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# EXECUTIVE COMPENSATION AND MANAGERIAL MOTIVATIONS IN BANK HOLDING COMPANIES

Duane B. Graddy\*

## I. INTRODUCTION

Much of the extant literature on the relationship between executive compensation and corporate performance relates to the nonfinancial sector. In general, these studies have attempted to determine if managerial utility functions are univariate; with sales, profits, or growth as the dominant argument, or whether they are more complex multi-dimensional constructs. While fruitful results have been obtained from this research design, no one has adapted it to the bank holding company (BHC) performance question. The present study attempts to fill this void in the existing literature by examining the relationship between BHC executive compensation and the behavioral objectives of the organization. Such an analysis is important for two reasons. First, it may help to explain some of the performance differences between affiliated and independent banks found by past studies [9]. Second, empirical evidence on managerial motivations in BHCs is basic to the construction of more complete theoretical models of the BHC firm.

## II. MANAGERIAL COMPENSATION AND THEORIES OF THE FIRM

In neoclassical theory, firms are motivated by the desire to maximize profits. Owner-managers are compensated for their "entrepreneurial capacity." The model views individuals as having the option of renting their resources to another firm or becoming a residual income recipient by managing their own enterprise. The difference between the amount received as a hired resource and the residual income obtained from ownership represents the reward for entrepreneurial effort [4].

In contrast to the neoclassical approach, Baumol [1] suggests that executives acting in their own self-interest seek to maximize total revenues subject to a profit constraint.<sup>1</sup> This constraint is imposed on the firm by the capital market. Shareholders require a return on invested capital at least equal to their best alternative investment. So the sales maximizing firm must, at a minimum, achieve this expected return on equity. A further aspect of this model is that some degree of monopoly power in the product and capital markets is necessary if sales are to be maximized at the expense of profits. In the competitive model, the profit constraint limits the firm's output to the profit maximizing level.

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Another approach to the determination of executive compensation has been presented by Williamson [28]. He hypothesizes that executives attempt to maximize their own utility functions. Managerial utility is assumed to depend on staff expenditures, emoluments, and discretionary profits. These factors, in turn, are dependent upon discretionary managerial control. Managerial discretion is heightened in situations where the firm's ownership is separated from control and where markets are imperfectly competitive. Nevertheless, Williamson's hypotheses about the interrelationships between executive compensation and the elements of the utility set are complex and difficult to estimate empirically. For example, executive compensation increases with expenditures on staff to the extent that these outlays reflect the hierarchical organization of the firm. Williamson argues that compensation at each level of the hierarchy depends on the number of executives at that level and the number at the level immediately below it. On the other hand, the substitution of managerial emoluments for nominal salary produces an inverse relationship between compensation and staff expenditures or number of employees. There are two reasons for this substitution. First, rewards realized in the form of perquisites are less visible and hence less likely to provoke stockholder or labor dissatisfaction. Second, the substitution of perks for nominal salary reduces personal taxes.

Growth maximization has also been suggested as a basis for managerial behavior. In Marris's model [21], for example, the growth rate of productive assets is one of the arguments in the managerial utility function.<sup>2</sup> Executive compensation depends on the growth rate and the valuation ratio (i.e., the ratio of market value to book value). However, this is not the same result suggested by the typical share valuation approach included in basic finance textbooks. In the Marris model, the firm does not maximize value per share. Managers substitute increases in growth for share value until they attain an optimum level of managerial utility. Presumably, the growth rate will be pushed beyond the point where the valuation ratio is highest.

### III. IMPLICATIONS OF THE THEORIES OF MANAGERIAL COMPENSATION FOR BHC PERFORMANCE

Studies [15, 16, 19, 23, 27] of BHC performance are generally predicated on the assumption that the firm's objective function is univariate with the profit rate or valuation ratio as the single argument. However, in large, multi-market organizations where ownership is separated from effective control and take-overs bids are constrained by regulations, managerial preferences may guide operating performance. Few studies address the BHC performance question in terms of non-profit maximization motives.

