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## Expense Preference Behavior in Commercial Banks: The Case of Executive Compensation

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Expense Preference Behavior in Commercial Banks:  
The Case of Executive Compensation

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## ABSTRACT

In this study we test the hypotheses that a reduction in the control exerted by a firm's board of directors and/or an increase in the concentration of the market in which the firm operates result in more, real or potential, managerial control which, in turn, result in higher compensation for chief executives, a form of expense preference behavior. We test these hypotheses on a sample of 227 national banks located in Illinois and Michigan. Banks provide a particularly appropriate source for testing these hypotheses because data on salaries are readily available and regulation of banks is generally assumed to restrict competition in bank markets.

Empirical results of our study lead to rejection of the hypothesis that management control results in greater compensation of the chief operating officer. Similarly no difference was found in the factors that influence the level of executive compensation between the management controlled and the owner controlled firms.

Nonprofit maximizing behavior by firms in the private sector has been the subject of substantial attention in the literature.<sup>1</sup> When noncompetitive conditions exist in the market and there is a separation of control between management and owners, behavior of firms may lead to manager's or executive's maximizing their utility functions subject to a minimum profit constraint. The elements of the chief operating executive's utility functions have been alleged to include risk aversion, sales or growth maximization, managerial emoluments, and executive compensation.

In this study the hypotheses are tested that a reduction in the control of the firm by its board of directors and/or an increase in the concentration of the market in which the firm operates result in more, real or potential, managerial control which, in turn, result in chief executives paying themselves more salary. The hypotheses are tested on a sample of 227 national banks located in Illinois and Michigan.<sup>2</sup> Banks provide a particularly appropriate source for testing these hypotheses because data on salaries are readily available; regulation of banks limits entry and price flexibility thus restricting competition; and substantial variation exists in the degree of bank ownership held and controlled by the bank boards.

#### The Theory of Expense Preference Behavior: General Background

Berle and Means,<sup>3</sup> in their classic study, The Modern Corporation and Private Property, were the first to systematically recognize that the growth of the large corporation in the U.S. led to the separation of control from the ownership of the corporation. As ownership in many corporations becomes dispersed among the shareholders, managers

gain control of the corporation. That is, they gain substantial discretionary power to pursue the maximization of their utility functions.<sup>4</sup> Some of the elements that make up managers' utility functions could be at variance with profit maximization, the obvious, singular goal of ownership.

Specifically, the managers' utility function may contain as elements over which it is maximized, growth, total size, risk aversion, and managerial emoluments, in addition to firm profits. Any of the former elements can be varied at the discretion of the manager so long as they do not result in profits falling below some level that activates the concern of the diverse stockholders and results in a management takeover by a new group of management.

Of particular interest in this paper is a form of manager emolument, the compensation of the chief executive officer (CEO). In a profit maximizing firm, any input, including the CEO, should be employed to the point where the marginal revenue product is equated to the price of the input, or total compensation in case of the CEO. However, since there is only one CEO the factor causing the MRP to differ is heterogeneous in quality. Thus, it is difficult or impossible to find a direct measure of the MRP of the CEO, or to separate that of the CEO from a larger group of management within the same firm. However, the CEO may have more control over the level of his/her own compensation in a managerial controlled firm than in a stockholder controlled firm.

The literature has responded to various aspects of two questions. First, to what extent is the compensation of CEOs determined by the profit maximizing criteria? Second, do the level and determinants of

compensation of CEOs differ between managerial and owner controlled firms?

Numerous studies have hypothesized that compensation is more directly correlated with size than with profits or the degree of risk-taking.<sup>5</sup> As pointed out by Scherer,<sup>6</sup> compensation may also be highly correlated with size because larger firms require higher quality CEO's. Compensation tends to be systematically related to profitability when the effects of size are taken into account.

Masson found that the form of compensation significantly influences the goals of the CEO.<sup>7</sup> Specifically, he found that where a larger proportion of the CEO's compensation is in profit oriented rewards, such as bonuses and stock option plans, the CEOs of managerial controlled firms have more incentive to profit-maximize than otherwise.

