (n = 191)	0.0053	− 0.0117	0.0170	0.0063	0.0069	0.0187
	(0.0032)	(0.0005)	(0.0032)	(0.0095)	(0.0127)	(0.0087)
5 (n = 211)	0.0030	0.0108	− 0.0078	− 0.0179	− 0.0270	− 0.0026
	(0.0032)	(0.0004)	(0.0032)	(0.0091)	(0.0106)	(0.0080)
6 (n = 211)	0.0072	0.0329	− 0.0257	− 0.0176	− 0.0098	− 0.0056
	(0.0031)	(0.0004)	(0.0031)	(0.0085)	(0.0115)	(0.0091)
7 (n = 211)	0.0132	0.0551	− 0.0419	− 0.0232	− 0.0193	− 0.0103
	(0.0033)	(0.0005)	(0.0033)	(0.0082)	(0.0111)	(0.0079)
8 (n = 211)	0.0176	0.0793	− 0.0617	− 0.0049	− 0.0169	0.0068
	(0.0030)	(0.0005)	(0.0030)	(0.0106)	(0.0169)	(0.0079)
9 (n = 211)	0.0234	0.1099	− 0.0866	− 0.0349	− 0.0273	− 0.0124
	(0.0029)	(0.0008)	(0.0030)	(0.0072)	(0.0095)	(0.0068)
10 (n = 211)	0.0432	0.1883	− 0.1451	− 0.0437	− 0.0308	− 0.0254
	(0.0031)	(0.0039)	(0.0045)	(0.0086)	(0.0118)	(0.0696)
Negative CFO (n = 766)	− 0.0263	− 0.0884	0.0621	0.0074	− 0.0007	0.0172
	(0.0035)	(0.0035)	(0.0035)	(0.0056)	(0.0064)	(0.0049)
Positive CFO (n = 1267)	0.0179	0.0795	− 0.0615	− 0.0237	− 0.0219	− 0.0083
	(0.0013)	(0.0018)	(0.0019)	(0.0035)	(0.0049)	(0.0033)
Total (n = 2033)	0.0013	0.0162	− 0.0150	− 0.0120	− 0.0139	0.0013
	(0.0016)	(0.0025)	(0.0022)	(0.0031)	(0.0039)	(0.0028)

(1) Standard errors are in parentheses.
(2) TA=(NI − CFO)/NTA$_{t-1}$.
(3) KS = the regression residuals of the KS model.
(4) ΔKS = the first difference of the regression residuals of the KS model.
(5) Jones = the regression residuals of the Jones model.

Portfolio 1 increases NI by 13.32% of net total assets whereas Portfolio 10 decreases NI by 14.51% of net total assets. This is a highly significant result since some of the firms with extremely poor performance may take big bath strategies.[10]

The average TA by portfolios imply that the earnings adjustments are systematically different between negative CFO firms and positive CFO firms. The average TA are positive

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[10] See the discussion about the results of the correlation tests.

for the negative CFO portfolios, while the average TA are all negative for the positive CFO portfolios. Furthermore, the average TA decrease as CFO increases.

When we look at the discretionary accruals, we get similar but less salient results.[11] Two discretionary accruals, KS and Jones, indicate that the negative CFO portfolio firms take income-increasing strategies, while positive CFO firms take income-decreasing strategies. However, there is one exception, in the case of Portfolio 8, to this general tendency when discretionary accruals are computed using the Jones model. In the case of ΔKS, mean discretionary accruals for the negative CFO portfolios vary while they are negative for the positive CFO portfolios.

There seem to be no industry-clustering problems in each CFO portfolio. When we scatterplot industry codes with CFO ranks (not shown), industry codes are almost evenly distributed over CFO ranks.

4.3. Mean difference test

A positive discretionary accrual can indicate that the firm employs income-increasing accounting policies. A negative accrual indicates that the firm employs either income-decreasing policies or no earnings management policy since TA are normally expected to be negative. Many of the industrial firms may have noncash-accompanying expenses such as depreciation expense, amortization expense, bad debt expense, and pension expense.[12]

The results of the mean accrual difference tests are summarized in Table 3.[13] An ANOVA could also be conducted, but we believe that a t test is more appropriate. We only report the mean differences in accruals between negative CFO firms and positive CFO firms.

Across all proxies, the mean accruals of the negative CFO firms are statistically significantly higher than the mean accruals of the positive CFO firms. The difference is most important or significant in the case of the TA. Even though the magnitude of mean difference is not material as the TA, all three discretionary accruals of the negative CFO

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[11] If we do not eliminate the 57 outliers in the sampling process, all the three discretionary accruals are negative for Portfolio 1. This indicates that most of the outliers fall into Portfolio 1 and that they may employ big bath strategies.

[12] In Korea, firms pay one-time severance pay when employees retire instead of paying pension after their retirement. Therefore, an account title "provision for retirement benefit allowance" is used for pension expense. Retirement benefit liabilities in Korea are mostly unfunded or underfunded. Hence, pension expenses are noncash-accompanying expenses.

[13] If we partition the sample firm-year observations based on NI, we get negative NI firms' accruals are smaller than positive NI firms' accruals. Mean TA are − 0.0382 and − 0.0079 for the negative and the positive NI portfolios respectively, and the difference is statistically significant at a t ratio of −5.14. Mean values for the three discretionary accrual proxies were also significantly lower for the negative NI portfolios than for the positive NI portfolios. Since NI is the sum of CFO and TA and CFO is highly negatively correlated with TA, it is expected that NI be positively correlated with TA. For our sample, the Pearson correlation coefficient between TA and CFO is −0.77 and the same between TA and NI is 0.18. Accordingly, it is quite natural that we get smaller accruals for negative NI portfolio than for positive NI portfolio.

Table 3
Results of the mean accrual difference test

Accruals		Mean			Variance		t ratio	P level
		Negative CFO firms	Positive CFO firms	Difference	Negative CFO firms	Positive CFO firms		
TA		0.0621	− 0.0615	0.1236	0.0096	0.0044	30.87	.000
Discretionary	KS	0.0074	− 0.0237	0.0347	0.0240	0.0159	4.70	.000
accrual	ΔKS	− 0.0007	− 0.0219	0.0212	0.0312	0.0302	2.64	.004
	Jones	0.0172	− 0.0083	0.0255	0.0184	0.0134	4.32	.000

portfolios are larger than the accruals of the positive CFO portfolios in a statistically significant manner. The results are consistent with the hypothesis that the poor performers, on average, tend to take income-increasing strategies as compared to the good performers. The results are also consistent with the results of McNichols and Wilson (1988) when firms are partitioned based on CFO, in that firms with unusually good CFO tend to decrease accruals while firms with unusually poor CFO tend to increase accruals.[14]

4.4. Correlation tests

If earnings are not managed, we expect the correlations between CFO and NI to be strongly positive. Since both of the variables are supposed to proxy for operating performance, they should move in tandem under the null hypothesis.

The results of the correlation tests between NI and CFO are summarized in Table 4. The results of both the Pearson product correlation and the Spearman rank correlation are provided. The t ratios for each portfolio are provided for dual null hypotheses. The first null hypothesis is that the correlation is 0 between NI and CFO. The second null hypothesis is that the null correlation is the population correlation coefficient, which in our case is represented by the correlation coefficient of all the sample firms. We do not know ex ante what the population correlation is for our sample. However, we can assume that there will be a positive relationship between NI and CFO without earnings management because both variables represent operating performance.

The results show that the correlation coefficients are quite low, ranging from − .0415 to .4546 in the case of Pearson product correlation, and even negative for some portfolios (Portfolios 4 and 9). The results also confirm that the extremely poor performers are quite different from the other portfolios. Some of the Portfolio 1 firms apparently take big bath strategies. When we look at the Pearson product correlation coefficients, the relationship is highly significant (.4536 with a t ratio of 7.04). The relationships are not statistically

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[14] McNichols and Wilson's major finding, however, is that firms manage earnings by choosing income-decreasing accruals when income is extreme.

Table 4
Results of the correlation test between NI and CFO

CFO portfolio	Subsample size	Pearson product correlation			Spearman rank correlation		
		Coefficient	t ratio		Coefficient	t ratio	
			H_0: $\rho=0.0000$	H_0: $\rho=0.4866$		H_0: $\rho=0.0000$	H_0: $\rho=0.3123$
1	192	.4546	7.04	− 0.50	.1138	1.58	− 2.75
2	192	.0829	1.15	− 5.58	.0961	1.33	− 2.99
3	192	.0512	0.71	− 6.01	− .0057	− 0.08	− 4.38
4	191	− .0415	− 0.57	− 7.27	− .0164	− 0.23	− 4.52
5	211	.2287	3.40	− 3.83	− .0008	− 0.01	− 4.53
6	211	.0065	0.09	− 6.94	.1596	2.34	− 2.24
7	211	.0363	0.53	− 6.51	.0527	0.76	− 3.76
8	211	.0153	0.22	− 6.81	− .0142	− 0.21	− 4.72
9	211	− .0280	− 0.40	− 7.44	.1231	1.79	− 2.76
10	212	.2055	3.04	− 4.16	.3331	5.12	0.32
Negative	766	.4826	15.23	− 0.13	.4892	15.50	5.61
Positive	1267	.2931	10.90	− 7.20	.4525	18.05	5.60
Total	2033	.4866	25.10	N/A	.3123	14.82	N/A

significant for the Spearman rank correlations (.1138 with a t ratio of 1.58). The contrasting coefficients indicate that the Pearson product correlation for the first portfolio may be plagued by some extreme figures. The parametric coefficients may be biased because in these tests we estimate the coefficient in such a way that minimizes the squared residuals.

When we test the assumed null hypothesis of the population correlation, every portfolio's correlation coefficient is lower than the population correlation coefficient. Even though the correlation coefficient for the entire sample is relatively high because of the increased degrees of freedom, the individual portfolio's correlation is so low that we can infer that most of the firms select some earnings management strategies one way or another.

4.5. Regression analysis

Table 5 shows the results of the regression analysis, which examines the relationships of TA with OP, CFO, and a slope dummy for CFO. The regression analysis reveals that TA are positively related with OP but negatively related with CFO. The two coefficients are highly significant. The slope dummy for CFO is negative and statistically significant. As discussed, the slope dummy takes on the value of 1 if CFO is negative and 0 if positive.

The results indicate that the negative relationship between TA and CFO is very strong when CFO is positive, but the strength of the negative relationship decreases when CFO is negative. This implies that good performers tend to decrease reported earnings while bad performers tend to increase reported earnings. This is consistent with the results of the income-smoothing literature.

Table 5
Results of regression analysis

Variables	Coefficients	t ratios	P level	Adjusted R^2
Constant	− .0276	− 13.55	.000	.7361
OP	.6024	31.55	.000	
CFO	− .9399	− 47.83	.000	
D * CFO	.2848	9.59	.000	

Model: $TA_i = \beta_0 + \beta_1 OP_i + \beta_2 CFO_i + \beta_3 D * CFO_i + \varepsilon_i$, where D is 1 if CFO is negative and 0 otherwise.

4.6. Sign-change tests

The test results of Tables 3–5 may be plagued by outliers that may have a significant misleading effect on the results of the three parametric tests (the mean test, the correlation test, and the regression analysis). The sign-change test is a nonparametric test in the sense that outliers should not affect the results. A sign change implies that negative CFO firm reports positive earnings figure (income-increasing strategies) or positive CFO firm reports negative earnings figure (maybe income-decreasing strategies).

