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INSTITUTIONAL HOLDINGS AND SECURITY BETAS

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Summary

The study examined the impact of institutional shareholdings on systematic risk of individual common stocks. The level of systematic risk was measured by 36-month or 60-month "moving betas" for the sample stocks, and the proportion of systematic risk was measured by the R^2 from the market model regressions used to estimate the betas. Using a series of regression models, there was evidence that increased institutional holdings significantly increased both the level and proportion of systematic risk of individual securities.

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Kenneth J. Carey*

Introduction

The increasing influence of institutional investors, especially noticeable in the last 15 years, has generated several issues of concern to both regulatory agencies and empirical researchers. Several authors have discussed various economic and moral issues posed by the increased importance of institutional traders in the equity markets in recent years [9, 15, 17, 19, 20, 22, 23, 27]. Most authors seem to feel that the growth of institutions is beneficial, though "market folklore" still seems to cling to the idea that institutional trading activity may be destabilizing, if not in the aggregate, then at the individual security level [16].

The evidence to date [9, 19, 20, 23] would seem to indicate no support for the folklore regarding the destabilizing influence of institutional holdings or trading activity _in the aggregate_. In an earlier unpublished paper [8], the author found evidence that institutional holdings and changes in holdings were _not_ destabilizing in terms of the effects of holdings and changes in holdings on _individual stock price variability_, indicating a result in conflict with existing "folklore." However, there is some question whether _systematic risk_ might not be increased with increased insitutional activity. Even if the _level_ of systematic risk is not higher for "institutional favorites,"

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*All footnotes appear at the end.

one might argue for a higher proportion of systematic risk for this group, or for more rapid changes in beta as market conditions change for those stocks held in higher properties by institutions. These questions do not appear to have been directly addressed in the literature.

Several studies have investigated beta stationarity, for individual securities and/or portfolios over fixed time intervals [1, 2, 6, 7, 11, 12, 14, 18, 26, 28], as well as by market-based holding periods [13]. In addition, a multitude of studies have looked at the relation between internal and external risk measures for firms [3, 4, 10, 11, 21, 25], finding clear evidence that certain accounting-based risk variables tend to provide good explanations of market-based risk measures, especially of the beta coefficient.

The next section constitutes a brief review of literature related to the institutional holdings--stock price variability issue. The multitude of studies related to beta stationarity and accounting-based risk measures are not discussed in the interest of space considerations. Following this brief literature review are sections devoted to the hypotheses of the current study, the institutional holding variables employed, the data used, the regression tests employed, and the results of the study.

Related Literature[1]

Soldofsky and Boe [23] examine detailed SEC data on 1969 stockholdings for bank trust departments and regulated investment companies, finding evidence of concentration of holdings in a few stocks. There was, however, little correlation of portfolio concentration percentages between the two investor types [23, p. 51]. Separate data for a smaller group of stocks held during 1972 (83 stocks versus 593 for the SEC data) showed somewhat higher correlation of concentration percentages (.39 versus .21). There was also evidence that bank trust departments had increased portfolio concentration from 1969 to 1972 to a much greater extent than had the regulated investment companies [23, p. 53].

Rosenberg [22] also presents evidence of concentration of holdings, especially among stocks with large market values. A "concentration index" was defined as:

$$\text{Index} = \frac{\text{\$ Holdings of a firm/total \$ Portfolio Holdings}}{\text{Market Value of firm/market value of all firms}} .$$

This index should have a value of 1.0 for a firm which is held in proportion to its market value weight. Rosenberg found that this concentration index increased with the logarithm of the firm's market value. Both ownership and trading volume tended to be concentrated in large market valued securities.

Dobbins and Greenwood [9] examined the UK equity markets from 1966-72, with regard to the stabilizing influence of institutional shareholders. As they state:

> "...in order to test the hypothesis that institutional shareholder equity activity pushes prices away from extremes to some apparently preferable central position, we have studied the purchasing and selling behavior for each class of institution for the 20 quarters ended December 1972, and calculated the product moment correlation coefficients between the quarterly averages of the <u>Financial Times</u> all-share index and the corresponding quarterly sales, purchases, net acquisitions and total turnover of the various classes of institutional shareholder." [9, p. 263]

Three basic questions were examined:

(1) Do institutions buy at the troughs and sell at peaks? The hypothesis was "strongly rejected in the cases of insurance companies, pension funds and combined institutions. Only investment and unit trusts could be considered to have any 'stabilizing' influence at all." [9, p. 264]

(2) Do institutions contribute less to total equity turnover at highs than at lows? Though the "test" they perform is indirect and highly dependent upon a close relationship between trading volume and prices, the authors conclude that there is "no evidence to suggest that institutions provide this kind of stability." [9, p. 265]