#### The Case of Commercial Banks

Commercial banks provide an interesting group of firms to which the previous questions can be directed. As stated above two conditions are necessary for nonprofit maximizing behavior to exist. The market in which the firm operates must be noncompetitive. Commercial banks operate in regulated markets in which certain forms of regulation reduce the degree of competition. Entry is controlled in commercial banking. New firms must apply for a charter to enter the market. One of the issues appraised when charter applications are reviewed is the viability of existing banks in the market. Peltzman found that substantially fewer than the competitive number of banks exist in most markets.<sup>8</sup> In addition, various state and federal agencies regulate the structure of banking firms, place restrictions on the banks' portfolios, and control

rates paid on liabilities and charged for assets. All of these controls restrict, in one form or another, the level of competition in banking markets. Thus, sufficient conditions for nonprofit maximizing behavior are present.

The necessary condition usually assumed for expense preference behavior to exist is a separation of ownership from control in the firm. In some banks the board owns or controls enough stock to maintain effective control of the firm. Sometimes, particularly in smaller banks, the CEO owns controlling interest; in other banks ownership is very dispersed. In fact, in the sample of banks in this study, board ownership of common stock outstanding ranged from 5 percent to 99 percent.<sup>9</sup>

A particular phenomenon disclosed in past banking research, which makes banks particularly suspect to expense preference behavior, is a positive relationship between levels of monopoly power and bank prices (interest rates and service charges). However, a similar relationship is not found between levels of monopoly power and bank profits.<sup>10</sup>

Edwards suggests that this discrepancy may be the result of banks engaging in expense performance behavior "by paying [management] higher salaries, hiring excessive staff, or being lax in their personnel supervision...."<sup>11</sup> Edwards then analyzes the extent of expense preference behavior exhibited in the labor force of banks. He finds the coefficient on the three bank concentration ratio<sup>12</sup> to be positive and significantly correlated with both the bank's total labor force and the bank's total wage bill. Thus, he concludes that expense preference

behavior is a significant force that detracts from profit maximization in many banks.

The outlet for revenues that might otherwise enhance profits considered in this paper is the compensation of the CEO. The chief operating officer is used as the CEO in this study. A model of executive compensation is developed and tested in the next section of the paper with more extensive measurements of the separation of ownership from control than were available to Edwards.

#### Testing for Expense Preference Behavior in Bank Executives Compensation

The compensation of bank CEOs is estimated with a model that extends the work of McGuire et al., Lewellen, Yarrow, and others.<sup>13</sup> A single equation reduced form model is developed and tested using four groups of variables. In all estimations the dependent variable is the sum of salary and year end bonuses of the CEO reported to the Comptroller of the Currency.<sup>14</sup>

The first group of variables describes the difficulty of the CEO's task of managing and coordinating, in terms of bank characteristics. These include bank size, measured in terms of total bank deposits (TD). The larger the bank, the more complex the chief executive's job. This should be true even though the size of the entire management staff may increase proportionately with the size of the bank, for the chief executive remains responsible for the coordination and administration of a larger number of inputs (and, in the case of banking, possibly a larger number of services or outputs).<sup>15</sup> Another variable included in this group is the number of branches (BR). Branches add to the complexity of administration and coordination. Thus, a positive relationship should exist between BR and compensation.<sup>16</sup>

The loan to deposit ratio (L/D), is included in this group of variables as a measure of risk-taking by the bank. If bank ownership imposes a higher L/D ratio on the CEO, thereby undertaking more risk, the ownership should demand higher quality CEOs. Therefore, L/D should be positively correlated with compensation of the CEO.

Finally, included in the first group of variables are measures of bank performance. Bank performance should provide the feedback mechanism by which executives are graded. Therefore, bank profits should be positively related to compensation of the CEO. Two measures of bank performance were used interchangeably in this study: net profit on bank equity (P/E) and interest and fees on loans (IF/L).

The second group of variables describes human capital characteristics of the CEO. This group includes the age of the CEO (AG) and the number of years the individual has held the CEO's position (YR). Higher levels of AG and YR indicate higher levels of human capital and should be positively related to compensation of the CEO.

The third group of variables describes the market in which the bank operates and from which the CEO is drawn. These demographic variables include total population of the county in which the bank is located (TPOP), income in the market (PCY) and the percent of the labor force in the bank's market that is classified as professional (LFP). It is assumed that executives will gravitate to those areas where salaries are the highest. Therefore, LFP is a proxy for the market conditions for the CEO.