The theories of managerial compensation suggest several types of rational behavior other than the singular objective of maximizing profits. Nevertheless, whether profit maximization or some managerial preference hypothesis best explains BHC behavior is an empirical question which can-

not be resolved *a priori*. This study focuses on the determinants of BHC executive compensation. In doing so, however, it has a further purpose of using the results of this analysis to explain some of the performance characteristics of BHCs found in past studies. Most previous work [15, 16, 19, 23, 27] describes the motivations of BHC executives by first isolating performance differences between affiliates and independents and then reasoning backwards. The present study attempts to reverse the sequence. Such a procedure may yield a clearer picture of BHC behavior.

#### IV. SAMPLE AND DATA

The sample for this study is comprised of 80 of the top 150 BHCs for the years 1976-78. These organizations ranged in average asset size from \$1.3 billion to \$94 billion. The average firm held assets of \$8.5 billion while the median size was slightly over \$2 billion. In 1978, the cumulative assets of these organizations represented approximately 60 percent of all commercial bank resources and 86 percent of the total assets of the BHC sector.

The variables included in the cross-sectional regression models are listed in Table 1. Total executive compensation is measured in two ways. The first definition includes nominal salary plus bonuses (including bonuses paid in unrestricted shares of company stock). Encompassed by the second definition are nominal salary, bonuses, director's fees, and deferred compensation (excluding stock options). In both cases the compensation variable represents an average for the 1977-78 period. The primary data source was *Forbes* annual survey of executive compensation. The independent variables are ratios averaged over the period 1976-1977 and five-year growth rates.

Structural measures representing state branching status and money center participation were also included in the variable set. Branching status proxies the hierarchical structure of multi-office organizations and diversification potential in local and statewide banking markets. The money-center dummy variable accounts for differences in the complexity of decision-making between regional and money market institutions and perhaps the extent of international involvement. The five-organization statewide concentration ratio and its rate of change measure the competitive environment faced by multi-office firms within a given state. Bank acquisitions by BHCs are generally limited to the state of domicile. Certain personal traits of the executive may affect the level of compensation. It is assumed that these can be proxied by the number of years the executive has been with the organization. Several interaction terms were included in an effort to detect interrelationships between managerial motivations and the structural characteristics of the markets; particularly, the level of statewide market power.



**TABLE 1**  
**DEFINITION OF VARIABLES**

**Dependent Variables**

- $C_1$  = Total Executive Compensation
- $C_2$  = Rate of Change in Total Executive Compensation
- $C_3$  = (Total Executive Compensation/Total Assets) x  $10^6$

**Independent Variables**

- $X_1$  = Total Operating Revenue/Total Assets
- $X_2$  = Net Operating Revenue/Total Assets
- $X_3$  = Market Value of Equity/Total Assets
- $X_4$  = Growth Rate of Total Operating Revenue
- $X_5$  = Total Assets
- $X_6$  =  $1/\text{Total Assets}$
- $X_7$  = Gross Wages and Salaries less Executive Compensation/  
Total Assets
- $X_8$  = Total Operating Expenses/Total Assets
- $X_9$  = 1; if the BHC is classified as Money-Center. 0; otherwise.
- $X_{10}$  = Five Banking Organization Statewide Concentration Ratio
- $X_{11}$  = Change in Five Banking Organization Statewide Concentration  
Ratio
- $X_{12}$  = Number of Years the CEO Has Been With the Organization
- $X_{13}$  = 1; if the BHC is Domiciled in a Unit Banking State.  
0; otherwise.
- $X_{14}$  = 1; if the BHC is Domiciled in a Limited-Area Branching State.  
0; otherwise.

**V. REGRESSION MODELS**

Several different regression models were specified in an effort to isolate the determinants of executive compensation. The initial specification established a functional relationship between executive remuneration, gross operating revenue (sales proxy) and net profits. However, as noted in previous studies [2, 12, 20], the direct regression of executive compensation on sales and profits may violate some of the basic assumptions of the OLS model. First, operating revenue and net income are not independent. Collinearity among the regressors reduces the reliability of the estimated coefficients and makes it difficult to separate the independent influences of the regressors on the response variable. Second, the error variances may not be constant. Estimation in the presence of heteroscedasticity produces OLS estimates that are inefficient and the estimated covariance matrix is biased. Thus, standard tests of significance lose their reliability.