(3) Is the equity activity of institutions more stabilizing than that of other investors? Correlations of institutional and other investors' turnover with the all-share index showed no significant differences, suggesting that "neither group is more 'stabilizing.'" [9, p. 265]

Dobbins and Greenwood conclude:

> "The available evidence suggests that institutional shareholders do not provide meaningful equity stability in accord with the theory of efficient resource allocation." [9, p. 266]

Reilly [19] relates three measures of stock price volatility with three measures of institutional trading activity for 46 quarters ending in the second quarter of 1975 and for 13 years of annual data ending with 1974. While the three trading variables were highly correlated with each other in both quarterly and annual data sets, correlations between the trading activity variables and the volatility measures were generally insignificant. For the quarterly data, only the correlation between institutional purchases and sales as a percent of total trading volume and price range/low price was significant at the .05 level, with a value of .281. Correlations between trading and volatility measures were generally smaller for the annual data, and none were statistically significant. Reilly notes:

> "One would certainly be hard put to infer from this any support for the belief that a strong positive relationship exists between institutional trading and stock price volatility." [19, p. 7]

Reilly and Wachowicz [20] examine ten trading activity variables and eight stock price volatility measures on a quarterly basis for 1964-1976. Unlike the previous study, measures of variability of daily prices within each quarter are used, in addition to the three measures from [19]. Results are generated for four institutional groups (pension funds, open-end investment companies, life insurance companies, and property and casualty insurance companies) as well as overall.

The overall results showed fairly consistent negative correlations (73 of 80) in the overall data, but only nine of the 80 were significant at the .05 level. The fairly consistent negative correlations persisted for all the subgroups <u>except</u> the property and liability insurance companies, where only 21 of the 30 correlations between the trading and volatility measures were negative. There were no <u>more</u> than 12 instances of statistical significance (and as few as zero) for any subgroup.

These results would seem to indicate that any evidence for or against institutional trading as a stabilizing influence is likely to be quite sensitive to variable definition. While the predominance of negative correlations is somewhat encouraging for those who would argue that institutions exercise a stabilizing influence, the disturbing lack of consistent statistical significance weakens the argument. Nonetheless, there appears to be no significant evidence that institutional trading, in the aggregate, is destabilizing.

The question of whether institutional holdings (and changes in holdings) are stabilizing or destabilizing, in the sense of reducing or increasing total risk, for individual securities was investigated in an earlier study by the author [8]. Examination of a random sample of 100 NYSE-listed common stocks continuously listed for the 21-month period from May, 1974 to January, 1976, inclusive, showed statistically significant evidence of stabilizing behavior. Various measures of total variability of returns (and changes in variability from month-to-month) were chosen as dependent variables and related to five alternative measures of institutional holdings (and changes in holdings). The holding measures are also used in this study and will be defined and discussed in a subsequent section.

While the regression results generally showed high levels of statistical significance for a negative (i.e., stabilizing) relationship between institutional holding levels and levels of stock price variability, the low level of R^2 values among the regression results as well as the general lack of statistical significance in examining the relationship between changes (rather than levels) of the variables, could have resulted from a time series instability of the slope coefficients. This possibility is currently being investigated by examining the relationship for various subperiods within the overall 21-month period. Subject to this reservation, the evidence showed reduction in variability, on an individual stock basis, with increased institutional holdings, though the influence was somewhat sensitive to variable definition for the holding variable.

In the current study, we examine only the systematic element of total risk and attempt to allow for monthly changes to examine the potential effects of time series sensitivity of the coefficients as well as potential stationarity problems with the beta coefficient.

Hypotheses

There are two areas in which institutional holding differences could influence systematic risk of individual securities. The first of these is in the level of systematic risk, typically measured by the beta coefficient.

$$\beta_j = cov(r_j, r_m)/\sigma_m^2 \qquad (1)$$

where:

$cov(r_j, r_m)$ = covariance between the rates of return on security j (r_j) and the market portfolio (r_m)

σ_m^2 = variance of the return on the market portfolio

If a large number of institutional holders exerts a destabilizing effect on individual security prices, as some "market folklore" would indicate,[2] one would expect a positive relationship between the beta coefficient and reasonably well-behaved measures of institutional holdings. On the other hand, a large institutional interest in a stock, to the extent that it is a result of a large number of institutional owners, not just a few huge holdings, might be argued to be stabilizing under normal circumstances becuase of a greater likelihood of finding an institution willing to buy when another wishes to sell. Under these conditions, normal shifts in portfolio composition due to factors other than major changes in prospects for the underlying security could be absorbed with little price impact. Similarly, offsetting trades could occur in the event of new information which is not clearly good or bad; some institutions might ignore such information, while others could reach different conclusions as to its impact.

