Looking Beyond the CEO:
Executive Compensation at Banks

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Abstract

The literature on executive compensation at banks has proceeded largely under the assumption that a single elasticity can adequately describe the sensitivity of executive pay to firm performance, but theories of performance based pay and tournament pay suggest that this assumption may be incorrect. We test the single-elasticity assumption by comparing the components of compensation and the pay-performance relationship across banks with different characteristics and bank executives of different positions. We find that the structure of compensation varies significantly across firms, with firm size being an important explanatory firm characteristic. The structure of compensation also varies across executive positions, but only after controlling for differences across firms. These patterns translate into significant differences in pay-performance relationships across firms, with size being the distinguishing firm characteristic. Differences across executives are less robust. There is some evidence that CEO stature enhances pay-performance sensitivity at the largest banks in our sample, but the non-base pay components of CEO compensation are apparently less performance sensitive than their labels would suggest.

I. Introduction

The banking industry provides an excellent setting for the study of incentive compatible compensation as a response to agency problems. With few tangible assets and large off-balance sheet positions, easily smoothed accounting returns, and a weak market for corporate control, banks are institutions in which owner-manager agency problems may flourish. One solution to these problems is incentive compatible compensation for executives. Appropriately, the banking literature pays considerable attention to executive pay. For the most part, however, the banking literature has proceeded under the assumption that a single elasticity can adequately describe the sensitivity of executive pay to firm performance. Little attention is paid to variation in compensation structure across firms or differences between the compensation structure of chief executive officers (CEOs) and other top executives.

The purpose of this paper is to test the single elasticity assumption explicitly by comparing the components of compensation and the pay-performance relationship across banks with different characteristics and across bank executives with different positions. Our motivation stems from theories of performance-based pay and tournament pay, which generate predictions regarding differences in compensation structure across firms and have implications for non-CEO compensation as well as CEO compensation. Theories of performance-based pay suggest that pay should be particularly performance sensitive when an executive's individual output is difficult to monitor and when their effect on firm profitability is strong. The conventional wisdom is that these conditions are more likely to be met for CEOs than for lower ranking executives and at large firms rather than small firms (Milgrom and Roberts 1992).

A substitute for performance-based pay is tournament pay, where compensation for top

executives (the tournament "winners") far exceeds individual productivity, providing incentives to those competing for scarce top-level positions (Lazear and Rosen 1981). Where non-CEO executives are motivated by intra-firm promotions, their pay should be less performance-sensitive than that of CEOs (Milgrom and Roberts 1992). Among CEOs, pay-performance sensitivity should be stronger at larger firms, since the CEOs of smaller firms continue to compete in a decentralized labor-market "tournament" for "promotion" to larger firms.

We analyze the components of compensation (base pay, annual bonus, deferred compensation, and the value of options granted) at approximately 300 publicly traded banks, allowing for differences across firms and differences across executive positions. We then determine whether and how variability in the structure of compensation translates into differences in pay-performance relationships by regressing option-adjusted compensation growth on measures of current and lagged firm performance, allowing again for differences across firms and across executive positions.

We find that the structure of compensation varies significantly across firms, with firm size being the important explanatory firm characteristic. Consistent with theories of performance based pay and tournament pay, larger firms rely more heavily on annual bonuses, deferred compensation, and option-adjusted compensation, and less heavily on base pay. These patterns translate into significant differences in pay-performance relationships across firms, with size being the distinguishing firm characteristic.

The structure of compensation also varies across executive position, but only after controlling for cross-firm differences. Within firms, annual bonuses, deferred compensation, and option-based compensation are relatively more important for CEOs than for non-CEO executives.

There is some evidence that CEO stature enhances pay-performance sensitivity at the largest banks in our sample, but differences between the pay-performance sensitivity of CEOs and other executives are less robust than differences in pay-performance sensitivities across firms. The non-base pay components of CEO compensation are apparently less performance sensitive that their labels suggest. However, we find that wealth derived from options holdings (a supplementary alignment mechanism) is significantly higher for CEOs.

The next section describes the related empirical literature. We examine the components of compensation in Section III and the pay-performance relationship in Section IV. Section V discusses our results and explores additional firm characteristics and alternative measures of firm performance. Section VI concludes.

II. Related Empirical Literature

There is a large body of empirical literature dealing with the estimation of pay-performance elasticities, motivated by the expectation that compensation policies will optimally be structured to align the incentives of managers with those of owners. Murphy (1998a) provides a comprehensive overview of the pay-performance literature, along with a description of the contractual features of executive compensation and a review of the literature on executive turnover.

Our work is most closely related to a subset of the executive compensation literature that deals with banks. Several themes are treated, including the comparison between compensation at banks and other firms (Houston and James 1995, Barro and Barro 1990), the variability in the pay-performance relationship over the executive's job tenure (Barro and Barro 1990), and the effects of banking industry deregulation on the CEO pay-performance relationship (Crawford,

Ezzell, and Miles 1995, Houston and James 1995, Hubbard and Palia 1995). These studies focus on compensation policies for bank CEOs only, ignoring the compensation of other top executives, perhaps because the size and growth of CEO compensation packages has captured the attention of the popular press and stimulated debate regarding the efficacy and "fairness" of these generous compensation packages.