Compliance with the homoscedasticity assumption was determined by means of the Glejser test [18]. The absolute values of the residuals from the initial specification were regressed on various functional forms (ith exponent, reciprocal, and square root) of total assets. Each beta coefficient was then tested for statistical significance with a two-tailed t-test. These tests confirmed the existence of heteroscedasticity. All of the functional forms were significant at the .05 level or better, however, the linear version had the highest t-value. Accordingly, the variables used in the subsequent regression models were deflated by the book value of total assets.<sup>3</sup> Deflation by total assets reduced the degree of multicollinearity among the regressors also.

The transformed equation is listed as (1) in Table 2. These results support the hypothesis that executive compensation is heavily dependent upon the scale of operation. The coefficients of gross operating revenue and the reciprocal of total assets were significant at the 5 percent and 1 percent level respectively. On the other hand, remuneration was unrelated to the rate of return on total assets. Thus, in managing the affairs of the holding company, BHC executives appear to be more concerned with the impact of their decisions on asset turnover than on the profit margin.<sup>4,5</sup>

**TABLE 2**  
**REGRESSION MODELS**

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$$(1) \quad C_3 = 3.53^\dagger X_1 + 5.95 X_2 + 79890.20^* X_6$$

(1.92)            (0.74)            (18.05)

$$R^2 = 0.8633$$

$$(2) \quad C_3 = 2.76^\# X_1 + 7.01 X_2 + 183.69^\dagger X_4 + 80382.80^* X_6$$

(1.45)            (0.88)            (1.72)            (17.92)

$$R^2 = 0.8687$$

$$(3) \quad C_2 = -0.01 X_2 + 0.21^* X_4 + 50.39^* X_6$$

(1.22)            (3.40)            (8.78)

$$R^2 = 0.5673$$


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\*Denotes significance at the 1 percent level in one-tail test.

†Denotes significance at the 5 percent level in one-tail test.

#Denotes significance at the 10 percent level in one-tail test.

Formulations such as equation (1) have been criticized by Hogan and McPheters [14] and Ciscel [2] for neglecting the personal characteristics of the executives. They suggest including such variables as experience and business background. The latter is difficult to quantify. However, to account for the experience factor, equation (1) was respecified to include the number of years the executive had been with the organization. Estimation of this equation produced results similar to Hogan and McPheters [14, p. 1065] and Ciscel [2, p. 616]. The CEO's length of service had no effect on remuneration.<sup>6</sup>

Further tests were conducted to ascertain whether certain structural factors might be important in the determination of BHC executive compensation. For example, the complexity of the hierarchical structure of the firm, as represented by branching status or money-center classification, might be embodied in the pattern of executive remuneration. Moreover, managerial motivations may be different in concentrated markets as compared to un-concentrated ones. Thus, the interaction of sales and profits with market structure may have a bearing on the level of executive compensation. These structural factors were accounted for by adding variables  $X_9$ ,  $X_{10}$ ,  $X_{11}$ , and  $X_{14}$  to equation (1). Along with these variables were added a complete set of interaction terms. While the overall fit of the saturated model showed little improvement over the original equation<sup>7</sup>, the market structure interaction term yielded interesting results. For example, BHC executive compensation was more positively related to sales in more concentrated statewide markets than in less concentrated ones. This is the kind of oligopolistic behavior that appears as a foundation of the sales maximization model.

The hypothesis that corporate managers are motivated by the desire to maximize firm growth subject to some profitability constraint permeates the writing of Baumol [1] and Marris [21]. In these models, executives are rewarded for achieving a maximum growth rate of sales or productive assets provided that the rate of profit or valuation ratio does not fall below a level deemed appropriate by the capital markets. If this is in fact the case, then the growth rate should appear as an important argument in the compensation function. As a first step in testing this hypothesis, equation (1) was respecified to include the growth rate of total operating revenue.<sup>8</sup>

Inspection of equation (2) reveals a statistically significant relationship between sales growth and the level of BHC executive compensation. In fact, the growth rate of operating revenues appears to be somewhat more important than asset turnover in determining executive remuneration. Further tests were conducted to see whether other growth rate concepts might perform as well as operating revenues. The growth rates of earnings per share, equity capital, and deposits were entered as regressors in separate specifications of the compensation equation. Many different regression models were tried, but none of them produced significant coefficients for these growth measures.