To the extent that institutions agree on the impact of any new information on a security, one would expect them to be trading on the same side of the market, thus causing more rapid price movements. This would be expected to occur partly because of little interest on "the other side" of the market and partly because of the tendency of institutions to react more rapidly to new information.[3]

The second area of influence would be in the proportion of total risk which is systematic. If one accepts the empirical validity of the market model:

$$r_{jt} = \alpha_j + \beta_j r_{mt} + \varepsilon_{jt} \qquad (2)$$

where

$r_{jt} = (p_{jt} + d_{jt})/p_{j,t-1}$

$r_{mt} = (I_t + d_{mt})/I_{t-1}$

p_{jt} = price per share of security j at the end of period t

$P_{j,t-1}$ = price per share of security j at the end of period t-1, adjusted for changes in capitalization between t-1 and t

d_{jt} = cash dividends per share received by holders of security j during period t

d_{mt} = equivalent per share dividends paid on market index (I) shares during period t

I_t, I_{t-1} = levels of market index at end of periods t and t-1, respectively

α_j = regression constant for security j

ε_{jt} = error term (residual) for security j in period t

then the coefficient of determination (R^2) from the market model regression is one measure of the proportion of total risk which is systematic for a given security. Because of the relative sophistication of institutional research, the continual monitoring of market conditions by investment professionals, and relatively rapid reaction to changes in market and individual security prospects, one would expect stocks with a higher level of institutional ownership to show a higher proportion of systematic risk, regardless of the level of systematic risk demonstrated.

Institutional Holding Variables

The measures of institutional shareholdings were as follows:

$HOLD1_t = NINST_t$

$HOLD2_t = NSHRS_t$

$$HOLD3_t = NSHRS_t / SALES_t$$

$$HOLD4_t = NSHRS_t / NINST_t$$

$$HOLD5_t = NSHRS_t / SHOUT_t$$

where:

$NINST_t$ = number of institutions holding shares of the stock in month t

$NSHRS_t$ = number of shares of the stock held by institutions in month t

$SALES_t$ = total trading volume of the stock in month t

$SHOUT_t$ = number of shares of the common stock outstanding in month t

The first variable (HOLD1) measures stictly the number of institutions holding shares of a given stock, without regard to the size of those holdings. As such, it would appear to be a less desirable measure than one which contains both factors. Similarly, HOLD2 measures total shareholdings, but not the number of institutions involved. The larger the number of institutions holding a given company's common stock, the lower one would expect price volatility to be, since there would be more potential institutional buyers (sellers) in the event of a block sale (purchase). Thus, we expect HOLD1 to have a negative relationship with β_j. For similar reasons, HOLD 2 should have a negative relationship, though a large number of shares would not necessarily imply a large number of institutional buyers and sellers. Both HOLD1 and HOLD2 should show positive relationships with the R^2 from the market model, since both are positive measures of institutional holdings.

HOLD4 combines both aspects of holdings: size and number of institutions in a measure of average number of shares held per institution. This would, a priori, appear to be a more desirable measure than either separate factor, though it could be influenced considerably by one or two very large holdings.

HOLD3 measures shareholdings of institutions relative to total trading volume of the stock. A relatively inactive stock would have high values of this variable and one might expect that this would go along with high volatility. That is, any attempts to change positions in the stock would exacerbate price movements in a normally inactive stock. Still, it is difficult to make any a priori arguments for the sign of the slope coefficient in this case, because of the likely relationship between numerator and denominator of the variable. That is, in a market increasingly dominated by institutions, a stock with larger trading volume is likely to be one with a large number of shares held by institutions. The primary reason for including the variable is that the numerator would not reflect increasing turnover among the institutions to the extent the denominator would. When high turnover occurs, the ratio would decline. To the extent that this increases price variability, one would expect a negative relationship.

HOLD5 measures the proportion of outstanding shares held by institutions. If institutional trading is, in fact, a stabilizing influence at the individual security level, this variable should be negatively related to the level of systematic risk.

Data

The monthly Standard and Poor's Stock Guide [9] was used to collect information for the institutional holding variables for a random selection of 100 NYSE-listed common stocks for a related study [8]. Data were collected for the 21 months beginning in May, 1974, and ending with January, 1976. Two subsets of this sample were used in the current study. The first subset consisted of those stocks with complete return data on the CRSP tape for 36 months prior to the beginning of the test period (May, 1974). The second subset consisted of those with complete data on CRSP for 60 months prior to May, 1974. All 100 stocks had complete data for the 21-month test period.