For the most part, the banking literature also ignores variation in the structure of compensation across firms. An exception is Hermalin and Wallace (1996). Their motivation is the Jensen and Murphy (1990) result that a $1000 increase in shareholder wealth leads to a $3.25 increase in CEO pay, a sensitivity that many subsequent authors found surprisingly low given that agency problems are presumed to be important in affecting CEO behavior and that compensation should therefore have a strong performance-based component. Hermalin and Wallace argue that it is important to account for firm heterogeneity when quantifying the pay-performance relationship. Using a sample of thrifts from 1988-92, they control for a set of firm characteristics (market-model beta, insider shareholdings, tangible capital, and a measure of firm efficiency) and find statistically and economically important pay-performance relationships. They also find that firm size and insider shareholdings have a direct effect on the contractual features of compensation contracts.[1]

The broader literature dealing with executive compensation in other industries has also focused on the CEO. Some studies examine differences in the level of pay across executive positions (e.g., Conyon and Schwalbach 1997), but little attention has been paid to differences in

[1] Garen (1994) explores variability in the components of compensation and in pay-performance sensitivities across firms from a variety of industries.

pay-performance relationships. One exception is Murphy (1986). This study estimates pay-performance relationships for Chairmen, CEOs, Presidents, and Vice Presidents using 1964-81 time-series data on individual executives from a sample of manufacturing firms and does not find a decline in the magnitude of the pay-performance relationship as the hierarchical ladder is descended. In contrast, a recent study by Aggarwal and Samwick (1998) uses data from the 1990s and finds that managers with explicit divisional responsibility have lower pay-performance sensitivities than managers with broad oversight authority, who in turn have lower pay-performance sensitivities than CEOs.

Demsetz (1995) also looks at pay-performance sensitivities for managers with different responsibilities. The purpose of the study is to evaluate the explanatory power of tournament pay as compared to productivity pay. Using data on the level and structure of executive compensation at 100 manufacturing firms, Demsetz measures the relative importance of firm performance and firm size in explaining the level of executive compensation and finds that the relative importance of performance is stronger for higher levels of management. Note that our analysis is not designed to distinguish the relative merits of tournament and productivity pay theories. The empirical relationships that we test are consistent with both theories, since both suggest that a single elasticity cannot adequately characterize the pay-performance relationship.

III. The Components of Compensation

We obtained detailed information on the components of compensation for executives at approximately 500 publicly traded banks from the 1996 issue of the SNL *Executive Compensation Review.* Because we were interested in differences across executive positions as well as differences across firms, we chose to focus on the 298 banks reporting compensation data

for their CEO and at least one additional executive, as well as the necessary information on firm performance. The data are based on publicly filed firm proxy statements and include 1995 base pay, annual bonus, long-term compensation,[2] and the value of options granted.[3] Bank size averages $ 11.4 billion in assets. The number of executives per bank ranges from two to five, increasing with bank size and averaging 3.7 executives per bank, for a total of 1104 executive observations. Summary statistics appear in Table I.

SNL reports 9 executive titles, which we narrowed to following five positions: (1) CEO = chief executive officer (27 percent of sample), (2) CFO = chief financial officer (12 percent of sample), (3) COO = chief operating officer (12 percent of sample), (4) SLO = senior lending officer (3 percent of sample), (5) SSB = senior subsidiary officer (10 percent of sample), and (6) MSC = miscellaneous (36 percent of sample), which includes executives that did not fall into one of the first five categories. Retired officers were dropped from the analysis.

Cross-firm Differences in the Components of Compensation

The variability across firms in the components of compensation is substantial. Chart 1 displays histograms of base pay, annual bonus, long-term compensation, and the value of options granted, each scaled by option-adjusted compensation. Each firm contributes one observation to each of the four histograms in Chart 1. That observation is the average value of the given compensation share across surveyed executives in the given firm. Chart 1 shows considerable cross-firm variation in the base share and in the annual bonus share, but less cross-firm variation in

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[2] Long-term compensation includes annual cash, stock, or performance unit awards paid or credited to executives during the fiscal year in accordance with multi-year performance goals.

[3] The value of options granted is calculated by SNL using an approximation of the Black-Scholes option pricing method.

the long-term share and the options share.

Theories of performance-based pay and tournament pay both suggest a relationship between firm size and pay structure. In our sample, firm size (measured using three indicator variables for the top three asset size quartiles) explains 8 to 26 percent of the variability in the four components of compensation, with the highest explanatory power associated with the base pay component (Table II). The shares of option-adjusted compensation accounted for by annual bonus, long-term compensation, and options granted each rise throughout the size distribution, whereas the share accounted for by base pay falls.

Cross-position Differences in the Components of Compensation

This section tests for differences in the structure of compensation across executive positions. Table III describes the average compensation profile for each executive type and for the sample as a whole. The unconditional means reported there show only moderate variation across position, with base pay ranging from 57 to 63 percent of option-adjusted compensation, annual bonus ranging from 16 to 18 percent, long-term compensation ranging from 6 to 11 percent, and the value of options granted ranging from 9 to 15 percent.[4] Table IV regresses compensation shares on a set of executive position indicator variables. We cannot reject the joint hypothesis that all of the position variables equal zero even in the base pay regression, where the p-value for that joint hypothesis equals 0.09.

We learned from the previous sub-section, however, that differences *across* firms are important. Perhaps executive position can do more to explain variation in the structure of

[4] Together, the four compensation shares sum to something less than one, because of the small contribution of a fifth category, "other annual income."

compensation once we control for these differences. Tables V, VI, and VII demonstrate that this is in fact the case.