Table 6 shows the results of the sign-change tests. The sign-change tests clearly reveal that a majority (62.7%) of negative CFO firms manage earnings so extensively that the reported earnings are positive. Portfolios 1 and 2 firms may not be able to report positive earnings without massive earnings management since these firms are experiencing severe negative cash flows from operations. We believe these firms may employ various vehicles to manage earnings including disposal gains on assets and insufficient provisions for discretionary expenses. For Portfolios 3 and 4 firms, the firms may comparatively be in better positions to employ readily available income-increasing strategies without being noticed by outsiders. Hence, we expect gradual increase in sign changes as CFO increases. The result is consistent with our expectations.

Table 6
Sign-change ratio test

CFO portfolio	Subsample size	Sign change		z value (H₀: P=.328)
		Observations	Ratio (%)	
1	192	83	43.2	3.07
2	192	122	63.5	9.06
3	191	128	67.0	10.07
4	191	147	77.0	13.01
5	211	45	21.3	− 3.56
6	211	44	20.9	− 3.68
7	211	27	12.8	− 6.19
8	211	31	14.7	− 5.60
9	211	23	10.9	− 6.78
10	212	16	7.5	− 7.85
Negative	766	480	62.7	13.95
Positive	1267	186	14.7	− 13.72
Total	2033	666	32.8	N/A

By contrast, the tests show that the positive CFO firms generally do not report negative earnings. We expected that a considerable proportion of Portfolios 5 and 6 firms might report negative earnings without earnings management since TA are generally negative for industrial firms. Industrial firms will have more noncash expenses than noncash revenues. Therefore, these firms will generally have negative TA. Though the sign-change ratios for Portfolios 5 and 6 firms are relatively high within the positive CFO group, the ratios are much lower than those of negative CFO firms. For other portfolios of the positive CFO group, the low sign-change ratios are as expected since the firms do not, in general, have any reason to report negative earnings.

The z values that are presented in the last column of Table 6 are somewhat arbitrary. We arbitrarily picked a null sign-change ratio since the actual ratio is not known. More specifically, the study assumed that the mean sign-change ratio (0.328) for the total sample is the null ratio. This ratio is overstated since the majority of negative CFO firms report sign changes. We do not know the null ratio ex ante. Therefore, the z values for the negative CFO firms should be interpreted very strongly while those for the positive CFO firms should be interpreted rather weakly. For example, z values for Portfolios 5 and 6 are significantly negative and, therefore, these firms probably employ conservative accounting policies. However, these firms are, in fact, managing their respective earnings. If we evaluate the mean sign-change ratios of the positive CFO firms, then we may interpret the realities of the statistical significance of the earnings management practices.

5. Conclusions

Our study investigated Korean industrial firms to determine if operating performances affect the degree of earnings management. Based on the assumption that the degree of earnings management will depend on operating performance, we constructed 10 CFO portfolios to see if we can find any systematic differences in earnings management practices across portfolios.

The final sample of 2033 firm-year observations was selected for the period of 1994 through 1997. The study employed four test methods to examine the earnings management hypothesis. As a measure of earnings management, we tested both discretionary accruals and TA estimated from two competing models. The two models were developed by Jones (1991) and Kang and Sivaramakrishnan (1995), respectively. Our study found that the Kang and Sivaramakrishnan model is more useful than the Jones model in estimating discretionary accruals.

The results of the study support the hypothesis that firms widely use earnings management strategies. Negative CFO firms generally take income-increasing strategies. Furthermore, the results imply that some firms with extreme performances in both directions tend to take income-decreasing strategies. That is, not only the best performers but also the worst performers often take income-decreasing strategies. On the other hand, less extreme negative CFO firms tend to take income-increasing strategies.

Possible future research avenues could include a market study associating TA with stock price reactions for the different portfolios. Another project could investigate such areas as IPO

firms' earnings management practices and specific methods of earnings management associated with certain type of firm-specific characteristics.

A major concern for our study is the appropriateness of the accrual proxies. The TA approach does not separate discretionary accruals from nondiscretionary accruals. Other discretionary accruals may suffer from a possible misspecification problem, especially the Jones model. In our case, to compensate for the deficiency of the accrual approach, we used three other methods (the correlation analysis, the regression analysis, and the sign-change ratio analysis) to confirm our results.

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Level of multinationality as an explanation for post-announcement drift

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Abstract

This study tests whether the observed patterns in stock returns after quarterly earnings announcements are related to the level of multinationality, a variable used to proxy for earnings predictability. Our findings show that the level-of-multinationality variable is negatively correlated with the observed post-announcement abnormal returns. The findings suggest that the level of multinationality as a proxy for earnings predictability underlies the predictability of stock returns after earnings announcements.
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Keywords: Multinationality; Post-announcement drift; Earnings predictability

1. Introduction

The predictability of stock returns after earnings announcements (i.e., the post-earnings-announcement drift) was first noted by Ball and Brown (1968). They reported that even after earnings are announced, estimated cumulative "abnormal" returns continue to drift up for "good news" firms and down for "bad news" firms. Explanations offered for the phenomenon included (a) the inadequacy of the CAPM as a model of asset pricing (Foster, Olsen, & Shevlin, 1984; Holthausen, 1983), (b) the market's failure to fully reflect the attributes of the stochastic process underlying earnings (Bartov, 1992; Bernard & Thomas,

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1990; Freeman & Tse, 1989; Rendleman, Jones, & Latane, 1987), (c) the transaction costs (Bhushan, 1994), (d) investor sophistication (Bartov, Radhakrishnan, & Krinsky, 2000), (e) the use by market participants of a naïve model to form earnings expectations and their failure to incorporate properly the serial correlation in earnings (Soffer & Lys, 1999), and (f) analyst experience (Mikhail, Walter, & Willis, 2000).

Our study further investigates whether drift is a manifestation of the earnings predictability of the firm issuing the quarterly earnings by examining the relation between drift and the level of multinationality. The position to be discussed in detail in the next section is that post-earnings-announcement drift in stock prices will be most pronounced for firms with a low level of multinationality whose earnings are more difficult to predict.[1] An intuition for this result is that stock prices reflect the performance of both domestic and international activities, and consequently, the greater the level of multinationality of a firm, the greater the predictability of its price (Agmon & Lessard, 1977; Choi, Frost, & Meek, 1999; Errunza & Senbet, 1981; Yang, Wansley, & Lane, 1985). The foreign profit/total profits variable is used as a proxy for the level of multinationality.

We find that the level-of-multinationality variable is important in explaining both the drift and the stock-price responses to subsequent earnings announcements. Drift is found to be positively related to an earnings-surprise variable and negatively related to the multinationality variable after controlling for firm size (e.g., Foster et al., 1984).

The findings show that the magnitude of the post-earnings-announcement drift is more pronounced in firms with a low level of multinationality. The level of multinationality appears to be related to the predictability of stock returns after earnings announcements.

2. A multinationality perspective on drift

The predictability of abnormal stock returns was found in early work to last up to 2 months after annual earnings announcements. Some of the cited conjectures and evidence of the cause of the post-earnings-announcement drift in abnormal returns included misperception of the time-series properties of earnings (Freeman & Tse, 1989), misperception of quarterly earnings to be a seasonal variable random walk, while the actual process is a seasonally differenced first-order autoregressive process with a seasonal moving-average term (Bernard & Thomas, 1990), and market misperception of the process underlying earnings (Ball & Bartov, 1996). The primary purpose of the current study is to evaluate and test the conjecture that multinationality is a leading cause of the post-earnings-announcement drift in abnormal

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[1] Prior research on the market value relevance of the disclosure or foreign financial data on a firm's operations relied on the return/changes regressions to examine the associations between annual abnormal stock performance and changes in the firm's domestic and foreign incomes (Boatsman, Behn, & Patz, 1993; Bodnar & Weintrop, 1997; Prather-Stewart, 1995; Prodhan, 1986; Prodhan & Harris, 1989). Their results demonstrated a large coefficient for multinationality, as measured by the level of foreign income, consistent with differences in growth opportunities between domestic and foreign operations.

returns. The idea that the drift is negatively related to the level of multinationality can be supported by previous findings, including:

(a) Drift is inversely related to size (Bhushan, 1994) and bigger multinationality is characteristic of large firms (Errunza & Senbet, 1981);
(b) Drift is a result of misperception of the earnings process by holdings of unsophisticated investors (Bartov et al., 2000) and high multinationality firms are largely sought by sophisticated investors in general and fund managers who specialize in large capitalization stocks (Choi et al., 1999);
(c) Drift is inversely related to share price and annual dollar trading volume as a proxy for the inverse of direct and indirect cost-of-trading (Bhushan, 1994) and the growth of institutional holdings in large multinational firms (Choi et al., 1999);
(d) Findings consistent with investors anchoring on the more efficient and more accurate earnings expectations of high-multinationality firms, mitigating any resulting post-earnings-announcement drift (Bodnar & Weintrop, 1997; Rivera, 1991; Rugman, 1977).

3. Description of the sample and the variables

The sample used in this study is comprised of all the firms included in the 1990–1999 Forbes' 100 largest U.S. multinationals. It consists of 3972 firm-quarter observations.

To test the hypothesis that the observed patterns in stock returns after quarterly earnings announcements are related to the level of multinationality, we examine the association between post-earnings-announcement drift and the level of multinationality, controlling for the firm's standardized unexpected earnings (SUE), and for size shown in prior research to affect the drift. Those variables are defined as follows.

For each observation, we calculate the firm's daily abnormal return as the firm's raw return minus the return on the size decile portfolio to which the firm belongs as of the beginning of the year. Those daily returns are compounded from $t=0$ to $t=+59$ (where $t=0$ is the quarterly announcement date from Compustat to obtain the cumulative abnormal return, CAR60, for a firm at quarter t.[2] The choice of the 60-day window reflects Bernard and Thomas' (1989) finding that most of the drift occurs during this period.

SUE is computed as in previous research on drift (e.g., Bernard & Thomas, 1990). First, SUE are measured as the difference between reported and expected earnings, where expected earnings are estimated using a seasonal random walk deflated by the standard deviation of forecast errors from this model over the most recent 20 quarters of data, beginning in the quarter $t - 21$ and going through quarter $t - 1$ (the estimation period). Second, SUE_{it} is classified into deciles ($DSUE_{it}$), based on the sample distribution of SUE for each calendar

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[2] Following Bartov et al. (2000), we eliminate observations in the extreme tails of the distribution of CAR60 by deleting 0.25% extreme observations from both tails of CAR60 distribution.

year, with zero representing the smallest decile of the level of SUE and nine representing the largest, and then scaled to range between 0 and 1.[3]

Multinationality (MULTY) for firm j at quarter, is defined as the ratio of the yearly foreign profits/total profits. Our results are unchanged if multinationality was defined by either foreign sales/total sales or foreign assets/total assets. Similarly to SUE, MULTY is categorically classified as DMULTY.

Size is measured by MV_{it}, the market value of equity for firm i as of the beginning of the year in which the quarterly earnings announcement occurs. DMV is the ranked market value of equity.

4. Regression results

The relation between drift and multinationality is analyzed using regression analysis with CAR60 as the dependent variable. A first regression is used to replicate the documented inverse relationship between drift and size as follows:

$$CAR60 = b_0 + b_1 DSUE_{it} + b_2 DMV_{it} + b_3 DSUE_{it} \times DMV_{it} + E_{it}. \tag{1}$$

A second regression is used to estimate the relationship between multinationality and drift after controlling for firm size as follows:

$$CAR60 = b_0 + b_1 DSUE_{it} + b_2 DMV_{it} + b_3 DSUE_{it} \times DMV_{it} + b_4 DMULTY_{it}$$

$$+ b_5 DSUE_{it} \times DMULTY_{it} + E_{it}. \tag{2}$$

In estimating both Eqs. (1) and (2), observations with studentized residuals greater than two or Cook's D greater than one are eliminated. The results are insensitive to this elimination. If our hypothesis is supported, we expect the coefficient estimate associated in the DSUE × DMULTY to be reliably negative.