This procedure gave 80 stocks for which 3-year "trailing betas" could be computed for the entire 21-month test period and 71 stocks for which 5-year "trailing betas" could be computed. These beta coefficients and the associated R^2 values (not adjusted for degrees of freedom) were generated from ordinary least squares estimation of regressions of the form

$$\ln(r_{jt}) = \alpha_j + \beta_j \ln(r_{mt}) + \varepsilon_{jt} \tag{3}$$

for security j for each of the 21 months (t = 1, 2, ..., 21) of the test period.[4] In each regression, the number of observations was held constant at 36 or 60, depending upon the data subset under consideration. That is, for each security, j, there would be a vector of B_{jt} values and R^2_{jt} values:

$$\beta_{j1}, \beta_{j2}, \ldots, \beta_{j21}$$

$$R^2_{j1}, R^2_{j2}, \ldots, R^2_{j21}$$

where the first values (β_{j1} and R^2_{j1}) were generated from a regression from t = -35 to t = 1 (for the 36-month trailing betas). There would also be a similar set of values for the 60-month trailing betas, where β_{j1} and R^2_{j1} correspond to regressions from t = -59 to t = 1. Values of β_{j2} and R^2_{j2} for the two subsets would then be generated by re-running the regressions from t = -34 to t = 2 (or t = -58 to t = 2), etc. In the presentation of regression results, the variables based on 36-month trailing betas will be denoted BETA36 and RSQ36 and those based on 60-month betas will be denoted BETA60 and RSQ60 to minimize notational confusion.

Table 1 shows mean values, month-by-month and overall, for the β_{jt} and R^2_{jt} generated by this procedure. While the original 100-stock sample did not show a mean β value significantly different from 1.000 for 21-month betas <u>during</u> this test period,[5] the results here show several mean beta values significantly different from 1.000, though most instances of this occurred during the last half of 1974 (months 1-5 are May-September, 1974), when stock market conditions might well have been responsible for atypical response patterns. Both BETA36 and BETA60 showed drastic declines in mean value from month 1 to month 8 before settling into a more stable pattern (though still a decline) from month 9 to month 21.

Table 2 presents correlation coefficients, on a monthly basis, between BETA36 and BETA60 and between RSQ36 and RSQ60. These correlations stabilized somewhat for the RSQ values at .90-.92 for the last two-thirds of the study period. Over the same period, the BETA correlations increased reasonably steadily from .90 to .97. Even though the BETA36 figures would be expected to show less stationary behavior across time than the BETA60 figures,[6] the two were at least very highly correlated over most of the test period.

Table 3 shows monthly and overall mean values for each of the five alternative holding variables employed as potential explanatory variables in the regression analysis. HOLD3 appeared to be the most volatile, at least in terms of monthly fluctuations in its mean value over the test period. This is not surprising, since the denominator of HOLD3 (monthly trading volume) is a considerably more volatile variable than any of the other three basic variables (NINST, NSHRS, and SHOUT) entering the various holding variable definitions. The overall figures show that there were an average of just over 80 institutions holding an average of 2,184,500 shares of stock of the 80-stock sample.[7] Institutions held shares representing about 75% of monthly trading volume on average (HOLD3). Note that this does not say that institutional trading during the month represented 75% of trading volume. The average size of institutional holdings was just under 28,200 shares (HOLD4) and institutional holdings represented just under 10% of total shares outstanding (HOLD5) for the sample stocks.

Table 4 shows overall correlations between the HOLD variables, as well as minimum and maximum monthly correlation coefficients. As expected from the variable definitons, the only negative correlation was between HOLD1 and HOLD4. HOLD4 is no more than HOLD2/HOLD1 and thus would be expected to show negative correlation. The only surprising (perhaps) element of the correlations in Table 4A is the relatively low magnitudes of all correlations involving the "normalized" variables (HOLD3, HOLD4, and HOLD5) with such a high correlation (.921) for HOLD1-HOLD2. One would expect these ratio-form variables to show lower magnitudes, but the extreme reductions in two-thirds of the remaining correlations were somewhat unexpected.

Parts B and C of Table 4 show maximum and minimum correlations, respectively, on a monthly basis, as well as the month in which the value occurred. There was a slight tendency for the minimum values to occur relatively early in the test period and the maximum values to occur relatively later, though there were exceptions.

Regression Tests

Simple linear regression models were estimated for general relationships of the forms:

$$BETA36 = a_1 + b_1 HOLD \quad (4)$$

$$BETA60 = a_2 + b_2 HOLD \quad (5)$$

$$RSQ36 = a_3 + b_3 HOLD \quad (6)$$

$$RSQ60 = a_4 + b_4 HOLD \quad (7)$$

Each model included the five alternative forms of HOLD discussed earlier. Standard OLS procedures were used to estimate the parameters (a_i, b_i) of the various models.