Table V repeats the regressions in Table IV, but indicator variables for the top three firm-size quartiles are added. The size quartiles show the same pattern as in Table II: increasingly negative coefficients in the Base Pay regression and increasingly positive coefficients in each of the other three regressions. The CEO indicator variable is significant in both the base pay and bonus regressions and the senior subsidiary officer coefficient is significant in the long-term compensation and value-of-options-granted regression.

Since there may also be unobservable differences among firms, we include firm fixed effects instead of size indicators in Table VI. In this specification, the role of the CEO position indicator in explaining the components of compensation becomes stronger. Now, CEOs show significant differences from the "miscellaneous" category in each regression, and differences between the CEO coefficients and the coefficients for other executives are often statistically significant. CEOs tend to receive a smaller fraction of their compensation as base pay and a larger fraction of their compensation as bonus, long-term compensation, and options. Chief Operation Officers show a similar pattern with respect to base pay and options granted, though the magnitudes of the COO effects are smaller.[5]

The consistent significance and strong magnitude of the CEO coefficients suggest that differences between the structure of CEO compensation and that of other top executives is particularly important. Table VII estimates a simpler fixed-effects specification in which only the

[5] Differences between the CEO and COO coefficients are significant in the base pay regression but not significant in the regression for the value of options granted.

CEO is differentiated from other executives. The CEO coefficient in each regression continues to be significant, with CEOs receiving an almost six-percent smaller share of option-adjusted compensation in the form of base pay, and offsetting effects in the annual bonus, long-term, and option categories.

Together, variability in the components of compensation across banks and across executive positions suggests that compensation is structured in accordance with theories of performance based pay and tournament pay. Next we determine how differences in the structure of compensation across banks and executive positions translate into differences in pay-performance relationships.

IV. The Pay-performance relationship

We test the single elasticity assumption by regressing the growth of executives' option-adjusted compensation on measures of firm performance and then freeing up the estimated elasticity to vary across firms and across executive positions. Our measure of compensation growth is the percentage change in option-adjusted compensation, which includes annual compensation (the sum of base pay and annual bonus), long-term compensation, and the value of options awarded in a given year. The mean of option-adjusted compensation growth in the sample is 16.63% (median 9.69%) with a standard deviation of 42.41%. We measure firm performance using dividend-adjusted stock returns. Both current and one-year-lagged performance are included in the analysis. Compensation could be linked to past stock performance because the effect of managerial decisions on observable performance may occur with a lag and consequently, might not be rewarded immediately, or because annual bonuses may simply be received with some delay.

The literature on executive compensation draws a distinction between own-firm performance and performance relative to a peer group. For instance, Gibbons and Murphy (1990) find that compensation growth not only reflects own-firm performance but also firm performance relative to industry performance. Since our analysis focuses on a single industry, our estimates of pay-performance sensitivity can be thought of as industry-relative. We examined whether performance relative to more narrowly defined peer groups affects compensation growth, but uncovered no significant findings.

Estimation strategy

Our strategy is to estimate a regression relating the growth of executives' option-adjusted compensation to their firms' stock returns. More specifically, the percentage change in compensation is regressed on the percentage change in firm performance.

This estimation structure, in which a return is regressed on a return appears elsewhere in the literature (e.g., Murphy 1986, Gibbons and Murphy 1992) but is not the only estimation structure adopted. Several papers on executive compensation at banks regress the change in executive compensation (in dollars) on the change in firm value (in dollars) (e.g., Houston and James 1995, Crawford, Ezzell, and Miles 1995), and other approaches exist as well. Our approach assumes that all else equal, the executive who creates $10,000 from a $1,000,000 portfolio (a one percent return) will receive the same "reward" as the executive who creates $100,000 from a $10,000,000 portfolio (a one percent return), and that this "reward" will come in the form of a percentage increase in option-adjusted compensation. Alternatively, when the change in executive compensation (in dollars) is regressed on the change in firm value (in dollars), the underlying assumption is that the executive who creates $10,000 from a $1,000,000 portfolio

will receive a smaller "reward" (measured now in dollars) than the executive who creates $100,000 from a $10,000,000 portfolio.

While both approaches are defensible, the former appeals to us more because we are accustomed to measuring "performance" in terms of rates of return. Moreover, Murphy (1998a) reports that explanatory power is higher when rates of return are used to explain cross-sectional variation in compensation growth (Δln(CEO pay))than when changes in shareholder value are used to explain changes in the level of CEO pay (ΔCEO pay). The two approaches will deliver different estimates of pay-performance sensitivity, which is important to keep in mind when comparing the results of different studies. The choice of estimation structure is especially important when interpreting the effect of firm size on pay-performance sensitivity (Holmstrom 1992, Schaefer 1998, Murphy 1998a).

In order to explore how pay-performance sensitivity differs across firms and executive positions, we supplement our pay-performance regression with two types of interactions. We include indicator variables for each of the top three asset size quartiles and interact these indicators with our performance measures to determine the sensitivity of the pay-performance relationship to firm size. We also include an indicator variable for CEOs and interact that indicator with the measures of firm performance to determine the sensitivity of the pay-performance relationship to executive position.

The results of our base specification (where option-adjusted compensation growth is regressed on bank performance) are reported in Table VIII. This specification is estimated for the full sample of executives, with the coefficient on bank performance constrained to be the same across all firms and executive positions. The first column presents the estimated coefficients when

we include the current dividend-adjusted stock return only. The second column includes both current and lagged dividend-adjusted stock returns.