The final group of variables measure the necessary and sufficient conditions for expense preference behavior. Following the lead of Edwards,<sup>17</sup> market structure is used as a measure of the sufficient conditions. However, unlike Edwards, who used the three firm concentration ratio, the Herfindahl Index (HF) is calculated for the county in which the bank operates. The Herfindahl Index usually is considered to be a superior measure of market structure because it includes all firms in the industry and reduces the weight placed on the smallest firms.<sup>18</sup>

The necessary condition for expense preference behavior is separation of ownership and control. Two continuous variables are used interchangeably. One measures the percent of common stock outstanding owned by the board of directors of the bank (BOWN); the other measures the percent of common stock outstanding controlled by the board of directors (BCONT). Data are collected for these variables from bank examinations and reports banks must file with the Comptroller of the Currency. Both the necessary and sufficient conditions should be positively related to levels of compensation of the CEO if the banks engage in expense preference behavior.

For large banks held by a holding company, ownership data are not available in a form consistent with the data for nonheld banks. This results in the eight largest banks in the region being omitted from certain estimations. In an attempt to adjust for that omission the model is estimated in three forms, two of which are reported.<sup>19</sup>

### The Empirical Results

The models are estimated with a nonproportional random sample stratified by bank size. The final sample consisted of 227 of the then 530 national banks located in Illinois and Michigan.<sup>20</sup>

The first model, shown in Table 1, contains HF to account for the sufficient conditions for expense preference behavior, but does not include a variable to account for the separation of ownership and control. Clearly, there is no evidence of expense preference behavior related to the compensation of the CEO. The sign of the coefficient on HF is negative and statistically significant.<sup>21</sup> The results of the estimates of the model containing measures of both the necessary and sufficient conditions are shown in Table 2. The inclusion of BOWN or BCONT did not change the results. Although the sign on the coefficients for BOWN and BCONT were always positive, the coefficient was never close to an acceptable level of significance. The sign on the coefficient of HF remains negative as in the model estimated in Table 1. Thus, the hypothesis that expense preference behavior in banks results in higher compensation of the CEOs of those banks is rejected.

The estimation provides other interesting insights into the determination of compensation levels of bank CEOs. Size is clearly the most influential determinant of compensation. This result is consistent with the findings of studies of firms in nonregulated markets. Also, caution should be taken by those who wish to conclude that this provides evidence that revenue or sales maximization prevails over profit maximization. Bank studies reveal limited evidence, at most, of diseconomies of scale.<sup>22</sup>

Table 1.

Estimates of the Compensation of  
Bank CEOs with Sufficient  
Conditions for Expense  
Preference Behavior, 1975  
(t-values in parentheses)

$$(1) c = .427 + 0.0124^{**} TD + 5.47P/E + 0.0398^{**} TPOP + 2.42^{*} PCY + 36.76^{**} L/D$$

(0.036) (8.94) (0.305) (3.615) (1.620) (4.204)

$$+ 0.612^{**} BR + 0.146AG + 0.133YR^{*} - 23.61^{**} HF$$

(4.694) (0.953) (1.657) (-2.368)

$$R^2 = 0.574$$

$$(2) c = -27.02^{*} + 0.0125TD^{**} + 380.63IF/L^{**} + 0.0364TPOP^{**} + 2.29PCY^{*}$$

(0.157) (2.518) (3.35) (1.562)

$$+ 34.325L/D^{**} + 0.582BR^{**} + 0.139AG + 0.177YR^{*} - 27.45HF^{**}$$

(3.965) (4.514) (0.884) (1.452) (-2.765)

$$R^2 = 0.586$$

\* Significant at 10% level.

\*\* Significant at 1% level.

Table 2.

Estimates of the Compensation of Compensation  
of Bank CEOs with Necessary and Sufficient  
Conditions for Expense Preference Behavior, 1975  
(t-values in parentheses)

$$c = 10.910 + 0.167TD^{**} - 26.803P/E + 0.075TPOP^* + 0.619PCY$$

(0.905) (6.279) (-0.998) (1.272) (0.040)

$$+ 31.478L/D^{**} - 0.085BR + 0.019AG^* - 0.068YR - 28.161HF^{**}$$

(3.704) (-0.163) (1.293) (-0.584) (-2.516)

$$+ 0.011BOWN$$

(0.182)  $r^2 = 0.39$   $n = 170$

$$c = -8.537 + 0.165TD^{**} + 177.8IF/L^* + 0.074TPOP + 0.626PCY$$

(-0.510) (6.173) (1.290) (1.143) (0.409)

$$+ 31.623L/D^{**} - 0.107BR + 0.216AG^* - 0.048YR - 28.653HF^{**}$$

(3.726) (0.207) (1.439) (-0.412) (-2.560)

$$+ 0.030BOWN$$

(0.498)  $r^2 = 0.39$   $n = 170$

$$c = 11.300 + 0.130TP^{**} - 30.931P/E + 0.091TPOP^* + 0.308PCY$$

(0.915) (6.400) (-1.111) (1.356) (0.191)