A more discriminating test might be constructed in terms of the determinants of the growth rate of executive compensation. These tests focus on those factors which influence the rate of change in remuneration over time. In equation (3), the rate of change in compensation is regressed on the growth



rate of operating revenue, return on total assets, and the scale factor. The growth of BHC compensation is more closely tied to the growth rate of operating revenues than to the return on assets. Substitution of the valuation ratio for the profit rate did not change the results. In both cases the regression coefficient for the profitability measure carried a negative sign but was not statistically significant. The negative signs imply that executive compensation grows more slowly (*ceteris paribus*) in BHCs characterized by relatively high profit margins.<sup>9</sup> To the extent that high margins constrain the growth of total output, the results of equation (3) support the Baumol's revenue growth hypothesis.<sup>10</sup>

Expense preference behavior is made possible by the separation of ownership from effective control and imperfections in the product and capital markets. As indicated by Williamson [28, p. 1033] if managers attempt to maximize a utility function whose arguments include salary, security, power, status, prestige, and pleasure, then their actions to fulfill these aspirations should manifest themselves as "excessive" expenditures for staff and emoluments. However, as mentioned before, the relationship between these expenditures and nominal remuneration is ambiguous. To the extent that high staff expenditures represent the complexity of the hierarchical organization of the firm, one might anticipate a positive relationship between discretionary expenditures and executive compensation. This appears to be Williamson's argument. On the other hand, the substitution of managerial emoluments for nominal salary could produce the opposite result.

The tests for expense preference behavior were based on the residual variable approach developed by Ciscel and Carroll [3]. First, gross salaries and wages were regressed on total operating revenue. The residuals from this equation were then used as proxies for the amount of labor costs which were unassociated with the production of firm sales (output). That is, the residuals were taken as estimates of discretionary staff expenditures. The deflated residuals were entered into several versions of the compensation equation; however, in no case were the coefficients significantly different from zero. Estimates were also made using total operating expenses and number of employees. The results were the same.

## VI. CONCLUSIONS

The results presented in this paper indicate that BHC executives are compensated for their success in increasing the level and growth rate of total operating revenue and asset size. Moreover, rather than being components of the objective function, the profit rate and valuation ratio appear as constraints in the decision process. If BHC executives effectively translate their desires into organizational policies, then the operating performance of the affiliated firms should reflect the general focus on total revenue as opposed to alternative objectives. While the fragmented evidence of past performance studies cannot confirm or deny the sales and growth hypothesis, they do provide strong support for its existence.



First, it has been found that BHC affiliates produce more loan output than their independent counterparts [15, 19, 23, 24, 27]. Second, operating expenses per dollar of assets are significantly higher for affiliated banks than for independents [19, 24, 27]. While the relative amount of wages and salaries paid to employees does not vary between the two groups, the ratio of "other" operating expenses to total assets is significantly higher for affiliated banks. The expenses included in this category; e.g., advertising costs and fees upstreamed to the parent for debt service, are ones that might be associated with a growth objective. Third, studies of BHC performance [16, 19, 24, 27] generally find no difference in the operating ratio or profitability of affiliated as compared to independents. This means that the higher revenues experienced by BHC affiliates [19, 24, 27] are offset by additional expenses (expansion costs) leaving profitability between the two groups virtually the same. Fourth, increased acquisition activity has put downward pressure on the valuation ratio [22]. This result is expected in a growth situation when a firm expands beyond the value maximizing point.<sup>11</sup>

In summary, it appears that BHCs search for affiliates with sacrificable profits, or what might be termed unused growth capacity. An independent bank may be unable to realize this potential due to a lack of diversification possibilities or, perhaps, limitations in managerial capabilities. In any event, future modelling of the BHC firm should emphasize the revenue and growth objectives with the profit rate (or valuation ratio) treated as an important constraint on the expansion process.

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### Footnotes

<sup>1</sup>Profits may affect the level of executive compensation even in this model however. For example, if the firm is operating at a point below the minimum profit constraint then the executive may be rewarded for increasing the firm's profitability even though sales are reduced. Such a retrenchment process sometimes occurs after a successful take-over bid.