Stock returns have a significant and positive effect on executive compensation. The estimated coefficient on current performance in the first column of Table VIII is both statistically and economically significant. A one standard deviation increase in the stock market return (27.08 percentage points) leads to a 4.20 percentage point increase in the growth rate of option-adjusted compensation. Although it is difficult to draw comparisons to studies that measure pay-performance sensitivity using alternative empirical frameworks (as discussed above), our result is similar to comparable pay-performance sensitivities reported elsewhere.

The estimated coefficient on lagged dividend-adjusted stock market return is also positive and statistically significant. This is consistent with the idea that past performance can influence current compensation growth and indicates that executive compensation may be more sensitive to performance than the simple elasticity presented in column one implies. The sum of the performance coefficients in the second column of Table VIII (0.352) represents a total effect of bank performance on compensation growth.

Pay-performance sensitivity across firms

In the previous section, we found that the structure of compensation (the shares of option-adjusted compensation associated with base, annual bonus, long-term compensation, and option awards) differs significantly across banks and that bank size was an important firm-specific factor. In particular, we found that base pay becomes relatively less important and annual bonus, long-term compensation, and option awards become relatively more important, as we move through the size distribution. Now we explore whether differences in the structure of compensation lead

to significantly different pay-performance sensitivities across firms of differing size.

Table IX presents the estimated coefficients when the growth in option-adjusted compensation is regressed on stock market returns and the resulting coefficients are allowed to differ across bank size quartiles. Both current and lagged stock returns are included, so adding an interaction term from the first panel of the table with the comparable interaction term from the second panel gives an overall "quartile effect." That effect is insignificant for the second and third size quartiles but significant (at the one percent level) and large for the fourth size quartile. We conclude that the effect of firm size on the components of compensation (estimated in the previous section) does translate into a "size effect" on the pay-performance relationship: Pay-performance sensitivity is substantially greater for the largest banks in the sample.[6]

Pay-performance sensitivity across executive position

Next we determine whether the sensitivity of pay to performance differs significantly across executive positions. We measure differences between the pay performance sensitivity of CEOs and other executives by including a CEO indicator and the appropriate interaction terms in the pay-performance regression. Tables X and XI present the results. In Table X, we restrict the pay-performance relationship to be the same across firms of different sizes. In Table XI, we permit pay-performance relationships to vary across both executive position and firm size.

In Table X, estimated coefficients on current and lagged stock returns are positive and significant at the 1 and 5 percent levels, respectively. The CEO indicator is positive and significant at the 5 percent level, indicating that the bank CEOs in our sample experienced

[6] In contrast, Gibbons and Murphy (1992) find that pay-performance elasticities show little variation with respect to size among a 1970-88 sample of executives from a variety of industries.

stronger compensation growth than the other bank executives. The CEO *interaction* terms are not significantly different from zero. This suggests that for the sample as a whole, CEO compensation growth is no more sensitive to firm performance than other executives' compensation growth.

In Table XI we control for firm size and begin to see some differences between CEOs and other executives, but the results are not very robust. The four columns of Table XI repeat the Table X specification by size quartile. The first interaction term gives the CEO effect on the pay-performance relationship using current firm performance. The second interaction term gives the CEO effect on the pay-performance relationship using lagged firm performance. Again, adding the two interaction terms gives an overall CEO effect. This sum is significant for the top two size quartiles. It is positive (as expected) for the fourth quartile but negative for the third. The magnitude of the CEO effect in the fourth quartile is large -- the sum of the interaction terms is 2.757, with a p-value of 0.005. The fourth-quarter CEO effect falls in magnitude, however, and loses significance when we delete observations from a single firm at which CEO compensation growth is reported to be 600 percent.[7] Table XI is the only table for which these observations are so critical.

V. Discussion

Our results regarding the components of compensation are robust. There are significant differences across firms in the structure of compensation, with firm size being an important explanatory characteristic. Once we control for differences across firms, there are also significant

[7] For the remaining sample, compensation growth averages 16.08 percent, with a standard deviation of 38.51 percent and a maximum value of 314.18 percent.

differences across executives, particularly when comparing the CEO to executives of lower rank. These aspects of compensation design are appropriate according to theories of performance based pay and tournament pay.

The compensation structures we observe suggest that pay-performance sensitivities should also vary systematically with firm size and CEO stature, with the strongest sensitivities associated with CEOs and with executives at larger firms. We do observe important differences in pay-performance sensitivities across firms of different sizes, with the largest firms driving the significance of the pay-performance relationship. But the difference between pay-performance sensitivities for CEOs and other executives is not very robust, even after controlling for firm size. One interpretation is that the non-base-pay components of CEO compensation -- particularly the annual bonus -- may be less performance sensitive than its label would suggest. Murphy (1998a, 1998b) explains that executive bonuses are generally subject to caps as well as minima associated with pre-determined threshold performance and that the resulting "incentive zone" may be fairly narrow. Moreover, performance measures are frequently based on accounting profits. Consequently, the differences between CEO and non-CEO pay structure may translate only weakly into differences in pay-performance sensitivities.

Alternatively, there may be important differences between pay-performance sensitivities of CEOs and other executives that we do not detect because of firm-specific factors that are not controlled for in our pay-performance regressions. The remainder of this section looks at some additional firm characteristics that may affect the structure of compensation and some alternative measures of performance and pay.