$$+ 36.100L/D^{**} + 0.327BR + 0.248AG^* - 0.106YR - 37.468HF^{**}$$

(4.066) (0.637) (1.590) (-0.856) (-3.204)

$$+ 0.024BCONT$$

(0.527)  $r^2 = 0.40$   $n = 163$

$$c = 14.329 + 0.127TD^{**} + 24.839IF/L^* + 0.082TPOP^*$$

(-0.853) (6.281) (1.691) (1.313)

$$+ 0.291PCY + 36.034L/D^{**} + 0.259BR + 0.269AG^*$$

(0.182) (4.080) (0.506) (1.744)

$$- 0.076YR - 37.606HF^{**} + 0.039BCONT$$

(-0.612) (-3.238) (0.847)  $r^2 = 0.041$   $n = 163$

\*significant at 10% level

\*\*significant at 1% level

Therefore, even if sales or revenue maximization exists it may not be inconsistent with profit maximization because many of the prices (interest rates) which generate revenues are fixed. Thus, if costs are relatively flat and prices are fixed, profits are maximized by expanding volume. The source of flexibility to generate higher or lower profits is in the management of the asset portfolio.

The latter phenomenon is confirmed by the positive and significant coefficient on IF/L, the return on the loan portfolio. In all forms of the model estimated, IF/L was always significant at the 10 percent level and in some instances at the 5 percent level. However, P/E was never a significant determinant of compensation. Therefore, compensation of a bank's CEO is more closely aligned to the performance of the asset portfolio than to overall bank performance. The result, then, is consistent with the highly positive and always significant level of the coefficient of L/D.

The L/D ratio may pick up two influences. A higher L/D ratio may be exogenously determined by bank market conditions, in which case it reflects a higher demand for loans but not higher risk loans. On the other hand, L/D may reflect the risk attitudes of bank ownership. In either case the CEO is undertaking greater risk because in the former, there are proportionately fewer liquid assets to cover deposit needs on loan defaults; and in the latter case, the CEO is making higher risk loan placements. Thus, the CEO is rewarded for undertaking higher levels of risk. Because the target level of the L/D ratio is set by the controlling board the reward system is consistent with the goals of bank owners.

The other variables perform generally as expected but usually with relatively little or no significant explanatory power. The number of branches a bank has is highly colinear with the size of bank, thus the sign reversal. Population of the bank-market and per capita income are always positively associated with levels of compensation, but the coefficient on PCY is not always significantly different from zero. Similarly, the coefficients on AG and YR are generally positive with one or the other being significant. However, in the smaller sample colinearity results in a sign reversal on YR.

### Conclusions

There is no evidence of expense preference behavior significantly influencing the compensation of CEOs of banks. These results are not necessarily inconsistent with those of Edwards. Edwards' results could be interpreted as either expense preference behavior or, alternatively, as the result of firms in more concentrated markets hiring higher quality inputs or having superior ability to pass on higher costs to the consumer.

The significant determinants of compensation of the CEO are consistent with a profit maximizing reward structure. However, the plaguing issue remains; IF/L is a significant determinant of compensation but P/E is not.<sup>23</sup> Thus, as Edwards has found, expense preference behavior may be apparent in areas, other than the compensation of the CEO, which are not as readily scrutinized by the owners, such as numbers of employees, buildings, and other types of emoluments.

Footnotes

<sup>1</sup>For an excellent review of the literature see F. M. Scherer, Industrial Market Structure and Economic Performance, Rand McNally, Chicago, 1980, pp. 29-41.

<sup>2</sup>The compensation data for this study originally were supplied by the Office of Comptroller of the Currency when the author was Regional Economist of the Seventh National Bank Region. However, the views reflected in this paper are those of the author and do not necessarily reflect those of the Office of the Comptroller of the Currency.

<sup>3</sup>Adolf A. Berle and Gardner Means, The Modern Corporation and Private Property, (New York: Macmillan, 1932).

<sup>4</sup>Oliver E. Williamson, The Economics of Discretionary Behavior, (Englewood Cliffs, N.J.: Prentice-Hall, 1964).

<sup>5</sup>See, e.g., W. M. Crain, Thomas Deaton, and Robert Tollison, "On the Survival of Corporate Executives," SEJ, Vol. 43, Jan. 1977, pp. 1372-75, and George K. Yarrow, "Growth Maximization and the Firm's Investment Function," SEJ, Vol. 41, April 1975, pp. 580-92.