Each model (20 separate models consisting of all combinations of the four dependent and five independent variables) was estimated for each of the 21 months of the test period. In addition, an "overall" regression was run for each of the 20 models.[8]

Regression Results

The overall regression results are presented in Table 5. While some aspects of these overall results might be classified as interesting, it is difficult to classify them as meaningful, given what they represent. That is, each BETA60 regression would have 21 monthly observations for each of 71 companies, for a total of 1491 observations. However, the observations are a combination of cross-sectional and time series variability. On top of this, the method by which the trailing betas were computed, in an attempt to incorporate changes in the betas over time, gives a considerable overlap in the observations entering the beta calculations. These procedures introduce so many biases into the statistics in Table 5 as to render them (at best) highly questionable. The primary reason for presenting them is to show the form of the results before presenting a somewhat more complex table which attempts to summarize on one page the salient features of 420 separate monthly regressions which do not suffer from these shortcomings.

The indicated summary data is in Table 6. This table indicates only the maximum value (magnitude, ignoring sign) of the adjusted R^2 and the slope coefficient for the various model forms, as well as the month (1 through 21) during which it occurred. It also shows the number of significant ($\alpha = .05$) slope coefficents of the 21 monthly estimates.

The feature that immediately stands out from the BETA36 and BETA60 models is the consistent significance of the forum of the model which includes HOLD4. In all instances, this forum gave a statistically significant slope coefficient, while the best any other forum of the HOLD variable did was 4 cases of significance out of 21 regressions. Stocks with large average holdings (HOLD4) had significantly higher beta values, with the beta coefficient increasing on the order of .01 for every additional 1,000 shares held, on average, by institutions.[9]

The results for the RSQ36 and RSQ60 models were not quite so clear-cut as for the BETA models. Here, HOLD4 had the lowest proportion of significant slope coefficients. Thus, while it was excellent in "explaining" the level of systematic risk, it was nearly worthless in explaining the proportion of systematic risk for the sample stocks. HOLD1 was slightly better than HOLD3 in this respect, but HOLD2 and HOLD5 were close, at least in the 60-month regression forms. A coefficient on the order of .0003 for HOLD1 would indicate that the RSQ value increased by one percentage point (.01) for every (roughly) 35 institutions which held the firm's stock. Given the range of values of NINST for the sample, this indicates a range of not much more than $\pm$ .05 in the RSQ values as a result of differences in holdings, giving some doubt as to the practical significance of the statistical significance noted.

Summary

The effect of institutional shareholdings on systematic risk of individual common stocks was investigated by examining a random sample of NYSE-listed stocks for the period from May, 1974 to January, 1976.

The level of systematic risk was measured by 3-year or 5-year "moving betas" for the sample stocks, and the proportion of systematic risk was measured by the R^2 from the market model regressions used to estimate these moving betas. Using a series of regression models with various definitions of institutional holdings, there was evidence that increased holdings significantly increase both the level and proportion of systematic risk. Some alternative holding variables, however, showed a negative (but not consistently significant) relationship between beta and holdings.

FOOTNOTES

*Associate Professor of Finance, University of Illinois at Urbana-Champaign. Data collection efforts were supported by a grant from the Bureau of Economic and Business Research (BEBR) of the College of Commerce and Business Administration, University of Illinois. Most of the empirical results were generated by Cheng-shing Cheng and the massive task of summarizing the regression results was eased considerably by the assistance of my father, William Carey, at various times. I am grateful for both sources of assistance, as well as the support provided by the BEBR.

[1]The majority of this section, with minor editorial changes, is taken from Carey [8].

[2]For example, see Klemkoshy and Scott [16], page 12.

[3]More rapidly, that is, than individual investors who generally would not be in such constant contact with market developments or the investment professionals.

[4]The computer program used to generate these "moving betas" from data on the CRSP tape was written by R. H. Gilmer, a Ph.D. candidate at the University of Illinois.

[5]See Carey [8], Table 1, page 14.

[6]For example, see Zumwalt and Eubank [28].

[7]NSHRS was recorded in thousands of shares.

[8]This procedure was included more for the sake of curiosity. Comments in the following section are directed towards its lack of usefulness for our purposes.

[9]Recall that the values in Table 6 are <u>maximum</u> magnitudes. Values varied somewhat on a monthly basis, though HOLDY's coefficient varied less than the others.

REFERENCES

[1] Alexander, Gordon J., and Chervay, Norman L., "On the Estimation and Stability of Beta," Journal of Financial and Quantitative Analysis, Vol. 15, No. 1 (March, 1980), 123-37.

[2] Baesel, Jerome B., "On the Assessment of Risk: Some Further Considerations," Journal of Finance, Vol. 29, No. 5 (December, 1974), 1491-94.