Table 1 provides the variable descriptive statistics and correlations between CAR60 and the categorical classifications of the independent variables. As expected, the cumulative abnormal return following the quarterly earnings announcement (CAR60) is positively correlated with the ranked SUE variable (DSUE) and negatively correlated with the ranked firm size variable (DMV) and the ranked level of multinationality (DMULTY). This last negative correlation indicates that the magnitude of the post-announcement drift is smaller for firms with high multinationality.

Table 2 shows the result of the regression we use to examine if the conclusions hold after we control for unexpected earnings, firm size, and level of multinationality. The first column (Model 1) shows the results of regressing CAR60 on unexpected earnings. The magnitude of the post-earnings-announcement drift in our sample is 2.32% ($t = 7.235$, one-tailed $P < .01$).

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[3] The categorical classification in our regression estimates as well as the ranking conversion are as discussed in Bartov et al. (2000, footnote 5).

Table 1
Variable descriptive statistics and correlations

(A) Descriptive statistics

	Mean	Median	S.D.
Number of observations	3972		
CAR60	0.0023	− 0.0011	0.1321
SUE	− 0.7232	0.0532	15.265
MV	14,081.50	12,290.51	6232.50
MULTY	0.5321	0.4132	0.2232

(B) Correlation table

	CAR60	DSUE	DMV	DMULTY
CAR60	–	.0523 (.000)	− .0326 (.013)	− .0321 (.000)
DSUE		–	.0821 (.000)	.0812 (.000)
DMV			–	.1325 (.000)
DMULTY				–

Panel A provides descriptive statistics on the CAR60, SUE, MV, and MULTY, measured as yearly foreign profits/total profits. Panel B provides Pearson correlations. DSUE, DMV, and DMULTY represent the ranked values of SUE, MV, and MULTY, respectively.

The second column (Model 2) adds the interaction term between unexpected earnings and the level of multinationality (DSUE × DMULTY) to Model 1. This interaction term measures the incremental effect of the level of multinationality on the slope of DSUE. As expected, the

Table 2
The association between post-earnings-announcement drift and level of multinationality (Eq. (2))

Variable	Predicted sign	Model 1	Model 2	Model 3	Model 4
		3972	3972	3972	3972
Intercept	?	− .0131	− .0132	− .0133	− .0242
		(− 8.023)*	(− 8.231)*	(− 8.211)*	(− 8.212)*
DSUE	+	.0232	.0354	.0342	.0362
		(7.235)*	(8.229)*	(6.231)*	(5.231)*
DMV	?				.0121
					(2.425)**
DSUE × DMV	−			− .024	− .0015
				(− 4.231)	(− 2.119)**
DMULTY	?				.0135
					(2.721)**
DSUE × DMULTY	−		− .0080	− .0081	− .0013
			(− 3.159)	(− 3.250)*	(− 3.521)**
Adjusted R^2 (%)		.42	.43	.61	.73
F		(72.320)	(28.320)	(25.301)	(14.256)

The variables are defined in Table 1. The t statistic is provided in parentheses after the estimated coefficient.
  * One tailed $P < .01$.
  ** One-tailed $P < .05$.

coefficient on DSUE remains significantly positive (.0323, $t = 8.229$, one-tailed $P < .01$). As predicted, the estimated coefficient on DSUE $\times$ DMULTY is negative and statistically significant ($-.0080$, $t = -3.159$, one tailed $P < .01$).

The third column (Model 3) shows that the negative association between CAR60 and level of multinationality holds when the interaction term for firm size (DSUE $\times$ DMV) is added. The interaction term is negative and statistically significant ($-.024$, $t = -4.231$, one tailed $P < .01$).

Finally, the fourth column (Model 4) shows that the negative association between CAR60 and the level of multinationality holds after we include both intercept and slope for multinationality and size.[4]

5. Concluding remarks

This study is another empirical examination of a potential explanation of observed post-announcement drift in stock prices. Does the level of multinationality, a variable used for earnings predictability, relate to post-earnings-announcement drift? The findings are that post-earnings-announcement drift is negatively related to the level of multinationality and that this relation exists when firm size is controlled.

The findings may be related to prior research by stating that the misperception of the time-series properties of earnings observed by Freeman and Tse (1989), the misperception of quarterly earnings to be a seasonal random walk observed by Bernard and Thomas (1990), and the market misperception of the process underlying earnings (Ball & Bartov, 1996) are *possibly* reflecting the low level of multinationality that causes the post-announcement drift in general.

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[4] The Durbin–Watson statistic for Models 1–4 in Table 2 are 1.691, 1.693, 1.682, and 1.687, respectively. Therefore, we are unable to reject the null hypothesis of zero first-order correlation in the residuals at conventional levels. In addition, Models 3 and 4 were reestimated annually. In addition, the mean of the coefficients and the t statistics based on the aggregated standard errors were computed (see Fama & MacBeth, 1973). The mean of the coefficient estimates for DSUE $\times$ DMULTY is -0.00561 (t statistic $= -2.823$) and -0.00552 (t statistic $= -2.723$) for Models 3 and 4, respectively.

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Fiscal year-end choice: determinants and dynamics[*]

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Abstract

The international diversity of firms' fiscal year-end is relatively unknown. However, this diversity has practical implications for both accounting research and business comparability. In this study, we examine the backgrounds of the diversity. We found that differences in tiny, supposedly unimportant details in national legislation on fiscal year-end have a much stronger impact on fiscal year-end choice than the generally assumed cause of seasonality. In the last decade of international harmonization, we found only a few instances of fiscal year-end changes motivated by enhancing comparability. Worldwide, a weak drift towards December was found.
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Keywords: Fiscal year-end choice; International diversity; Comparability

1. Introduction

The choice of fiscal year-end seems straightforward. The obvious balance sheet date seems to be December 31. In the literature, little attention is paid to it. Two of the few relevant studies are Huberman and Kandel (1989) and Smith and Pourciau (1988). They examined whether December and non-December firms differ systematically in characteristics such as size and industry. They argue that researchers often restrict their sample selection to either December or non-December firms. Generalizability in empirical financial accounting research may therefore be affected by the presence of systematic differences between December and non-December year-end companies.

However, these studies do not address the causes of the international diversity in fiscal year-end. It could be argued that since, both in practice and in the literature, little attention is paid to the choice of fiscal year-end, this does not matter. However, both diversity and uniformity in fiscal year-end have advantages and disadvantages in several areas.

The most prominent argument for a uniform fiscal year-end is comparability. When comparing the financial performance of two firms with different fiscal year-ends, significant changes in the business environment in the nonoverlapping period may hamper comparability. In addition, when two firms merge, they have to align their annual reporting. This results in short or long fiscal years, which hampers time series analysis.

On the other hand, diversity in the fiscal year-end provides a far more continuous flow of economic business data. This would be beneficial for economic policy makers who can react faster on recognized trends. In addition, external auditors could spread their workload better over the entire year. This may reduce costs. In fact, there are auditing firms that offer discounts to clients who close their books outside the "busy" season. In this study, we will address the causes of international diversity in fiscal year-end, based on an analysis of differences in the national legal environment of firms and large samples from databases such as Global Vantage. The samples will also be analyzed to explore whether changes in fiscal year-end tend to harmonize towards an international uniformity.

2. Causes of fiscal year-end diversity

The best known explanation of non-December fiscal year-ends is the seasonal pattern of a firm's business. The argument is that the fiscal year should end at the natural business cycle of a firm. On the other hand, the choice of fiscal year-end may be determined by accounting or fiscal legislation or customs in the industry or country. In many countries, firms are free to choose the fiscal year-end they prefer. However, small differences in the way legislation is stated may lead to large differences in practice when firms do not have a strong preference for a particular balance sheet date. These small differences in legislation are illustrated by the various approaches in continental Europe, the UK, and the US. In most continental European countries in the European Union, the law assumes the balance sheet date to be December 31, unless the Articles of Association say otherwise. Therefore, if continental European firms do not have an explicit preference, the balance sheet date will be December 31. The Companies Act 1985 (Sections 223 to 224) in the UK states that the first fiscal year normally ends the last day of the month in which the anniversary of its incorporation falls. If the company was incorporated before April 1, 1985, the Companies Act 1985 determines the fiscal year-end to be March 31. All companies are allowed to alter their fiscal year-end (Companies Act 1985 section 225.) Therefore, if British firms do not have an explicit preference, balance sheet dates will be scattered quite randomly over the calendar year, following the (coincidental) founding date, with a skewness in March due to "older" companies. In many US states, legislation requires that the Articles of Association explicitly mention the freely chosen balance sheet date. Therefore, founders of the firm are forced to pay attention to this choice. They may select either the calendar year, the end of the business season, or the founding date.

Thus, we also expect a diverse choice of fiscal year-ends for US firms. Finally, for some countries, the fiscal year-end may be influenced by tax law. If tax law prescribes a certain balance sheet date, the firm is likely to align its financial reporting to the tax period. However, in most countries, the tax period follows the choice made for statutory accounts. In order to examine whether balance dates are associated with national legislation or industry, we selected data from Datastream. The fiscal year-ends of 14,896 listed firms as per September 1999 were retrieved, sorted by country. The largest subset was of US firms (8744). For Canada, the UK, and Japan, more than 1000 firms per country were selected. For most of the remaining countries, the number of firms ranged between 200 and 750. The distribution of the fiscal year-end per country is presented in Table 1.

Table 1 shows that there are indeed international differences in the "popularity" of certain balance sheet dates. Continental European firms have a strong preference for December, with percentages for December about 90%. For the UK, fiscal year-ends are far more spread over the year. Only 39% of the firms chose December. A similar pattern is found for the US and Canada, although to a more limited extent. Japanese firms have a strong preference for March, and the South Pacific countries, Australia, and New Zealand, often choose the end of June. The patterns of continental Europe and the UK support the conclusion that fiscal year-end choice is primarily based on the date suggested by national legislation. Apparently, firms do not often attempt to enhance comparability by choosing a uniform balance sheet date. The relative high uniformity in continental Europe is a simple effect of legislation. If a different date is suggested, like in the UK, the pattern changes drastically, and no uniformity occurs. Australia has a mandatory tax period ending June 30. Most Australian firms appear to align their annual reporting to this mandatory tax period. In New Zealand, a distinction can be made between private and public companies. According to a public accountant from New Zealand (oral communication), "New Zealand's traditional balance date for most individuals and private companies is 31 March. Most public companies have adopted June 30 to coincide

Table 1
Distribution of fiscal year-ends per country, in percentages

	January	February	March	April	May	June	July	August	September	October	November	December
France	0	1	3	0	0	1	0	1	2	1	0	91
Germany	0	0	2	0	0	5	0	0	10	2	0	78
Italy	0	0	0	0	0	2	0	0	0	0	0	98
Switzerland	0	2	1	0	0	1	0	0	4	0	0	91
Belgium	4	0	2	0	0	2	0	0	0	0	0	92
Netherlands	4	0	4	1	0	0	1	0	3	0	1	88
UK	3	3	22	5	4	7	2	3	9	2	1	39
US	4	1	6	2	2	9	2	2	7	2	1	62
Canada	5	2	7	2	3	4	3	5	6	3	2	60
Japan	1	5	84	0	1	0	0	0	1	1	1	6
Korea	0	0	13	0	0	5	0	0	3	0	1	78
Australia	0	0	3	0	1	74	5	1	2	0	0	14
New Zealand	0	1	21	0	4	43	4	6	7	1	0	13

with Australia. There is no other logic to it." Within Japanese standard setting, the national government has the most significant influence on accounting, based on an implicit and persistent belief that accounting should eventually contribute to the development of the national economy as a whole (Walton, Haller, & Raffournier, 1998) For this purpose, alignment to the government's accounting period, which (traditionally) ends on March 31, is important. The results show that Japanese firms indeed follow the government's accounting period.