Portfolio characteristics

We should expect compensation to deviate most dramatically from a simple base-pay structure where agency problems are most severe. Of course, differentiating firms on the basis of their potential for agency problems is not easy. We assume that banks that are particularly difficult to value are those with the greatest potential for agency problems. Morgan (1998) finds that banks with certain portfolio characteristics -- particularly those with substantial trading activity and few fixed assets -- are those most difficult to value, so we look at the effect of portfolio characteristics on the composition of pay and the pay-performance relationship. In particular, we measure the ratio of securities holdings, fixed assets, and loans to total assets, and we differentiate banks for which trading activity accounts for at least one percent of total assets (6.6 percent of the banks in the regression).

Table XII shows how each of these portfolio characteristics affects the composition of the pay package.[8] Where trading assets account for at least one percent of total assets, we observe a higher fraction of compensation associated with bonuses and a lower fraction associated with base pay. Each of the other portfolio characteristics has the opposite effect, increasing the share of compensation stemming from base pay at the expense of the annual bonus, long-term compensation, and the value of options granted. These results are consistent with expectations in that banks whose portfolios are most difficult to value (where the potential for agency problems are presumed to be strongest) rely most heavily on performance-related compensation. Once we control for firm size, these other portfolio characteristics no longer affect long-term compensation

[8] Data on portfolio characteristics are from Y-9C reports for 1995Q4. The sample size is smaller than in the previous tables because the relevant firm characteristics were not available for all banks in the sample. The banks omitted from Tables XII and XIV tend to be from the smaller quartiles.

or the value of options granted, but they continue to affect the trade-off between base pay and annual bonus (Table XIII).

Next we tried interacting the portfolio characteristics with the performance measures in our pay-performance regression to see whether portfolio characteristics diminish or enhance pay-performance sensitivity. Despite the significant effect of portfolio characteristics on some components of compensation in Tables XII and XIII, we did not find a significant effect of portfolio characteristics on pay-performance sensitivity, whether or not we controlled for bank size. We conclude that among measurable bank characteristics, size is the one that best summarizes a bank's tendency to link pay with performance. Moreover, this exercise again suggests that "bonus" pay is not as performance-sensitive as one might expect.

Alternative measures of firm performance

We used stock returns to measure firm performance because they avoid the problems associated with accounting data that are retrospective, may be smoothed, and are particularly subject to error when accounting for the value of bank loans (Hubbard and Palia 1995). For completeness, however, we tried substituting accounting returns (return on average equity and return on average assets) for stock returns in our pay-performance regression. We found no significant pay-performance relationship using either current or lagged accounting returns.

We also tried introducing a longer lag between firm performance and executive compensation growth by including a five-year stock return in the pay-performance regressions. Although this long-term performance measure is a significant predictor of compensation growth when it is the only performance measure in the regression, it loses significance when included with the other performance measures and does not change the estimated pay-performance

relationships.

Alternative measures of executive pay

Our measure of executive pay includes all the components of annual compensation (including the value of options granted in the current year) but does not reflect income generated by an executive's financial holdings. Since ownership of stock or options generates income flows highly correlated with firm performance, broader measures of financial reward that include the wealth effects associated with an executive's financial holdings in the firm of his employ deliver much stronger "pay"-performance sensitivities (Hall and Liebman 1998). To get a sense of whether or not the wealth effects associated with financial holdings are consistent with the patterns reported above, we looked at SNL data on the value of options outstanding for each executive in our sample (data on the value of equity holdings were not available).

The value of options held by executives in our sample is 1.2 times as large as option-adjusted compensation, on average, with substantial variability across firms and across executive positions (Table XIV). Options wealth increases with firm size, from a low of 73 percent of option-adjusted compensation at banks in the bottom quartile to a high of 210 percent of option-adjusted compensation at banks in the top quartile. At the largest banks (those in the top two size quartiles), options wealth as a fraction of option-adjusted compensation is greater for CEOs than for other executives. Consistent with our analysis of annual compensation, these patterns suggest that both firm size and CEO stature enhance the monetary rewards for improvements in firm performance.

VI. Conclusion

We extend previous research on executive compensation at financial institutions by testing

whether a single elasticity can adequately describe the sensitivity of executive pay to firm performance. We examine variability in the structure of compensation and the pay-performance relationship across both firms and executive positions. While we believe that the banking industry provides a good setting for a study of this nature, there is no reason to think that our results should not generalize to other settings in which the potential for owner-manager agency problems generates a need for incentive compatible compensation.

We find that the structure of compensation varies substantially across firms, with executives at larger banks receiving a greater share of their compensation in the form of annual bonus, long-term compensation, and option-adjusted compensation, and a smaller share in the form of base pay. Other firm characteristics presumed to be related to the potential for agency problems also affect the trade-off between base pay and bonus. Within firms, there are significant differences between executive positions, with CEO compensation weighted more heavily toward annual bonus, long-term, and option-adjusted compensation, and less heavily toward base pay. We also find cross-sectional variation in options wealth that is consistent with the role of firm size and CEO stature in affecting the monetary rewards associated with firm performance. These patterns are indicative of appropriate compensation design as described in theories of performance based pay and tournament pay.