[3] Beaver, William H., Kettler, Paul, and Scholes, Myron, "The Association Between Market Determined and Accounting Determined Risk Measures," Accounting Review, Vol. 45, No. 4 (October, 1970), 654-82.

[4] Beaver, William and Manegold, James, "The Association Between Market-Determined and Accounting-Determined Measures of Systematic Risk: Some Further Evidence," Journal of Financial and Quantitative Analysis, Vol. 10, No. 2 (June, 1975), 231-84.

[5] Berkman, Neil, "Institutional Investors and the Stock Market," New England Economic Review (November-December, 1977), 60-78.

[6] Blume, Marshall E., "Betas and Their Regression Tendencies," Journal of Finance, Vol. 30, No. 3 (June, 1975), 785-95.

[7] ______________, "Betas and Their Regression Tendencies: Some Further Evidence," Journal of Finance, Vol. 34, No. 1 (March, 1979), 265-67.

[8] Carey, Kenneth J., "An Examination of the Influence of Institutional Holdings on Stock Price Variability," working paper presented at the 1980 Eastern Finance Association Meeting.

[9] Dobbins, Richard and Greenwood, Michael J., "Institutional Shareholders and Equity Market Stability," Journal of Business Finance and Accounting, Vol. 2, No. 2 (Summer, 1975), 257-68.

[10] Elgers, Pieter T., "Accounting-Based Risk Predictions: A Reexamination," Accounting Review, Vol. 55, No. 3 (July, 1980), 389-408.

[11] ______________, Haltimer, James R., and Hawthorne, William H., "Beta Regression Tendencies: Statistical and Real Causes," Journal of Finance, Vol. 34, No. 1 (March, 1979), 261-63.

[12] Eubank, Arthur A., Jr. and J. Kenton Zumwalt, "How to Determine the Stability of Beta Values," Journal of Portfolio Management, Vol. 5, No. 2 (Winter, 1979), 22-26.

[13] Fabozzi, Frank J. and Francis, Jack Clark, "Stability Tests for Alphas and Betas Over Bull and Bear Market Conditions," Journal of Finance, Vol. 32, No. 4 (September, 1977), 1093-99.

[14] Hawawine, Gabriel A., "Intertemporal Cross-Dependence in Securities Daily Returns and the Short-Run Intervaling Effect on Systematic Risk," Journal of Financial and Quantitative Analysis, Vol. 15, No. 1 (March, 1980), 139-49.

[15] Klemkosky, Robert C., "Institutional Dominance of the NYSE," Financial Executive, Vol. 41, No. 11 (November, 1973), 14-20.

[16] Klemkosky, Robert C. and Scott, David F., Jr., "Withdrawal of the Individual Investor From the Equity Markets," MSU Business Topics, Vol. 21, No. (Spring, 1973), 7-14.

[17] Murray, Roger F., "Institutionalization of the Stock Market: To Be Feared or Favored?" Financial Analysts Journal, Vol. 30, No. 2 (March/April, 1974), 18-20, 22.

[18] Meyers, Steven L, "The Stationarity Problem in the Use of the Market Model of Security Price Behavior," Accounting Review, Vol. 48, No. 2 (April, 1973), 318-22.

[19] Reilly, Frank K., "Institutions on Trial: Not Guilty!" Journal of Portfolio Management, Vol. 3, No. 2 (Winter, 1977), 5-10.

[20] ______________ and Wachowicz, John M., Jr., "How Institutional Trading Reduces Market Volatility," Journal of Portfolio Management, Vol. 5, No. 2 (Winter, 1979), 11-17.

[21] Rosenberg, Barr and McKibben, Walt, "The Prediction of Systematic and Specific Risk in Common Stocks," Journal of Financial and Quantitative Analysis, Vol. 8, No. 2 (March, 1973), 317-33.

[22] Rosenberg, Marvin, "Institutional Investors: Holdings, Prices and Liquidity," Financial Analysts Journal, Vol. 30, No. 2 (March/April, 1974), 53-59.

[23] Soldofsky, Robert M. and Boe, Warren J., "Institutional Holdings of Common Stock: 1969, 1972, and New Developments," Quarterly Review of Economics and Business, Vol. 15, No. 2 (Summer, 1975), 47-60.

[24] Standard and Poor's Corporation. Stock Guide (New York: Standard and Poor's Corporation), various issues.

[25] Thompson, Donald J., III, "Sources of Systematic Risk in Common Stocks," Journal of Business, Vol. 49, No. 2 (April, 1976) 173-88.

[26] Umstead, David A. and Bergstrom, Gary L., "Dynamic Estimation of Portfolio Betas," Journal of Financial and Quantitative Analysis, Vol. 14, No. 3 (September, 1979), 595-614.