3. Association between fiscal year-end and industry

Although the findings of the previous section suggest that the choice of fiscal year-end is mainly driven by national legislation, for some industries, the impact of seasonality may be stronger. Note that this argument only applies for those industries that have a seasonal business pattern. Therefore, we focus on department stores and clothing retail, the best known industry with a typical seasonality, ending in the first months of the calendar year. From Global Vantage, we selected all available firms in this industry from the US, the UK, and continental Europe as per December 1999, and compared the relative distribution of fiscal year-ends. The results are presented in Table 2.

Table 2 shows that the skewness in the first 3 months of the calendar year is the highest in the US, while in Europe, the distribution is very similar to the average distribution of fiscal year-ends of European firms. This suggests that in the US the fiscal year-end choice is more strongly based on business characteristics, while in Europe, seasonality plays a minor role in determining the fiscal year-end. Given the scope of Global Vantage, the focus is here on large listed firms in one industry, so results may not be generalizable to smaller firms in other industries. However, in the total data set, we did not find major industries with a stronger skewness. Therefore, in some industries, the seasonal effect may be stronger, but this has a low impact on general practice. Also, large firms are often more diversified than small

Table 2
International comparison of fiscal year-end in department store and clothing industry (percentage)

	US (n = 114)	UK (n = 43)	Continental Europe (n = 64)
January	39	28	8
February	3	5	0
March	1	16	3
April	2	7	–
May	2	7	–
June	3	–	–
July	3	–	–
August	1	5	–
September	3	2	–
October	3	7	5
November	1	2	–
December	47	21	84

companies, which may neutralize the seasonality, if any, of individual segments on a consolidated basis. Thus, small, nondiversified firms may have a stronger incentive to choose a non-December fiscal year-end. We used the Dutch database, Elsevier's Financieel Economisch Lexicon Top 5,000, to expand the analysis to smaller firms. The database contains the financial data of the top 5000 Dutch firms. Since the Dutch economy is relatively small, its top 5000 comprises relatively small companies. When stratified on sales, we did not find a significant change in the distribution of non-December firms. This suggests that size does not affect the fiscal year-end choice.

4. Fiscal year-end changes

So far, we showed that fiscal year-ends differ significantly internationally. In this section, we examine whether international accounting harmonization causes a drift in fiscal year-end towards a worldwide equilibrium by analyzing patterns in fiscal year-end changes. Note that harmonization of fiscal year-ends does not follow directly from International Accounting Standards (IAS), since IAS do not elaborate on the choice of fiscal year-end. Therefore, a harmonization of fiscal year-end would be driven by forces other than explicit standards. Firms may change their fiscal year-ends for various reasons. They may decide to switch from their founding date-based fiscal year-end to a date that reconciles to their business seasonality, or in the case of a merger, they may align with the balance sheet date of the firm with which they have merged. Firms may also align their fiscal year-end with the common fiscal year-end in their industry, in order to enhance the comparability of the financial statements. The latter argument coincides with the aim of (international) accounting harmonization. From the total set of the 13,503 available firms in Global Vantage, we selected all firms that changed their fiscal year-end between 1990 and 1998. This resulted in a subset of 756 firms, implying that in the 10 year period studied, 5.6% of the selected firms had a fiscal year-end change, i.e., a half percent annually on average. There is a relatively high incidence of fiscal year-end changes in the UK, the US, and Canada (0.9% annually). These are also the countries with a relatively high variance in the distribution of fiscal year-ends. Relatively low incidences of fiscal year-end changes occur in Japan (0.22%) and France (0.33%). The less stable choice of fiscal year-ends in the UK and the US raises the question of whether the changes in fiscal year-end are subject to a trend. We constructed migration matrices for the individual countries. The migration matrix summarizes all fiscal year-end changes "from" (e.g., the original fiscal year-end) to "to" (the newly chosen fiscal year-end). Since most of the fiscal year-end changes (72%) relate to December (either the original fiscal year-end or the newly chosen fiscal year-end), we focus on those fiscal year-ends only. The results are presented in Table 3. For example, the upper left cell in Table 3 shows that six US firms changed their fiscal year-end from January to December; the upper right cell says that in the total data set, 14 firms changed their fiscal year-end from December to January.

On the bottom line of Table 3, the trend is quantified by dividing the total number of firms that changed their fiscal year-end to December by the total number of firms that changed their fiscal year-end from December to another month. For example, in the US, the number of firms

Table 3
Fiscal year-end changes from and to December

	US		UK		Germany and France		World	
	To	From	To	From	To	From	To	From
January	6	5	3	4		1	18	14
February	9	1	4	3			20	6
March	22	7	14	6	1	5	81	45
April	13		2	1		1	28	2
May	5	3	10				11	3
June	35	3		4	5	10	90	34
July	5		1	2	1		11	4
August	9	1	1			1	22	4
September	22	19	12	3	10	9	67	38
October	5	3	8	1		2	17	9
November	6	1			1	1	11	7
Total	137	43	55	24	18	30	376	166
Ratio towards December	3.2		2.3		0.6		2.3	

that adopted December as the new fiscal year-end is more than three times (3.2) the number of firms that traded their December year-end for another month. Again, we see contrary trends between US and UK and between Germany and France. In the US and UK, the net effect of fiscal year-end changes is in favor of December. In Germany and France, the popularity of December slightly deteriorates. The relatively large portion of US and UK firms in the data set is the reason for the 2.3 ratio towards December on a worldwide basis. Note, however, that since the average rate of change is only a half percent annually, significant changes in distributions of fiscal year-ends require many years. The resemblance of the current distributions with those in earlier research (see Foster, 1986) confirms this slow rate of change. To explore the underlying reasons for the change in fiscal year-end for 50 US firms in the subset, the financial statements of the year of change were retrieved from the EDGAR database. The notes to the financial statements were reviewed to find the reason management gave for the change in fiscal year-end. In 29 cases, the change in fiscal year was mentioned and reasons were provided. In only four instances was the change of fiscal year-end made explicitly to align the fiscal year-end with the industry, in order to enhance comparability. In other cases, the change of fiscal year-end followed a merger or a major acquisition (eight instances) or aligned the fiscal year-end with the seasonal business pattern (five instances). The remaining four instances were diverse in nature. These findings suggest that enhancement of comparability within the industry explains only a limited number of fiscal year-end changes.

5. Summary and conclusions

The choice of fiscal year-end does not attract much attention in either accounting research or in practice. This paper shows that there is a great diversity internationally in fiscal year-

ends. In this paper, we focused on two determinants of the choice of the fiscal year-end, national legislation, and seasonality. We retrieved large samples from public financial databases. Although, in most countries, firms are free to choose any fiscal year-end, company laws often provide guidance if the firm does not have a particular preference.

In the analysis of the association with industry, we found a stronger non-December effect for department stores and clothing retail only, although, even for this industry, the impact of legislation was very clear. In the period 1990–1998, some 0.5% annually of firms worldwide changed their fiscal year-end. Only a small part of these changes was explicitly imposed by the desire for comparability. The fiscal year-end changes have a "mean reverting" drift: Anglo-Saxon firms tend to adopt a December fiscal year-end, and continental European firms tend to change their December fiscal year-end to a non-December book year. Since fiscal year-end changes occur relatively infrequently, it appears that international diversity will remain for a long period. Since legislation on fiscal year-end appears to be merely a matter of (coincidental) choice, it is worthwhile to rethink whether it would be relevant to pursue international harmonization of the fiscal year-end. Individual firms should weigh the benefits of comparability and auditor costs relating to either December or non-December fiscal year-end.

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The adoption of international accounting standards by small and closely held companies: evidence from Bahrain

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Abstract

This study examines the accounting practices and the degree of adoption of international accounting standards (IASs) by small and closely held companies in Bahrain. It finds that 86% (31) of the 36 companies responding to the questionnaire applied IASs and they considered IASs to be very relevant for them. All firms prepare balance sheets, and the majority prepares income statements and cash flow statements. They also duly audit these statements. The data collected also revealed that the quotient influence on whether or not a firm adopted IAS was exerted by their external auditors. External auditors exerted the greatest influence on getting firms to adopt IASs. Banks and company partners were the primary users of company financial statements; inventories, depreciation, disclosure on financial statements, and the presentation of current assets and liabilities. The main IASs followed by a majority of firms are those pertaining so. Some of the standards were considered totally irrelevant, contrary to the prevailing idea that adoption of IASs creates an information overload for small and closely held companies. The results of this study indicate that a majority of our respondents did not find that it was costly to adopt or interpret IASs. Those few firms that experienced some difficulties sought clarification from their external auditors. About 84% of those who adopted IASs strongly agreed that using IASs improves their organization's ability to financial assistance from the banking sector. Also, about 90% of the respondents fully agreed that IASs help to achieve the objectives and improve the effectiveness of financial reporting.
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Keywords: Closely held; IAS; Bahrain; Cost–benefits; Financial statements

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1. Introduction

In recent years, corporate financial reporting practices have undergone radical changes all over the world. These changes in developing countries are particularly significant. Although there is no agreement about the type of accounting system developing countries should use (Wallace, 1990), the adoption of international accounting standards (IASs) has been suggested as an appropriate accounting system to facilitate economic growth (Belkaoui, 1988). Belkaoui (1994, p.75) suggests that

> The best strategy available to the developing countries is either of joining the International Accounting Standards Committee (IASC) or some of the other international standards setting bodies, and adopting their complete set of pronouncements. The rationale, behind such a strategy, is to reduce the setup and production costs of accounting standards, joining the international harmonization desire, facilitating the growth of foreign investment that may be needed, enable the profession to emulate well established professional standards of behavior, conduct and legitimize its status as a full-fledged member of the international community. Some of the developing countries give more credibility to IASs, and other standards than do the developed countries that have a dominant influence in the preparation of such standards.

Choi, Frost, and Meek (1999, p.262) state that IASs are used as a result of either international or political agreements, or voluntary (professionally encouraged) compliance. Al-Bastaki (1996) found that the adoption of IASs is one of the most effective strategies for enhancing the accounting profession in Bahrain. The application of the European Union's (EU) accounting-related directives in developing nations generally results from an international political agreement. When international and national accounting standards are the same, there is no problem; but when they differ, national standards come first. Choi et al. cite the following four main reasons for the wider acceptance of IASs. First, many countries use them as the basis for national accounting requirements. Second, they are used as an international benchmark. Third, the EU and other supranational bodies recognize them. And, fourth, many stock exchanges (e.g., London, Frankfurt, Luxembourg, Zurich, Thailand, Hong Kong, Rome, and Amsterdam) and regulators accept financial statements that are prepared in accordance with IASs. Research also shows that more than 56 out of 67 countries surveyed by the IASC (1996) either used IASs as their national standards or based their national standards on IASs.