Differences in the components of compensation translate into significant differences in pay-performance relationships across firms, with size being the distinguishing firm characteristic. Consistent with the conventional wisdoms arising from theories of performance-based pay and tournament pay, the relationship between pay and performance is strongest at the largest banks in our sample. Differences across executives are less robust. There is some evidence that CEO

stature enhances pay-performance sensitivity at the largest banks in our sample, but our results suggest that at least for CEOs, the non-base-pay components of compensation are less performance sensitive than their labels would suggest.

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Table I

Summary statistics based on sample of 1104 executives (CEOs and non-CEOs), except where noted. Compensation data, bank size, and information on financial holdings are 1995 data from the 1996 SNL *Executive Compensation Review*. Firm characteristics other than bank size are from the BHC-level Y-9C reports for 1995Q4.

	Mean	Standard Deviation
Compensation ($)		
Base pay	230,224	156,505
Annual bonus	135,538	307,285
Long-term compensation	93,019	428,197
Value of options granted	135,947	390,185
Option-adjusted compensation	601,687	1,039,852
Firm Performance (%)		
Dividend-adjusted stock return	40.5	27.1
Firm Characteristics		
Bank size (assets, in $ millions)	11,400	34,100
Trading indicator (=1 if trading activity>= 1% of assets) (n=1060)	.08	.27
Securities / assets (n=1060)	.27	.10
Fixed assets / assets (n=1060)	.02	.01
Loans / assets (n=1060)	.61	.12
Executive Financial Holdings		
Value of options outstanding ($)	994,578	3,114,696
Value of options outstanding / option-adjusted compensation	1.16	1.89

Table II

Regressions of each compensation share (the respective compensation component scaled by option-adjusted compensation) on bank size (indicator variables for the top three size quartiles). N=1104. Standard errors in parentheses; "**" indicates statistical significance at the 1 percent level, "*" indicates statistical significance at the 5 percent level.

	Base Pay	Annual Bonus	Long-term Compensation	Value of Options Granted
Bank size:				
Quartile 2	-0.033*	0.004	0.001	0.038**
	(0.015)	(0.010)	(0.009)	(0.012)
Quartile 3	-0.103**	0.017	0.026**	0.067**
	(0.015)	(0.010)	(0.009)	(0.012)
Quartile 4	-0.280**	0.082**	0.077**	0.129**
	(0.015)	(0.010)	(0.009)	(0.012)
Constant	0.700**	0.147**	0.061**	0.072**
	(0.011)	(0.007)	(0.006)	(0.008)
Firm Fixed-effects?	No	No	No	No
R^2	0.264	0.068	0.082	0.106

Table III

Each column reports the fraction of option-adjusted compensation associated with each compensation component, by executive title.

Compensation Component (Scaled by Option-adjusted Compensation)	All Groups (n=1104)	CEOs (n=298)	CFOs (n=137)	COOs (n=128)	SLOs (n=34)	SSBs (n=115)	MSC (n=392)
(1) Base Pay	.60	.57	.60	.60	.60	.63	.61
(2) Annual Bonus	.17	.18	.17	.18	.18	.16	.17
(3) Other Annual Compensation	.01	.02	.01	.01	.01	.01	.01
Annual Compensation (1) + (2) + (3)	**.78**	**.77**	**.78**	**.79**	**.79**	**.80**	**.79**
(4) Long-term Compensation	.09	.09	.08	.08	.06	.11	.08
(5) Value of Options Granted	.13	.14	.14	.13	.15	.09	.13
(1) + (2) + (3) + (4) + (5)	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**

CEO= Chief Executive Officer CFO= Chief Financial Officer
COO= Chief Operating Officer SLO= Senior Loan Officer
SSB= Senior Subsidiary Officer MSC= Miscellaneous

Table IV

Regressions of each compensation share (the respective compensation component scaled by option-adjusted compensation) on indicator variables for executive title (MSC is the excluded executive group). N=1104. Standard errors in parentheses; "**" indicates statistical significance at the 1 percent level, "*" indicates statistical significance at the 5 percent level.

	Base Pay	Annual Bonus	Long-term Compensation	Value of Options Granted
Chief Executive Officer	-0.037*	0.015	0.007	0.008
	(0.016)	(0.010)	(0.008)	(0.011)
Chief Financial Officer	-0.007	-0.00003	-0.0003	0.010
	(0.021)	(0.013)	(0.011)	(0.014)
Chief Operating Officer	-0.010	0.009	0.001	-0.002
	(0.021)	(0.013)	(0.011)	(0.015)
Senior Loan Officer	-0.011	0.012	-0.019	0.019
	(0.038)	(0.023)	(0.020)	(0.026)
Senior Subsidiary Officer	0.027	-0.012	0.026*	-0.040**
	(0.022)	(0.013)	(0.012)	(0.015)
Constant	0.605**	0.169**	0.084**	0.131**
	(0.011)	(0.006)	(0.006)	(0.007)
Bank size:				
Quartile 2	---	---	---	---
Quartile 3	---	---	---	---
Quartile 4	---	---	---	---
Firm Fixed-effects?	No	No	No	No
R^2	0.009	0.004	0.007	0.010

Table V

Regressions of each compensation share (the respective compensation component scaled by option-adjusted compensation) on indicator variables for executive title (MSC is the excluded executive group) and bank size (indicator variables for the top three size quartiles). N=1104. Standard errors in parentheses; "**" indicates statistical significance at the 1 percent level, "*" indicates statistical significance at the 5 percent level.