[27] West, Richard R., "Institutional Trading and the Changing Stock Market," Financial Analysts Journal, Vol. 27, No. 3 (May/June, 1971), 17-24, 71-2, 78.

[28] Zumwalt, J. Kenton and Eubank, Arthur A., Jr., "An Analysis of the Forecast Error Impact of Alternative Beta Adjustment Techniques and Risk Classes," Journal of Finance, Vol. 34, No. 3 (June, 1979), 761-76.

TABLE 1

Mean Values of b and R2 from Market Line Regressions

	36-month regressions		60-month regressions	
Month	β	R^2	β	R^2
1	1.285*	.3071	1.232*	.3475
2	1.268*	.2993	1.232*	.3408
3	1.195*	.2841	1.197*	.3268
4	1.172*	.2890	1.188*	.3331
5	1.110*	.2911	1.151*	.3341
6	1.027	.3164	1.091*	.3366
7	1.025	.3147	1.086	.3327
8	1.021	.2926	1.085*	.3310
9	1.093	.3409	1.141*	.3581
10	1.088	.3455	1.142*	.3586
11	1.099*	.3469	1.146*	.3585
12	1.089	.3435	1.134*	.3394
13	1.093	.3491	1.134*	.3346
14	1.095*	.3515	1.131*	.3325
15	1.082	.3538	1.114*	.3285
16	1.089	.3524	1.110*	.3264
17	1.086	.3530	1.102*	.3246
18	1.076	.3565	1.092*	.3257
19	1.075	.3537	1.091*	.3232
20	1.078	.3548	1.089	.3186
21	1.104*	.3844	1.098*	.3380
Overall	1.107*	.3324	1.133*	.3357

*Mean β value significantly different from 1.000 at the .05 level

TABLE 2

Correlations Between 36-month and 60-month Statistics

Month	Betas	R-Squared Values
1	.8906	.7836
2	.8625	.8070
3	.8452	.7945
4	.8267	.7909
5	.8578	.8574
6	.8647	.8888
7	.8707	.8949
8	.8572	.8773
9	.9131	.9172
10	.9012	.9128
11	.9098	.9088
12	.9270	.9280
13	.9381	.9123
14	.9513	.9186
15	.9479	.9022
16	.9528	.9047
17	.9566	.9004
18	.9575	.9006
19	.9550	.9049
20	.9572	.8956
21	.9722	.9145

TABLE 3

Mean Values of Holding Variables--Monthly and Overall

Month	HOLD1	HOLD2	HOLD3	HOLD4	HOLD5
1	77.68	2165.2	0.944	27.88	.0989
2	77.75	2170.2	0.981	27.89	.0991
3	77.86	2154.1	0.998	27.30	.0975
4	79.80	2204.3	0.992	28.64	.0997
5	80.15	2209.9	0.927	28.64	.0998
6	80.43	2191.8	0.981	29.12	.0993
7	80.21	2190.4	0.690	29.12	.0990
8	80.21	2188.2	0.863	29.10	.0988
9	79.51	2193.6	0.671	29.12	.0984
10	80.81	2187.5	0.552	28.89	.0983
11	80.84	2185.2	0.619	29.04	.0978
12	81.38	2205.3	0.590	28.12	.0978
13	81.36	2209.9	0.590	28.14	.0971
14	81.36	2212.2	0.570	28.13	.0973
15	81.46	2196.4	0.559	27.75	.0964
16	80.40	2177.1	0.544	27.61	.0942
17	80.25	2170.2	0.846	27.64	.0936
18	80.28	2157.2	0.823	27.00	.0923
19	80.38	2158.6	0.663	27.07	.0921
20	80.48	2176.6	0.713	27.29	.0918
21	79.03	2169.9	0.683	28.05	.0917
Overall	80.08	2184.5	0.748	28.17	.0967

TABLE 4

Correlations Between Holding Variables

A. Overall

	HOLD2	HOLD3	HOLD4	HOLD5
HOLD1	.921	.121	-.025	.229
HOLD2		.175	.134	.311
HOLD3			.258	.571
HOLD4				.389

B. Maximum* Monthly Values

	HOLD2	HOLD3	HOLD4	HOLD5
HOLD1	.935(19)	.335(9)	.001(2)	.248(18)
HOLD2		.415(9)	.178(3)	.343(20)
HOLD3			.422(18)	.727(18)
HOLD4				.432(17)

C. Minimum* Monthly Values

	HOLD2	HOLD3	HOLD4	HOLD5
HOLD1	.909(5)	.031(7)	-.049(6)	.213(18)
HOLD2		.083(4)	.109(11)	.278(5)
HOLD3			.148(12)	.416(7)
HOLD4				.337(6)

*Maximum and Minimum refer to algebraic values, not magnitudes. However, the only correlation with any negative values was between HOLD1 and HOLD4, where 19 of 21 monthly values were negative, including the largest magnitudes. The numbers enclosed in parentheses represent the month of occurrence of the values shown.