Many developing nations are trying to achieve harmonization in reporting practices in conformity with that of developed countries. Bahrain is not lagging behind. It adopted IASs in 1994 in the absence of other local standards.[1] There is evidence that listed companies in Bahrain are using IASs (Al-Bastaki, 1996; Joshi & Al-Bastaki, 1999). Also, nonlisted banks and other business enterprises have started using IASs in the preparation of financial statements. Previous research on Bahrain examined the adoption of IASs by large-sized listed companies (i.e., the adoption of IASs is related to large-sized or listed companies only). However, since the majority of firms in Bahrain are small, closely held unlisted firms contribute about 40% of the Gross Domestic Product (GDP) and provide employment to a

large segment of the population, the adoption of IASs by these entities deserves to be examined. This is the subject/objective of this paper.

The remainder of the paper reviews the relevant literature, presents the research methodology used, and discusses the results. The summary and conclusion are followed by statements about directions for future research.

2. Literature review

2.1. Financial statements and users

Studies have shown that the major reasons that small firms fail are poor financial management and reporting (Berryman, 1983). With these findings in mind, McMahon and Holmes (1991) reviewed many studies dealing with the financial management and reporting practices of small firms in North America and reached the conclusion that financial reporting practices among small firms have not undergone significant changes over the preceding 15 years.

McCahey (1986) studied the financial reporting practices of 40 small Australian companies, the majority of which prepared financial statements. Owners and managers were ranked the most important users of financial reports, followed by bank lending officers. In another Australian study, McMahon (1998) found that 84.5% of small manufacturing companies prepared both balance sheets and income statements, whereas only 79.6% prepared cash flow statements.

Barker and Noonan (1996), Carsberg, Page, Sindall, and Waring (1985), and Page (1984) surveyed directors and auditors of small companies in the United Kingdom asking them to rate the importance of the uses of the annual reports. These studies suggest that financial statements represent an important source of management information. Hussey and Hussey (1997) published the results of a study of UK companies based on 89 usable questionnaires. Their study indicated (a) that small- and medium-sized companies prepared financial statements, and (b) that banks and company directors were the prime users of these reports. Chauveau, Deartini, and Moneva (1996) and Moneva (1993) found that small business financial reports were most relevant to internal (management) and external (bankers) users.

2.2. Adoption of accounting standards

The International Organization of Securities Commission (IOSCO), the IASC, the World Bank, the International Federation of Stock Exchanges, and Tetley (1991) believe that the adoption of IASs is appropriate for developing countries. Introducing IASs is often an improvement over the existing systems: These standards provide low setup and production costs for accounting information, add to international comparability, and attract internal investment (see Nobes & Parkar, 1995; Samuels & Piper, 1985; Wyatt, 1991; and Roussey, 1992).

Some evidence is available on the adoption of IASs in selected countries: Switzerland (Dumontier & Raffournier, 1998; Murphy, 1999), Germany (Leuz & Verrecchia, 1999; Maria & Ana, 2000), and for rest of the world (El-Gazzar, Finn, & Jacob, 1999). Murphy (1999) examined specific characteristics of Swiss companies that have voluntarily elected to prepare financial reports using IASs. Using data from two sets of identical samples for 22 companies, he identified some benefits of using IASs by comparing the differences between the companies that adopted IASs and those that adopted local standards (Murphy, 1999, p. 121). Foreign activity variables, percent of exchange listings, and percent of foreign sales were found to be statistically significant.

Barker and Noonan (1996) conducted a study on small companies in Ireland. They found that over half of the respondents always comply with UK accounting standards and company law, but the burden was too great for small firms. These respondents perceived that "Related Party Transactions" were the only standard in which they faced difficulty. Additionally, 31% of the respondents wanted to remove the audit requirements for small companies, 22% wanted less disclosure, and 20% wanted company management to do more of the accounts preparation.

In the same survey, 43% of the respondents stated that all standards should apply to all companies when applicable and if the amounts involved were material. Standards relating to value added tax (VAT), accounting policies, accounting for stocks, government grants, depreciation, leasing, and accounting for taxation showed a high degree of applicability. The survey further indicated that respondents' knowledge of the standards was dated.

Ramsay and Sutcliffe (1986) [for a sample of 423 unaudited (exempt) proprietary companies in Australia] examined the extent of compliance with four approved accounting standards: namely, profit and loss statements, valuation and presentation of inventories, depreciation of noncurrent assets, and accounting policies for determination, application, and disclosure. The results showed that exempt proprietary companies have a higher level of noncompliance than do listed public companies.

Mutter (1993), in his study on the concept of disclosure, found that Jordanian companies generally fulfill IASC minimum disclosure requirements. His research showed that there were differences between the scope of disclosure required by the IASs and the practices of Jordanian companies. Similarly, Saleem (2000) found that there were major statistical differences between actual preparation and presentation of the financial statements by 33 Jordanian industrial companies made in response to the requirements of IAS-1 (Preparation of the Financial Statements).

3. Methodology

This study examines the attitudes of professional accountants working in small and closely held companies towards the adoption of IASs in Bahrain. The Directory of the Bahrain Chamber of Commerce and Industry has a list of 567 small and closely held (family group) companies. Of this list, a sample of 85 companies (15%) was selected at random. Many of the selected companies had limited liability.

In the first phase of the study, a three-page questionnaire was mailed in January 1999 to the Managing Directors/Heads of finance or accounting departments. The questions were based on earlier literature (e.g., Abdel-khalik et al., 1983; Agarwal & Joshi, 1991; Barker & Noonan, 1996; Barniv & Elitzur, 1989; Campbell, 1984; Carsberg et al., 1985; Chauveau et al., 1996) and kept simple. The questionnaire was divided into three parts: general information about respondents (Part I), adoption of IASs by small and closely held firms (Part II), and specific questions relating to the relevance of IASs to small and closely held firms (Part III). Thirty-six firms returned the completed questionnaires (a response rate of 42.4%).

4. Results and discussion

4.1. Characteristics of respondents

Table 1 shows that 16 firms were engaged in manufacturing and related activities. The remaining 20 firms were engaged in trading and service activities. The number of employees in most of the firms (61.3%) was less than 100. Only 31 companies that claimed to have adopted IASs provided sales data, and about 45% of those have sales of less than BD0.5 million.

All questionnaires were completed by accountants and finance managers/finance controllers. The average age of the respondents was 35 years, ranging from 26 to 54. The average length of time in their present position in the company was 5.3 years. Additionally, of the 36 firms that responded to the questionnaire, 31 claimed that they have adopted IASs and the remaining five claim to use other accounting guidelines from the UK or the US.

4.2. Types of financial reports and their users

Table 2, which provides information about the financial reports prepared by small and closely held companies, shows that all firms in the sample (100%) prepare balance sheets, 90.3% prepare income statements, 48.4% prepare statement of retained earnings, and 71% prepare cash flow statements. Regardless of size, the results indicate that small and closely held firms in Bahrain do maintain their accounts and prepare financial statements regularly. Banks (as shown in Table 3) play an important role in creating this regularity because they evaluate the accounts before granting loans.

Second, the study shows that most (30) of the firms have their accounts audited mostly by both the Big Five audit firms and local accounting firms. These same firms have also adopted IASs. The firms that did not apply IASs did not have audited financial statements.

Table 1
Characteristics of the respondents

	F	%
a. Type of firm		
Manufacturing	16	44.4
Merchandising	14	38.9
Service	6	16.7
Total	36	100
b. Number of employees		
Less than 50	14	38.7
51–100	8	22.6
Over 100	14	38.7
Total	36	100
c. Sales		
Less than BD 0.5 million	14	45.2
More than BD 0.5 million	17	54.8
Total	31	100
d. Job title of respondents		
Accountant	24	67
Finance manager/Controller	12	33
Total	36	100
e. Adoption of standards		
Firms adopting IASs	31	86
Firms adopting US/UK GAAPs	5	14
Total	36	100

4.3. Adoption of IASs

The magnitude of cross-border financing transitions, securities trading, and direct foreign investments shows the need for a single set of rules for recognizing and measuring assets, liabilities, and income. El-Gazzar et al. (1999) state that IASs provide answers to this issue because financial disclosures prepared in compliance with IASs can facilitate comparison

Table 2
Financial statements prepared by responding firms

	n	%
Statement		
Balance sheet	36	100.0
Income statement	32	90.3
Statement of retained earnings	14	45.2
Cash flow statement	22	55.6
Audit of financial statements	30	83.3

Table 3
Users of financial statements

Users	n	%
Partners	19[a]	37.3
Creditors	7[a]	13.7
Banks	25[a]	49.0

[a] Multiple responses were allowed.

across firms of different nationalities as well as being indicative of more reliability. The number of firms acknowledging adherence to US accounting standards has increased steadily (El-Gazzar et al., 1999).

Table 4 reveals that 31 of the responding firms follow IASs in the preparation of their financial statements, but only five firms follow US (8.3%) or UK (5.6%) GAAPs.

In addition to the banks, the Ministry of Commerce and the Bahrain Monetary Agency encourage companies to follow IASs. This view is also held by the Big Five audit firms.

Of the 31 firms that claimed to have adopted IASs, 21 (67.7%) stated that they followed IASs at the advice of their external auditor. Another source of influence (though lower) was the firm's management (32.3% of the respondents) that sought more reliable sources of management information.

4.4. Degree of adoption of specific IASs

Adoption of accounting standards in Bahrain is driven by institutional factors, which do not include taxation since there is no corporate income tax in Bahrain. Table 5 shows the specific accounting standards followed by small and closely held companies in Bahrain. A number of standards listed in the questionnaire were considered relevant by the firms. However, the degree of adoption varied considerably from one standard to another. All firms adopted the following standards: IAS-4 (Depreciation Accounting) and IAS-13 (Presentation of Current Assets and Current Liabilities). This could be due to the fact that these two standards actually relate to the most basic accounting practices and procedures followed by firms of all sizes and sorts. Other standards in the "high adoption" category (80% or above) include IAS-5 (Information to be Disclosed in Financial Statements) and IAS-2 (Inventories), making a total of four in that category.

IAS-7 (Cash Flow Statement), IAS-16 (Property, Plant, and Equipment), IAS-18 (Revenue Recognition), IAS-24 (Related Party Disclosures), IAS-10 (Contingencies and Events Occur-

Table 4
Accounting guidelines followed

Accounting guidelines	No. of companies	%
IASs	31	86.1
US GAAPs	3	8.3
UK GAAPs	2	5.6
Total	36	100.0

Table 5
Degree of adoption of specific IASs

International Accounting Standards	n (%)	Rank
High adoption[a]		
IAS-13: Presentation of Current Assets and Current Liabilities	31 (100.0)	1
IAS-4: Depreciation Accounting	31 (100.0)	1
IAS-5: Information to be Disclosed in Financial Statements	28 (90.3)	2
IAS-2: Inventories	25 (80.6)	3
Moderate adoption[b]		
IAS-1: Disclosure of Accounting Policies	23 (74.2)	4
IAS-7: Cash Flow Statement	22 (70.9)	5
IAS-16: Property, Plant, and Equipment	22 (70.9)	5
IAS-18: Revenue Recognition	22 (70.9)	5
IAS-24: Related Party Disclosures	19 (61.3)	6
IAS-10: Contingencies and Events Occurring after Balance Sheet Date	18 (58.1)	7
IAS-19: Retirement–Benefit Costs	17 (54.8)	8
Low adoption[c]		
IAS-3: Consolidated Financial Statements	15 (48.4)	9
IAS-21: The Effects of Changes in Foreign Exchange Rates	14 (45.2)	10
IAS-23: Borrowing Costs	14 (45.2)	10
IAS-25: Accounting for Investments	14 (45.2)	10
IAS-27: Consolidated Financial Statements and Accounting for Investment in Subsidiaries	11 (35.5)	11
IAS-8: Changes in Accounting Policies Fundamental Error, etc.	11 (35.5)	11
IAS-26: Accounting and Reporting by Retirement–Benefit Plans	9 (29.0)	12
IAS-28: Accounting for Investments in Associates	6 (19.4)	13
IAS-17: Accounting for Leases	4 (12.9)	14
IAS-11: Construction Contracts	4 (12.9)	14
IAS-31: Financial Reporting of Interests in Joint Ventures	4 (12.9)	14
IAS-14: Reporting on Financial Information by Segment	3 (9.7)	15
IAS-20: Accounting for Government Grants and Disclosure of Government Assistance	2 (6.5)	16

[a] A standard is adopted by 80% or more of the companies.
[b] A standard is adopted by between 50% and 80% of the companies.
[c] A standard is adopted by less than 50% of the companies.

ring after Balance Sheet Date), and IAS-19 (Retirement–Benefit Costs) fell into the moderate adoption rate. The remaining standards were in the low adoption category (below 50%).