	Base Pay	Annual Bonus	Long-term Compensation	Value of Options Granted
Chief Executive Officer	-0.061**	0.021*	0.013	0.020
	(0.013)	(0.009)	(0.008)	(0.011)
Chief Financial Officer	-0.028	0.006	0.006	0.020
	(0.018)	(0.012)	(0.010)	(0.014)
Chief Operating Officer	-0.027	0.014	0.005	0.008
	(0.018)	(0.012)	(0.011)	(0.014)
Senior Loan Officer	-0.059	0.026	-0.006	0.041
	(0.032)	(0.022)	(0.019)	(0.024)
Senior Subsidiary Officer	0.030	-0.013	0.025*	-0.043**
	(0.019)	(0.013)	(0.011)	(0.014)
Constant	0.728**	0.137**	0.054**	0.063**
	(0.013)	(0.009)	(0.008)	(0.010)
Bank size:				
Quartile 2	-0.040**	0.007	0.001	0.041**
	(0.015)	(0.010)	(0.009)	(0.012)
Quartile 3	-0.111**	0.020	0.026**	0.072**
	(0.015)	(0.010)	(0.009)	(0.012)
Quartile 4	-0.290**	0.086**	0.078**	0.135**
	(0.015)	(0.010)	(0.009)	(0.012)
Firm Fixed-effects?	No	No	No	No
R^2	0.284	0.076	0.088	0.124

Table VI

Regressions of each compensation share (the respective compensation component scaled by option-adjusted compensation) on indicator variables for executive title (MSC is the excluded executive group) and firm fixed effects. N=1104. Standard errors in parentheses; "**" indicates statistical significance at the 1 percent level, "*" indicates statistical significance at the 5 percent level.

	Base Pay	Annual Bonus	Long-term Compensation	Value of Options Granted
Chief Executive Officer	-0.067**	0.025**	0.012*	0.024**
	(0.008)	(0.005)	(0.005)	(0.006)
Chief Financial Officer	-0.010	0.001	0.00001	0.015
	(0.010)	(0.007)	(0.007)	(0.008)
Chief Operating Officer	-0.039**	0.014	0.004	0.019*
	(0.010)	(0.008)	(0.008)	(0.009)
Senior Loan Officer	-0.019	0.008	0.007	0.009
	(0.019)	(0.014)	(0.013)	(0.015)
Senior Subsidiary Officer	0.005	-0.003	0.011	-0.012
	(0.012)	(0.009)	(0.009)	(0.010)
Constant	0.620**	0.164**	0.083**	0.121**
	(0.005)	(0.004)	(0.004)	(0.004)
Bank size:				
Quartile 2	---	---	---	---
Quartile 3	---	---	---	---
Quartile 4	---	---	---	---
Firm Fixed-effects?	Yes	Yes	Yes	Yes
R^2	0.861	0.801	0.741	0.813

Table VII

Regressions of each compensation share (the respective compensation component scaled by option-adjusted compensation) on an indicator variable for Chief Executive Officer and firm fixed effects. N=1104. Standard errors in parentheses; "**" indicates statistical significance at the 1 percent level, "*" indicates statistical significance at the 5 percent level.

	Base Pay	Annual Bonus	Long-term Compensation	Value of Options Granted
Chief Executive Officer	-0.058**	0.022**	0.010*	0.019**
	(0.006)	(0.005)	(0.005)	(0.005)
Chief Financial Officer	---	---	---	---
Chief Operating Officer	---	---	---	---
Senior Loan Officer	---	---	---	---
Senior Subsidiary Officer	---	---	---	---
Constant	0.611**	0.167**	0.085**	0.126**
	(0.003)	(0.002)	(0.002)	(0.003)
Bank size:				
Quartile 2	---	---	---	---
Quartile 3	---	---	---	---
Quartile 4	---	---	---	---
Firm Fixed-effects?	Yes	Yes	Yes	Yes
R^2	0.858	0.799	0.741	0.810

Table VIII

Regressions of compensation growth (the growth in option-adjusted compensation) on bank performance (current and lagged stock returns). N=1104. Standard errors in parentheses; "**" indicates statistical significance at the 1 percent level, "*" indicates statistical significance at the 5 percent level.

	% change in option adjusted compensation	
Dividend-adjusted stock return	0.155** (0.047)	0.165** (0.047)
Lagged(dividend-adjusted stock return)	---	0.187** (0.069)
Constant	10.33** (2.29)	9.35** (2.31)
R^2	0.010	0.016

Table IX

Regressions of compensation growth (the growth in option-adjusted compensation) on bank performance (current and lagged stock returns) and bank size (indicator variables for the top three size quartiles) with performance*size interactions. N=1104. Standard errors in parentheses; "**" indicates statistical significance at the 1 percent level, "*" indicates statistical significance at the 5 percent level.

	% change in option adjusted compensation
Dividend-adjusted stock return	0.156*
	(0.074)
Stock return*Quartile 2	-0.107
	(0.129)
Stock return*Quartile 3	0.052
	(0.127)
Stock return*Quartile 4	-0.008
	(0.172)
Lagged(dividend-adjusted stock return)	0.133
	(0.102)
Lagged stock return*Quartile 2	0.034
	(0.168)
Lagged stock return*Quartile 3	-0.066
	(0.247)
Lagged stock return*Quartile 4	1.21**
	(0.252)
Quartile 2	9.51
	(5.95)
Quartile 3	6.29
	(5.92)
Quartile 4	18.78
	(9.86)
Constant	3.40
	(4.09)
R^2	0.051

Table X

Regressions of compensation growth (the growth in option-adjusted compensation) on bank performance (current and lagged stock returns) and CEO indicator variables with performance*CEO interactions. N=1104. Standard errors in parentheses; "**" indicates statistical significance at the 1 percent level, "*" indicates statistical significance at the 5 percent level.