<sup>6</sup>Scherer, op cit, pp. 35-36.

<sup>7</sup>See Robert T. Masson, "Executive Motivations, Earnings, and Consequent Equity Performance," JPE, Vol. 79, Nov.-Dec. 1971, pp. 1278-92.

<sup>8</sup>See S. Peltzman, "Entry into Commercial Banking," JLE, Vol. 8, Oct. 1965, pp. 11-50.

<sup>9</sup>The separation of ownership from control, especially among larger banks, is confirmed by J. Vernon, "Ownership and Control Among Large Member Banks," J. Finance, Vol. 25, June 1970, pp. 651-57.

<sup>10</sup>See F. Edwards, "Concentration in Banking and Its Effect on Business Loan Rates," REStat., Vol. 46, Aug. 1964, pp. 294-300. A. Phillips, "Evidence on Concentration in Banking Markets and Interest Rates," Fed. Res. Bulletin, Vol. 53, June 1967, pp. 916-26.

<sup>11</sup>F. Edwards, "Managerial Objectives in Regulated Industries: Expense-Preference Behavior in Banking," JPE, Vol. 85, no. 1, 1977, p. 148.

<sup>12</sup>Edwards had no direct measure of the separation of ownership and control. He used the sufficient condition, concentrated markets, as an indicator of the presence of expense preference behavior.

<sup>13</sup>J. McGuire, J. Chin, and A. Elbing, "Executive Incomes, Sales and Profits," AER, Vol. 52, 1962, pp. 753-61; W. G. Lewellen, The Ownership Income of Management, (New York, Columbia Univ. Press), 1971; and G. Yarrow, "Executive Compensation and the Objectives of the Firm," in Market Structure and Corporate Behavior, Ed. by K. Cowling, (London, Gray-Bills), 1972, pp. 149-173.

<sup>14</sup>The data were checked against aggregates provided by studies of compensation of bank executives conducted annually by the Northwestern Banker. The data for the Northwestern Bankers' studies are collected by survey and contain all forms of compensation, e.g., stock option plans, mortgage life premiums, etc. Fortunately, average levels of compensation as measured in this study by size of bank was very similar to the findings reported in the Northwestern Banker. Therefore, the omission in this study of forms of compensation other than salary and cash bonuses should not seriously influence the results.

<sup>15</sup>Simon suggests that organizational structure, i.e., the number of executives at each level of management as well as the number of levels of management are determining factors of compensation of the chief executive. However, tests of this hypothesis indicate that it is difficult to separate that effect from the effect of size. Also, in smaller firms, and this is particularly true in banks, it is difficult to separate lower levels of management from line or production workers, for many of these individuals carry joint duties. H. Simon, "The Compensation of Executives," Sociometry, Vol. 20, 1957, pp. 32-36, and Yarrow, "Executive Compensation...."

<sup>16</sup>Other measures of bank structure were included in the empirical tests but in no case had significant statistics. These included whether or not the bank was held, or was an affiliate. If the answer to either question was yes, a variable to indicate whether policy diverted by the holding company or another affiliate was included. In all cases the signs were appropriately negative but never significant.

<sup>17</sup>Edwards, "Managerial Objectives...,"

<sup>18</sup>F. M. Scherer, Industrial Market Structure..., pp. 58-59, 27, 274.

<sup>19</sup>Masson suggests that a simultaneous equation bias may exist in single equation estimates of compensation. A two equation model was estimated containing a profit equation and a compensation equation. The results were not perceptibly different than in the single equation estimates. Therefore, the simultaneous equation bias was not considered to be severe.

<sup>20</sup>The number of banks in each size category was as follows:

\$ 0 - 25MM	54
25 - 50MM	60
50 - 100MM	51
100 - 250MM	45
250 - 500MM	7
over 500MM	10.

<sup>21</sup>The level of significance was first thought to have been caused by multicollinearity between HF and P/E or IF/L. The two equation model that would correct for this multicollinearity provided similar results. The simple correlation between HF and P/E or IF/L was never greater than .3.

<sup>22</sup>F. Bell and M. Murphy, "Costs in Commercial Banking," Research Report No. 41. Federal Reserve Bank of Boston, 1968.

<sup>23</sup>Similarly, in the two equation model IF/L as the dependent variable in the profit equation was positive and significantly influenced by market concentration while P/E was not. The findings of Vernon, Phillips, and others are confirmed in this study.









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