Respondents made the following comments about the benefits to be derived from using IASs:

> IASs were adopted to facilitate the management decision making process and to get full knowledge of what exactly the business does. Additionally, limited liability companies have to get their annual accounts audited. For that reason, IASs have to be adopted.

Even a small business operates in a very competitive environment, which makes it important to have highly efficient and consistent accounting principles to arrive at the correct profitability, net worth of the organization as well as the working capital position. The IASs are quite adequate to meet the above three needs and hence, it helps a long way in decision making and drawing the business strategies in the immediate and long-term future.

The results are consistent with those of previous empirical studies. The surveys carried out by Ernst & Young (1993) and by the IASC (1998) showed that a number of corporations from different countries have adopted IASs.

4.5. Nonadoption of specific standards

The Intergovernmental Working Group of Experts on International Accounting Standards and Reporting (2000) (UNCTAD, 2000) admitted that some IASs were relevant for small companies, thus implying that others were not applicable. Contrary to expectations, the standards relating to "Accounting for Changing Prices" (IAS-6), "Information Reflecting the Effects of Changing Prices" (IAS-15), "Financial Reporting in Hyperinflationary Economies" (IAS-29), "Accounting for Taxes on Income" (IAS-12), "Accounting for Business Combination" (IAS-22), "Research and Development Costs" (IAS-9), and "Disclosure of Financial Statements of Banks and Similar Financial Institutions" (IAS-30) were not adopted by many respondents. It is likely that these standards do not relate to the business economy of Bahrain or to the business of the firms that responded to the questionnaire.

4.6. Relevance of IASs to small and closely held firms

The study also examined an important issue that is frequently debated, i.e., the relevance and suitability of IASs to small and closely held firms in terms of the cost–benefit criterion.

As shown in Table 6, several proxies were used to assess the relevance of adopting IASs. The table shows that 25 of the firms stated that their accounting staff had the capability to prepare and present financial statements according to IASs, but only 14 firms had trained their staff to prepare financial statements under IASs. Twenty-two firms indicated no difficulty in interpreting these standards.

Finally, 22 firms (85.2%) indicated that adopting and applying IASs is not very costly.[2] Computerized accounting systems, which a majority of these companies have, make it easy to maintain accounting data without incurring much additional costs.

Twenty-six (92.8%) of the firms that applied IASs stated that the standards helped them achieve the objectives of financial reporting. Furthermore, 25 emphasized that the adoption of

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[2] In certain cases, the incremental costs of compliance with IASs may go up when two sets of reports would increase the cost to the firm. For example, in the case of certain foreign banks operating in Bahrain, there may be some incremental costs if they prepare their financial statements using their countries' GAAPs and then they need to translate them to IASs as per the BMA's requirements.

Table 6
Relevance of IASs to small and closely held companies

Statement	No. of companies who responded "yes"	No. of companies who responded "no"	Total
	n (%)	n (%)	
Capability of accounting staff to prepare financial statements based on IASs	25 (86.2)	4 (13.8)	29
Training of accounting staff in IASs	14 (45.2)	17 (54.8)	31
Difficulties in interpreting these standards	4 (15.4)	22 (84.6)	26
IASs are costly to apply	5 (14.8)	22 (85.2)	27
Adopting IASs achieves the objectives of financial reporting	26 (92.8)	2 (7.2)	28
Adopting IASs improves the efficiency and effectiveness of financial reporting	25 (86.2)	4 (13.8)	29
Adopting IASs improves the opportunities to obtain financial assistance from the banking sector	26 (100.0)	–	26

IASs enhances the efficiency and effectiveness of financial reporting and improves the opportunities to obtain funding from banks.

5. Summary and conclusion

After analyzing the data on the acceptability and adoption of IASs by small and closely held companies in Bahrain, the following conclusions can be drawn:

- The present trend in Bahrain is to adopt IASs rather than the US or the UK GAAPs. A majority of small and closely held firms have already voluntarily adopted IASs for various reasons. Chief among them is the need to standardize the financial reporting process to provide a common ground for comparison and analysis. In addition, respondents indicated that their decision to adopt IASs was influenced by the expectation of improving the efficiency and effectiveness of financial reporting plus achieving their firms' objectives. Other reasons included the influence of credit providers—mainly banks—and the desire to improve their credit rating for purposes of obtaining external financing.
- The primary influences on the decision to adopt IASs were the external auditors, banks, and management. The role of the Ministry of Commerce or other governmental agencies was negligible.

- The degree to which each standard was relevant to the responding firms varied by firm size and the nature of operations. However, there were a few standards that were judged to have no relevance to the economy of Bahrain. A majority of the firms agreed that their accounting staff had the capability and training to implement IASs and could comply with the process without problems.
- The majority of the respondents did not find that the adoption of IASs was costly or that they faced any major difficulty in interpreting them. The small number of firms that had problems interpreting the standards sought clarification from their external auditors.

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Book Review Section

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Book reviews

Accounting in China in Transition: 1949–2000
by Allen Huang and Ronald Ma, World Scientific Publishing, Singapore, 2001, xiv+122 pp.

This work examines the relation between Chinese accounting and its environment in a historical context. Specifically, the book traces the economic, political, and social changes between 1949 and 2000 in China and the parallel developments in accounting. Assuming that accounting development mirrors changes in its environment, the book tries to demonstrate that in order to understand Chinese accounting, one must understand the environment within which it operates, and to predict the future of Chinese accounting, one has to appreciate its history.

The book divides the history under study into two periods: 1949–1978 under Mao Zedong, and 1978–2000 under Deng Xiaoping. The Mao era was characterized by a series of political and mass movements, whereas the Deng era has been characterized by economic reforms aiming to transform a central planning system into a socialist market economy. Following a brief introduction and an outline of accounting history prior to 1949, the book devotes four chapters to accounting developments during the Mao period. These chapters chronologically deal with the initial establishment of a uniform accounting system based on the Soviet model within the first few years after the foundation of "New China" (1949–1957), the damage to accounting caused by the Great Leap Forward mass movement (1958–1962), rebuilding the uniform accounting system during the economic recovery years (1963–1965), and the collapse of accounting during the Cultural Revolution (1966–1976). This is followed by four chapters on accounting reform in the Deng era. These chapters cover an overview of the new political and economic environment, the recovery of accounting at the beginning of China's economic reform with no clear objective (1978–1984), accounting change under the dual track economic system [the so-called planned commodity economy (1984–1991)], and accounting systems innovation represented by the birth of China's accounting standards following the stipulation of the development of a socialist market economy as the goal of economic reform (1991–2000). The next chapter then analyzes the themes and issues relating to the ongoing state-owned enterprise (SOE) reform, hypothesizing that the future of China's accounting depends on the success of such a reform. The last chapter provides a summary of previous chapters and a further analysis of several important political issues involved in China's reform.

This work is a useful addition to the English literature on Chinese accounting. There are already several texts on Chinese accounting (e.g., Blake & Gao, 1995; Ji, 2001; Lin, Yang, & Wang, 1998; Liu & Zhang, 1996; Lou & Enthoven, 1987; Tang, Cooper, & Chow, 1996; Yang

& Yang, 1999). However, this is probably the only English text on Chinese accounting that is dedicated to demonstrating the relation between accounting development and the environment of accounting in a historical context. Some other English texts touch upon such a relation or provide a historical overview (e.g., Ji, 2001; Yang & Yang, 1999). However, a Chinese text entitled *Accounting in New China: 50 Years On* (Xiang, 1999) also analyzes this relationship from a historical perspective, although it provides a much more detailed treatment of the topic.

The book's task is not an easy and trivial one. The period covered by the study witnessed numerous political, economic, and cultural upheavals, many of which were dramatic and revolutionary. Similarly, accounting underwent a series of major changes. Thus, being selective is both inevitable and not inconsistent with the objective of the study. The book is generally a success in including the main environmental and accounting changes. Nevertheless, the omission of some historical events might have resulted in biased assertions, and incomplete description or analysis. For example, the book omits the break-up between China and Soviet Union in the late 1950s and the natural disaster in the early 1960s. The former affected China's accounting development, and both events added to China's national crisis in the early 1960s. However, the book appears to have attributed the crisis solely to the Great Leap Forward campaign (see p. 36).

Similarly, the book neglects China's efforts to develop Independent Auditing Standards since 1993, although it describes the development of the audit profession and accounting standard setting. Thus, it is unable to assess the impact of auditing standards on the quality of accounting information (Defond, Wong, & Li, 1999). Other important omissions include the disclosure standards issued by the China Securities Regulatory Commission, which represents a significant development toward a market-oriented accounting and reporting regime.

While the authors should be congratulated for making a valuable contribution toward understanding the relation between accounting and its environment in a Chinese context, the book does have several limitations. First, the book appears to focus on accounting regulation, and thus, there is scope for further studies of the impact of environmental change on other aspects of accounting, especially accounting practice. Second, although the relation between accounting and its environment is most likely to be two-way, this work focuses exclusively on the impact of the environment and its change on accounting. It says little about the role of accounting in constituting and shaping its environment (Burchell, Clubb, Hopwood, & Hughes, 1980). Third, the work does not pay attention to the mechanisms and processes through which environmental factors have an impact on accounting. In other words, the book does not address the question of how China's accounting has become what it is today. Fourth, while there are advantages to presenting environmental changes and accounting changes separately (such as the ease with which the text is organized), this way of presentation betrays a need for greater integration between the two types of change.

The book also suffers from several minor technical errors or omissions. These include (1) Tan et al. (1992), cited on p. 27, is missing from the References; (2) Sino–foreign joint ventures emerged as early as 1980, rather than 1984 (p. 63); and (3) the author of the last entry in the References should be Zhou, Z.H. rather than Zhong, J.Z. In addition, the practice of "accounting without books" (p. 43) needs some explanation. Otherwise, it could be misleading, as in many cases, it meant replacing ledgers with documents, cards, or tables.

It is plausible to hypothesize that the future of Chinese accounting depends on progress in the reform of SOEs. The analysis of the SOE reform and related political issues in the last two chapters is also informative. However, the book has failed to elicit the implications of this analysis for future accounting development. Rather, this task is left to the reader.

Despite these limitations, this is a valuable contribution to the English literature on Chinese accounting. It is a concise, critical, and historical analysis of accounting transition from the Mao era to the Deng era, with an appropriate focus on environmental factors. It also sets the scene for speculating on future accounting developments in China.

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Observance of International Accounting Standards: Factors Explaining Noncompliance
By Donna L. Street and Sidney J. Gray, The Association of Chartered Certified Accountants, London, 2001, 128 pp.