<sup>2</sup>Firm growth has also been emphasized by Baumol [1] and Galbraith [5] as a determinant of executive compensation.

<sup>3</sup>The residuals from each of the deflated regression equations were also examined for the presence of heteroscedasticity.

<sup>4</sup>A recent study by Glassman and Rhoades [6] found no relationship between the profit rate and ownership for the largest 200 lead banks of BHCs. Thus, managerial preferences may be evident in the objective functions of these firms. It might be argued that this test favors acceptance of the sales

maximization hypothesis by omitting stock options from the definition of executive compensation. However, other studies [20] have shown that, in general, the results are not very sensitive to the definition of managerial remuneration. Moreover, Hirschey and Werden [12] contend that the use of *ex post* values of stock options as proxies for *ex ante* values bias the estimated coefficients of profit and/or market value because the proxies are by definition correlated with these variables.

<sup>3</sup>Ciscol and Carroll [3] have presented an interesting respecification of the general sales vs. profit equation. To reduce the degree of multicollinearity between profits and sales and to control for possible simultaneous equation bias, they first regressed observed profits on observed sales. The residuals from this equation were then used as profit proxies in the compensation equation. The residuals were interpreted as profits attributable to reductions in the cost of production (or increases in technical efficiency). Thus, "the significance of residual profit would provide extremely strong support for the neoclassical hypothesis; if chief executive officers are rewarded for increasing technical efficiency (sales revenue held constant), there is strong evidence that corporate management is interested in goals other than increasing the firm's market share or asset size." This idea was incorporated into the present analysis by replacing  $X_2$  in equation (1) with residual profits,  $\hat{X}_2$ . Estimation of this relationship produced a negative sign for  $X_2$ ; however, it was not significantly different from zero at the .10 level. Both  $X_1$  and  $X_6$  were significant with the scale factor dominating the relationship.

<sup>4</sup>The negative sign of variable  $X_{12}$  paralleled the findings of Hogan and McPheters also.

<sup>7</sup>The procedure for testing the significance of the interaction terms is discussed in [18, pp. 418-419 and pp. 455-457].

<sup>8</sup>The growth rate was measured as operating revenue (t) minus operating revenue (t-1) divided by total assets (t) averaged over a five year period.

<sup>9</sup>Similar results were obtained by Hirschey and Werden [12] for industrial corporations. They concluded that "the reward to steadily increasing sales is compounded, but the reward to steady increases in profit or value is less than that for a one period increase. This makes the pursuit of sales growth (size) much more attractive to the manager than is the steady pursuit of growth in either profits or market value."

<sup>10</sup>A potential problem with the specification of equation (3) is that it merely reflects the growth characteristics of different firms and does not allow any generalization about managerial motivations. That is, the growth rate of compensation may be highly correlated with the rates of change of a whole array of financial variables. To examine this possibility the growth

rates of earnings per share, equity capital, and deposits were included as independent variables in separate regression runs. In no case did they reach a satisfactory level of statistical significance.

<sup>11</sup>A problem which detracts from the above arguments is the finding that affiliated banks have not realized increasing shares in local banking markets. More specifically, if revenue or growth maximization is the overriding objective of BHCs, why haven't their affiliates captured a larger market share after acquisition. A few observations might be offered on this point. First, the relative shares of BHCs in statewide markets have increased dramatically in the last decade (even after allowance for the increase due to the 1970 Amendment to the Bank Holding Company Act). Second, most of the studies of market share changes are based on data from the early stages of the BHC movement. For example, a recent study by Goldberg [7] found no change in market shares for banks acquired by multibank holding companies. However, his data were for the period 1965-1972. Moreover, the average post-acquisition interval was only 3.9 years. One might question whether this is long enough to detect shifts in market shares. Third, most studies proxy market share by total deposits. This may not be an appropriate measure for BHCs where asset funding options are bountiful. Perhaps the market share in loans, total assets, or gross revenues would be a better measure of BHC performance. Along these lines, the present study indicated that not all growth measures were equally capable of explaining BHC executive compensation.

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