TABLE 5

Overall Regression Results

Variable		Adjusted			
Dependent	Independent	R^2	Constant	Slope	F
BETA60	HOLD1	.0510	1.191 *	$-.678 \times 10^{-3}$*	81.00*
	HOLD2	.0343	1.182 *	$-.213 \times 10^{-4}$*	53.96*
	HOLD3	.0018	1.154 *	$-.277 \times 10^{-1}$	3.65
	HOLD4	.1177	0.958 *	$.615 \times 10^{-2}$*	199.72*
	HOLD5	.0001	1.161 *	.167	1.15
BETA36	HOLD1	.0277	1.156 *	$-.608 \times 10^{-3}$*	48.17*
	HOLD2	.0213	1.152 *	$-.205 \times 10^{-4}$*	37.59*
	HOLD3	0	1.096 *	$.152 \times 10^{-1}$	0.89
	HOLD4	.0770	0.941 *	$.590 \times 10^{-2}$*	141.09*
	HOLD5	.0032	1.065 *	432 **	6.30*
RSQ60	HOLD1	.0756	.3129*	$.265 \times 10^{-3}$*	122.77*
	HOLD2	.0536	.3159*	$.853 \times 10^{-5}$*	85.39*
	HOLD3	.0572	.3030*	$.433 \times 10^{-1}$*	91.41*
	HOLD4	.0239	.3100*	$.900 \times 10^{-3}$*	37.46*
	HOLD5	.0570	.2897*	.463 *	91.03*
RSQ36	HOLD1	.0516	.3101*	$.278 \times 10^{-3}$*	92.40*
	HOLD2	.0316	.3142*	$.831 \times 10^{-5}$*	55.74*
	HOLD3	.0358	.3010*	$.420 \times 10^{-1}$*	63.29*
	HOLD4	.0133	.3089*	$.833 \times 10^{-3}$*	23.58*
	HOLD5	.0359	.2887*	.451 *	63.53*

*Significant at the .01 level.

**Significant at the .05 level.

BETA60 and RSQ60 are the β and R^2 from a market line regression with 60 monthly observations; BETA36 and RSQ36 are the corresponding statistics for 36-month regressions.

TABLE 6

Selected Summary Statistics from the 21 Monthly Cross-Sectional Regressions

Variable: Dependent	Variable: Independent	Maximum Adjusted R^2 (month)	Maximum[2] Slope Coef. (month)	No. Signif.[3] (α = .05)
BETA60[1]	HOLD1	.150 (1)	$-.151 \times 10^{-2}$ (1)	4
	HOLD2	.093 (1)	$-.437 \times 10^{-4}$ (1)	3
	HOLD3	.030 (12)	-.142 (12)	0
	HOLD4	.155 (2)	$.111 \times 10^{-1}$ (2)	21
	HOLD5	0 (all)	.494 (17)	0
BETA36[1]	HOLD1	.119 (2)	$-.198 \times 10^{-2}$ (2)	4
	HOLD2	.089 (2)	$-.621 \times 10^{-4}$ (2)	3
	HOLD3	.041 (12)	-.171 (12)	1
	HOLD4	.118 (17)	.011 (1)	21
	HOLD5	.046 (1)	1.140 (8)	0
RSQ60[1]	HOLD1	.135 (18)	$.374 \times 10^{-3}$ (21)	16
	HOLD2	.098 (18)	$.127 \times 10^{-4}$ (18)	12
	HOLD3	.169 (16)	.109 (16)	13
	HOLD4	.100 (2)	$.237 \times 10^{-2}$ (2)	4
	HOLD5	.086 (17)	.585 (17)	12
RSQ36[1]	HOLD1	.108 (6)	$.435 \times 10^{-3}$ (6)	16
	HOLD2	.080 (6)	$.143 \times 10^{-4}$ (6)	9
	HOLD3	.124 (16)	.108 (16)	14
	HOLD4	.013 (6)	$.263 \times 10^{-2}$ (1)	3
	HOLD5	.046 (1)	.813 (6)	5

Notes: (1) BETA60 and RSQ60 are the beta coefficient and R^2 value for market line regressions with 60 monthly observations; BETA36 and RSQ36 are the corresponding statistics for 36-month regressions.

(2) maximum magnitude, not maximum algebraic value.

(3) number of months (of 21 possible) with significant slope coefficients at the .05 level.