This ACCA Research Report by Donna Street and Sidney Gray is an empirical study of the 1998 financial statements of 279 companies that referred to the use of International Accounting Standards (IAS) in those statements. The authors seek to identify the primary

factors associated with the degrees of compliance with IAS practices. They argue that a fuller understanding of these factors should help the International Accounting Standards Board (IASB), the International Federation of Accountants (IFAC), the International Forum on Accountancy Development (IFAD), and other interested parties overcome hindrances to the worldwide acceptance of IAS.

Chapter 1 is a reminder of the recent achievements of the International Accounting Standards Committee (IASC) and its restructuring as the IASB. It summarizes concerns about IAS compliance as expressed by IOSCO and IFAC. It concludes (p. 9) by quoting the IASC's view that departures from IAS in IAS financial statements are primarily a matter for auditors, professional accountancy bodies, IFAC, national enforcement agencies, and supranational bodies such as IOSCO.

Chapter 2 reviews prior research about the factors affecting the level of corporate disclosure. The authors derive 11 hypotheses that form the basis of their statistical analysis of factors explaining noncompliance with IAS. Seven hypotheses deal with company-specific factors (listing status, size, profitability, industry, IAS reference, country of domicile, and multinationality), one with the size of the company's domestic stock market and three with the audit of the financial statements. Prior studies indicate that some of these factors, for example, company size and listing status, are significantly associated with levels of disclosure, while others such as profitability, industry, and audit firm reveal mixed results.

Street and Gray tested their hypotheses by comparing the IAS financial statements of their sample of companies with a checklist of IAS-required disclosure and measurement/presentation practices. They computed compliance indices for each company both by averaging the scores for each IAS (so giving equal weighting to each IAS) and on an unweighted basis. Means and standard deviations were calculated for each of the indices, each disclosure IAS, each measurement/presentation practice, and each of the dependent variable associated with the 11 hypotheses. Stepwise regression was used to determine the factors associated with the degree of compliance with IAS. The statistical analysis is disciplined and thorough, but it may be undermined by the composition of the sample of companies and the limited scope of the checklist of IAS-required practices.

The sample of companies was derived from the IASC's 1999 list of companies that purportedly used IAS in their financial statements. The authors eliminated companies in the finance, oil and gas, and not-for-profit sectors. They also eliminated 33 companies that did not provide an annual report in English and 156 companies for which they could not obtain annual reports (a problem familiar to many researchers of international company reporting). The authors were also forced to eliminate 115 companies that did not refer to compliance with IAS notwithstanding their inclusion on the IASC's list. After some other smaller adjustments, they were left with 279 companies.

Almost 70% of the sample companies are Chinese, French, German, or Swiss. This is not surprising given that these countries were among the major users of IAS in 1998, but it does limit the conclusions that can be drawn about whether country of domicile is a factor affecting compliance. Conclusions can be reached about China, France, Germany, and Switzerland but no other single country. Companies from each other country are included in one of three groups: Africa, other Western Europe, and other (Middle East, Former Soviet bloc, and other).

Another problem with the sample is that it (and the IASC's list from which it was derived) include companies that refer to IAS for several different reasons. There are many companies that have started to use IAS over the last 10 years as their primary reporting standards—these companies ought to be the focus of the researchers. There are, however, other companies that use domestic standards but responded to the IASC's call in the 1980s for disclosure of compliance with IAS as well as with their domestic standards.[1] There are some Italian companies that use IAS only in the absence of Italian standards.[2] These latter two approaches to IAS have little relevance today, and the companies concerned should, perhaps, be omitted from the statistical analysis.

The limited scope of the checklist of IAS-required disclosure and measurement/ presentation practices is cause for a much greater concern. The checklist covers less than half of the IAS that applied to 1998 IAS financial statements under review. The disclosure practices cover only nine IAS (IAS 12, 14, 16, 17, 19, 23, 29, 32, and 33). The measurement and presentation practices cover only 10 issues in seven IAS (IAS 2, 4, 8, 12, 19, 21, and 22). As a result, the checklist omits some significant IAS and IAS practices, for example, the presentation of a cash flow statement and the measurement and presentation of research and development, property, plant and equipment, leases, revenue, consolidated financial statements, associates, and joint ventures. Furthermore, the checklist deals with only some, rather than all, the disclosure, measurement and presentation practices in each selected IAS. For example, the checklist does not deal with the IAS 21 and 22 requirements for:

- The translation of the financial statements of subsidiaries other than those reporting in the currency of a hyperinflationary economy;
- The reporting of foreign currency transactions and balances;
- The choice between the purchase method and the pooling of interests method in a business combination; and
- The application of the purchase method (other than goodwill accounting).

The limited content of the checklist is understandable as a means of managing the scale of the research, but it restricts severely the value of the conclusions. It is true that the checklist focuses on IAS practices that prior research has identified as "problematic," but there is scant evidence that these are the only "problematic" practices.

Chapter 5 summarizes and discusses the results of the statistical analysis. The main findings reveal "troubling levels of noncompliance with IAS." For example, the mean

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[1] Many of these companies dropped the reference to IAS compliance after (or in anticipation of) the introduction of 10 revised IAS in 1995. The IASC did not remove them from its list until 1999, which is probably why Street and Gray found 115 companies on the IASC's list that did not refer to the use of IAS in their 1998 financial statements.

[2] In 1982, the Italian securities regulator asked listed companies to consider IAS in the absence of Italian law and standards. The approach was probably helpful in the early 1980s, when IAS were much simpler and more flexible and before Italy adopted the EU Fourth and Seventh Directives and started to develop its own standards. The approach now has major shortcomings.

indices for disclosure issues are 72% (each IAS weighted equally) and 74% (each item of disclosure weighted equally). Put another way, on average, companies make only three-quarters of the disclosures included in the checklist. The measurement/presentation results are better: 89% when all practices are weighted evenly and 86% when each IAS is weighted equally. Nevertheless, the results imply that, on average, each company is not complying with at least one of the 10 IAS measurement/presentation practices included in the checklist—and that is after the authors have given the benefit of any doubt to the companies.

The purpose of this research is not, however, to measure the levels of compliance but to identify the primary factors associated with those levels. From their statistical analysis, Street and Gray find that compliance with IAS-required disclosures tends to be significantly greater for companies that:

- Have a nonregional listing;
- Are in the transportation, communications and electronics industry;
- Refer exclusively to the use of IAS;
- Are audited by a Big 5 + 2 firms; and
- Are domiciled in China or Switzerland.

Compliance with IAS-required disclosures tends to be lower for companies domiciled in France, Germany, and other western European countries. These "headline" conclusions should be—but are not—qualified by the limitations in the both the geographical composition of the sample and the practices covered by the checklist. Would the results be the same if the checklist were to have covered all—or even all the important—IAS-required disclosures? Are companies in the transportation, communications, and electronics industry really better than other companies at making IAS-required disclosures? Or are they simply better at making the ones covered by the checklist?

Compliance with IAS-required measurement/presentation practices tends to be higher for companies that make exclusive use of IAS, are audited by a Big 5 + 2 firm, and are domiciled in China. Compliance with IAS-required measurement/presentation practices tends to be lower in France and Africa. Again, these "headline" conclusions should be—but are not—qualified by the limitations in the geographical composition of the sample and, most particularly, by the fact that the checklist covers only 10 measurement/presentation practices. Would Chinese companies come out on top if the assessment were based on all—or even a majority of—the key measurement/presentation practices in IAS? Would Africa have done as badly if deferred taxes had not been one of the 10 issues in the checklist?

Chapter 6 suggests that these findings of the research highlight the importance of the efforts of the IASB, IFAC, and IFAD to raise the standards of accounting and auditing practices around the world. It also reviews regulatory efforts and the restructuring of IFAC and the formation of IFAD. It suggests that the enforcement of IAS 1 *Presentation of Financial Statements* (which requires full IAS compliance in IAS financial statements) should be the first step in the enforcement of IAS and that the accounting firms should refuse to sign an audit opinion on IAS financial statements that do not comply fully with IAS.

Overall, this ACCA Research Report is a disciplined statistical study that is a useful model for those who wish to carry out similar research and, therefore, a valuable source for those interested in the use of IAS. However, the composition of the sample and the scope of the checklist are serious limitations and receive insufficient attention in the executive summary and conclusions.

The growing use of IAS, in particular the publication of IAS consolidated financial statements by virtually all EU listed companies with effect from 2005, makes such studies increasingly important. It is important, however, that researchers explain any limitations in the sample and, even more importantly, use a more extensive IAS checklist. I am also skeptical about placing too much reliance on the statistics, as there are many factors that explain compliance and noncompliance. Street and Gray have provided some further explanations; I would like to see them dig a little deeper.

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Corporate Financial Reporting
By Bhabatosh Banerjee and Arun Kumar Basu (Eds.), University of Calcutta, Calcutta, 2001, vi+275 pages

The Universities Grants Commission, New Delhi, funded this publication through its special assistance program. The book adds to the sparse literature on financial reporting from an Indian perspective, and it consists of a collection of essays written by the academic staff of the University of Calcutta. The essays cover a wide range of topics: the conceptual framework of accounting, Indian company and accounting regulation, intangible assets, foreign currency translation, cash flow reporting, segment reporting, environmental accounting, economic value added, electronic reporting, and accounting standard-setting in India.

There are 11 essays. Basu summarizes the concepts statements issued by the FASB and the IASC and makes some interesting observations about the notion of a "true and fair view." Chaudhuri explains the legal aspects of financial reporting in India, including the contents of the balance sheet, the profit and loss account, the directors' report, and the auditors' report. The author suggests that companies provide useful voluntary disclosures but does not give any examples. Chakravorty discusses the regulation of accounting by multiple agencies, such as the accounting profession, the securities regulator, etc. This essay partly overlaps with a later one by Banerjee. Dandapat reviews the challenges in reporting intangible assets. Although practice in this area is still evolving, Dandapat suggests a separate balance sheet for intangibles as a form of supplementary information.

Bhattacharyya discusses foreign currency accounting in India, the US, and the UK. The Indian accounting standard on the subject permits only the temporal method, and this has created problems for some banks that have independent overseas operations. Dhar reports on

a survey of cash flow reporting in India and finds that the practices for classifying items into the operating, investing, and financing categories vary across companies. Sen provides an overview of segment reporting and compares IASC, US, UK, and Indian standards in this area. Saha examines accounting for sustainable development but does not refer to any Indian reporting practices or examples. He does not consider issues such as: Has the Bhopal gas leak tragedy in 1984, which killed over 2000 people and maimed and disfigured many more, had any effect on reporting on the environmental impact of the activities of Indian business organizations?

Dhar outlines the idea of economic value added and its impact on the thinking of Indian financial managers. Chatterjee discusses the implications of financial reporting via the Internet and other electronic means of communication. Banerjee compares the institutional mechanisms for establishing accounting standards in India with those in the UK and the US. The author suggests dividing the task of enforcing compliance with standards between two government departments and the securities regulator, according to the type of entity. This could, of course, result in differing levels of enforcement in a country where the standards of corporate reporting are already quite low.

The essays are mostly descriptions and analyses of professional pronouncements and relevant research literature. There are gaps in the coverage, as the essays do not discuss the influences on the development of accounting in India that include the following: substantial ownership of business by families and government-owned financial institutions, a conservative social climate, an inward-looking model of economic development, and a low degree of globalization. Related to these are a number of special features of financial accounting and disclosure. These include the mandatory disclosure of manufacturing capacity and output, payments and earnings in foreign exchange, R&D activities, remuneration of highly paid employees, energy conservation efforts, directors' remuneration, and payments to auditors for nonaudit services. Again, the law specifies the minimum rates of depreciation for the various types of assets.