	% change in option adjusted compensation
Dividend-adjusted stock return	0.195**
	(0.056)
Stock return*CEO indicator	-0.099
	(0.103)
Lagged(dividend-adjusted stock return)	0.173*
	(0.082)
Lagged stock return*CEO indicator	0.032
	(0.153)
CEO indicator	11.09*
	(5.09)
Constant	6.23*
	(2.73)
R^2	0.023

Table XI

Regressions by asset size quartile of compensation growth (the growth in option-adjusted compensation) on bank performance (current and lagged stock returns) and CEO indicator variables with performance*CEO interactions. N=1104. Standard errors in parentheses; "**" indicates statistical significance at the 1 percent level, "*" indicates statistical significance at the 5 percent level.

	% change in option adjusted compensation			
	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Dividend-adjusted stock return	0.214**	0.372	0.254**	0.166
	(0.057)	(0.103)	(0.094)	(0.265)
Stock return*CEO indicator	-0.162	0.027	-0.174	-0.048
	(0.097)	(0.194)	(0.185)	(0.539)
Lagged(dividend-adjusted stock return)	0.161*	0.108	0.294	0.697
	(0.076)	(0.130)	(0.204)	(0.390)
Lagged stock return*CEO indicator	-0.100	0.180	-0.869*	2.805**
	(0.137)	(0.240)	(0.408)	(0.817)
CEO indicator	10.89*	5.86	17.68*	30.42
	(5.36)	(7.97)	(7.70)	(31.12)
Constant	-0.380	11.53**	5.11	14.60
	(3.17)	(4.15)	(3.88)	(15.37)
R^2	0.073	0.021	0.060	0.099

Table XII

Regressions of each compensation share (the respective compensation component scaled by option-adjusted compensation) on balance sheet characteristics. N=1060. Standard errors in parentheses; "**" indicates statistical significance at the 1 percent level, "*" indicates statistical significance at the 5 percent level.

	Base Pay	Annual Bonus	Long-term Compensation	Value of Options Granted
Trading Indicator[1]	-0.140**	0.074**	0.023	0.039
	(0.029)	(0.017)	(0.016)	(0.021)
Securities/ Total Assets	0.794**	-0.440**	-0.190**	-0.223*
	(0.125)	(0.076)	(0.070)	(0.091)
Fixed Assets/ Total Assets	3.191**	-1.930**	-0.484	-0.926*
	(0.644)	(0.392)	(0.360)	(0.471)
Loans/ Total Assets	0.341**	-0.349**	-0.071	0.038
	(0.105)	(0.064)	(0.059)	(0.077)
Constant	0.116	0.539**	0.191**	0.186*
	(0.101)	(0.062)	(0.057)	(.074)
Firm Fixed-effects?	No	No	No	No
R^2	0.160	0.133	0.026	0.046

[1] Trading indicator equals one if trading assets as a share of total assets are greater than 1%

Table XIII

Regressions of each compensation share (the respective compensation component scaled by option-adjusted compensation) on balance sheet characteristics and bank size (indicator variables for the top three size quartiles). N=1060. Standard errors in parentheses; "**" indicates statistical significance at the 1 percent level, "*" indicates statistical significance at the 5 percent level.

	Base Pay	Annual Bonus	Long-term Compensation	Value of Options Granted
Trading Indicator[1]	-0.068**	0.059**	-0.001	0.005
	(0.026)	(0.018)	(0.016)	(0.020)
Securities/ Total Assets	0.552**	-0.382**	-0.109	-0.127
	(0.116)	(0.077)	(0.069)	(0.090)
Fixed Assets/ Total Assets	0.985	-1.520**	0.169	0.308
	(0.609)	(0.405)	(0.364)	(0.471)
Loans/ Total Assets	0.236*	-0.321**	-0.037	0.077
	(0.097)	(0.064)	(0.058)	(0.075)
Bank size:				
Quartile 2	-0.048**	0.004	0.005	0.050**
	(0.016)	(0.011)	(0.010)	(0.012)
Quartile 3	-0.109**	0.015	0.033**	0.069**
	(0.016)	(0.011)	(0.010)	(0.012)
Quartile 4	-0.242**	0.047**	0.075**	0.126**
	(0.017)	(0.011)	(0.010)	(0.013)
Constant	0.389**	0.482**	0.107	0.050
	(0.094)	(0.063)	(0.056)	(0.073)
Firm Fixed-effects?	No	No	No	No
R^2	0.312	0.151	0.088	0.126

[1] Trading indicator equals one if trading assets as a share of total assets are greater than 1%

Table XIV

Value of options held, scaled by option-adjusted compensation. Means by firm size for all executives, CEOs, and non-CEO officers.

	Value of options held (scaled by option-adjusted compensation)				
	All Firms	Quartile 1	Quartile 2	Quartile 3	Quartile 4
All Executives	1.16	0.73	0.86	0.97	2.10
CEOs	1.40	0.85	1.03	1.39	2.59
Non-CEOs	1.08	0.66	0.79	0.84	1.95
p-value of CEO/non-CEO difference	0.012	0.214	0.289	0.004	0.088