A book of this nature is invariably ambitious and raises readers' expectations. The book attempts to give a flavor of the accounting systems in India as well as the quality of work being done by academics in India. More examples drawn from the large number of Indian financial reports would have made the book more lively and readable. Furthermore, there is no discussion of the impact of the ongoing economic liberalization on financial reporting. For example, several Indian companies have been listed overseas and many more are interested. The financial reports of these companies are generally more informative.

India is a major emerging economy with great potential for economic growth. The book will be of interest to those seeking insights into the state of financial reporting in India and the scope for its improvement.

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Global Financial Reporting

By John Flower with Gabi Ebbers, Palgrave, Houndmills, Basingstoke, Hampshire, and New York, NY, 2002, xxvii + 677 pp., £35. ISBN 0-333-79477-X.

The authors have selected a combination of a "country approach" and an "issues approach" in describing international accounting, the former approach providing the richness and diversity of accounting in the world, the latter approach providing a description and analysis of topics and issues. Compared with other international textbooks, e.g. Nobes and Parker (2002) or Walton, Haller, and Raffournier (1998), the authors limit the country coverage to only five countries, namely, the US, Japan, Germany, France, and Britain (the Pentad). The concentration on these five countries is well motivated, considering the influence that these countries have and have had on business development and accounting. The historical path to today's global business environment is well laid out in the book. There is a particular emphasis on the reporting of the larger multinational enterprises.

The book is intended for final-year undergraduate and postgraduate courses in accounting and finance. The emphasis is, as the authors put it, on the "why" and not the "how" of accounting, and consequently the authors aim at satisfying the curiosity of more mature readers. In this respect, the authors are successful for the most part, but there are some "whys" that are left unanswered. On certain issues, the authors express strong opinions, usually well substantiated but sometimes not. In the latter cases, the presentation of arguments supporting the authors' views as well as opposing views would have been desirable, because the views are likely to influence uninitiated undergraduate students. This criticism will be more closely specified in the coverage of the chapters.

The book is very lengthy (almost 700 pages), and about half the book covers the history of accounting and the development and structure of international organizations. The presentation of rules and issues starts on p. 332. The question is whether students have enough patience to read all the background material first. The authors state this excellently themselves on p. 11, "The global statistics presented in the previous two sections are certainly impressive but rather dry." Each chapter contains objectives, a summary, and review questions that clearly help in reading the text and comprehending important issues.

Chapter 1 deals with the globalization of the world economy. Useful statistics are presented. The measuring unit in Exhibit 1.1 is unclear. A "why" not answered is the high foreign direct investment (FDI) of Britain as compared to those of Germany and Japan (larger economies). There is a consistency problem (p.13) in that it is stated that "corporations are obliged to follow the law of the country in which they are registered in drawing up their annual accounts (both those of the individual corporation and the consolidated accounts)." IAS and US GAAP have been allowed in Germany (France) and some other countries since 1998, as is correctly stated later in the book.

The causes of diversity in accounting are presented in Chapter 2. This presentation is similar to those of Choi and Mueller (1992) and Nobes and Parker (2002) and gives a most relevant overview of the essential factors that have shaped the world of accounting. As in international accounting textbooks of earlier dates, the effect of the law, which is intuitive, is not clearly explained (specific example of effects would be useful). The issue of tax rates is

somewhat superficially dealt with, in that more attention should have been paid to effective tax rates. The advantages of making reporting to shareholders identical with the reporting to the tax authorities are perhaps overemphasized as compared to the disadvantages (pp. 35–36), specifically when keeping the *thrust* of the book, *Global Financial Reporting*, in mind; that is, financial reporting today is largely capital market-driven and information serving investor needs must given a high priority. In addition, the market values of major multinational enterprises add up to much more than the state budget of many countries.

The description of the form of enterprise financing is well done. It would have been desirable to mention that the globalization process is leading to a great reduction in the differences in financing. Another issue is whether it may be an oversimplification to state that "The surest way of deterring a take-over bid is to keep the market price...at a high level. Financial reporting can make a major contribution to achieving this aim" (p. 44). The strong influence that the accounting profession has had on financial reporting in the Anglo-Saxon countries as compared to other countries is well presented.

Chapter 3 deals with regulation. The discussion of users and need for rules is informative. The authors express a rather strong opinion in stating that "In fact there is no incentive for managers to give any meaningful information at all in the financial statements" (p. 67). In relation to agency-theoretical arguments, the statement is most questionable. In addition, there is an *inconsistency* with, e.g., the arguments presented on p. 99, where, in describing accounting in Britain in the nineteenth century, the authors state that, although there was no legal obligation to issue accounts or to appoint an auditor, most larger companies did prepare financial statements for their shareholders, accompanied by an auditor's report. "The reason was probably that this made it easier for them to raise capital and to *retain the support of the shareholders*." (emphasis supplied)

Chapters 4–8 provide a description of the historical development, the institutional framework, and the regulatory system of the Pentad countries. The description is of high level, and specifically Britain is excellently presented. The contrast between the French and Anglo-American tradition is particularly interesting. Although Japan of today is probably familiar to most readers, the book sheds useful light on the earlier Western influence (the two revolutions) on Japanese accounting.

In Chapters 9–14, the European Union's interest in financial reporting and the background and development of the International Accounting Standards Board (IASB) are presented. The controversy between International Accounting Standards (IASs) and US GAAP is well described and future scenarios well argued (Chapter 10). In describing the development and structure of the IASB, the American (SEC) role/influence, specifically regarding the composition of the board (experts versus representatives of different constituencies) could have been mentioned (Chapter 11). In Chapter 12, the authority of IASs is discussed and the authors provide an informative and accurate picture of the meaning of IOSCO's IAS "endorsement" (a contrast to some popular versions within Europe) as well as an excellent description of EU accounting strategy. Differences in user needs are discussed in Chapter 13, stating that they are different. However, it can be argued that the information needs are similar in that they are all economic in nature but that they are different with regard to the extent of information needed and type of decisions made on the basis of the information provided. The

IASB's framework is rightly criticized for being inadequate on the issue of measurement and unclear regarding the relationship of the discussion of capital maintenance with the rest of the framework.

In Chapters 14–19, the financial statements, including their elements, are presented and analyzed. The approach in presenting assets is very analytical, and the authors show in-depth knowledge of the subject (Chapter 15). Some value judgments are imposed, e.g., in stating that "for the market value is undoubtedly more relevant than cost for most decisions" (p. 356).

Liability and equity are discussed in Chapter 16. A relevant discussion of the "abuse" of provisions is provided and the possible problem of using the term "reserves." A major confusion is caused by Exhibit 16.7 (p. 416) because of its contrast to the earlier, rather well-established background discussion (Chapter 2) regarding equity versus debt financing, that is, "As a general rule, it can be stated that, in those countries which are highly ranked by the statistic 'Market capitalization as % of GDP' (notably the USA and Britain), equity is a significantly more important source of finance..." (p. 42). Exhibit 16.7 (the world's top 50 multinational enterprises) warrants an explanation that the high debt figures for the US enterprises are primarily caused by three of the four largest, namely, General Electric, General Motors, and Ford, the fourth being ExxonMobil. Six of the 11 American multinationals included in the top 50 multinational enterprises exhibit rather "expected" equity proportions.

In Chapter 17, the income statement is discussed, including the type of income statement (by nature or function), revenue recognition, extraordinary/exceptional items, segment reporting, and comprehensive income. Regarding the functional form of the income statement, the authors criticize the reliability of the information rather strongly because of the potential danger of allocations being arbitrary and not part of reality (p. 437). They are naturally right in that the question is of estimates. However, the accuracy of estimates does not always need to be that far from reality. Chapter 18 presents the cash flow statement. The authors provide a highly relevant discussion regarding the definition of "cash" and the classification of dividends and interest. Some opinions are expressed without hard evidence (lack of rigor).

Chapter 19 deals with consolidated accounts, including the issue of control. The timing of the book is a somewhat unfortunate, in that the recently issued US standards SFAS 141 and 142, which introduce significant changes on accounting for business combinations and goodwill, somehow appeared after the authors completed their manuscript. A minor part of the new American standards is still briefly touched upon, but the IASB response or potential response to the issue is naturally not covered. A question to be raised is why some EU countries (Finland and Sweden) are left out in certain presentations, e.g., Exhibit 19.6 (p. 521).

In Chapter 20, intangible assets are discussed. The authors include Johnson's and Petrone's (1998) excellent analysis of the possible components of goodwill. Chapter 21 deals with foreign currency translation, and the authors provide a good presentation of accounting for foreign currency transactions and foreign currency translation, including the historical "competition" between the closing rate method and the temporal method. In Chapter 22, an informative presentation of financial instruments is provided. The authors make an

adequate remark in stating that IAS 39 is to be considered a temporary standard. Finally, in Chapter 23 the disclosure of financial information is discussed.

To conclude, the textbook *Global Financial Reporting* represents a new type of international accounting textbook, in that it provides an *extensive* in-depth description of the historical development of international accounting, including discussions and analyses of reasons behind the development/issues ("why"). In addition, it concentrates on the five countries that have had the largest influence on international accounting (the Pentad). The book may be seen as too lengthy by part of its target audience, mostly final-year undergraduate students, and thus it is more suitable for post-graduate students and scholars. Some inconsistency appears in the text, and the opinions expressed by the authors are not always that well substantiated.

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INSTRUCTIONS FOR AUTHORS

AIMS and SCOPE. *The International Journal of Accounting (IJA)* aims at publishing accounting research that contributes to the analyses and understanding of international business conditions and transactions. The editors of *IJA* encourage authors to submit high quality research that studies accounting as a subsystem of the cultural, economic and institutional factors of different nations. Other than occasional commissioning of papers on specific topics, the editors of *IJA* will select publishable manuscripts after going through the normal refereeing process.

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4. All tables, figures and illustrations should accompany the manuscript on separate sheets. Captions should clearly identify the contents of tables and charts, and all figures must be submitted in camera ready copy. All should be called out in text and indication given as to location. For example.

<div align="center">TABLE 1 ABOUT HERE.</div>

5. Footnotes should be numbered consecutively throughout the manuscript with superscript Arabic numerals. They should be collected in a separate file at the end of the text.

6. References should be cited in the text as follows:

   Schweikart and O'Conner (1989) agree with this method. Other studies have found similar results (Schweikart and O'Conner, 1989: Smith, 1991).

   On a separate Reference page(s), each cited work should appear, double-spaced, in alphabetical order as follows:

   Journal Articles

   Barth, M. E., Clinch, G. J., & Shibano, T. (1999). International accounting harmonization and global equity markets. *Journal of Accounting and Economics,* 26, 201–235.

   Books

   Neter, J., Wasserman, W., & Whitmore, G. A. (1993). *Applied Statistics* (4th ed.). Needham Heights, MA: Allyn & Bacon.

   Hofstede, G., & Schreuder, H. (1987). A joint reply to Montagna. In: B. Cushing (Ed.), *Accounting and culture* (pp. 29–30). Sarasota, FL: American Accounting Association.

7. Upon acceptance the author is to submit one copy of the approved manuscript on a spellchecked IBM compatible, program specific disk to the editor. The accuracy of the disk and proofs is the responsibility of the author. Macintosh submissions are limited to high-density disks.

8. Effective January 1, 2003, a non-refundable submission fee of (US) $50.00 will be required.

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