Title
Pay at the Executive Suite: How do U.S. Banks Compensate their Top Management Teams?

Authors
Ang, James
Lauterbach, Beni
Schreiber, Ben Z.

Publication Date
2000-06-01

#18-00

Pay at the Executive Suite: How do U.S. Banks Compensate their Top Management Teams?

June 2000

James Ang
College of Business
Florida State University

and

Beni Lauterbach
Anderson Graduate School of Management
University of California, Los Angeles

and

Ben Z. Schreiber
Bank of Israel

PAY AT THE EXECUTIVE SUITE:

How do U.S. Banks Compensate their Top Management Teams?

by

James Ang*, Beni Lauterbach**, and Ben Z. Schreiber***

June 2000

Keywords: Executive compensation; non-CEO top executives; pay performance relations.

JEL Classification: G21, G34, L14.

* College of Business, Florida State University, Tallahassee, Florida, USA 32306-1042.
** *Corresponding author*: Department of Finance, The Anderson School at UCLA, 110 Westwood Plaza, Los Angeles, CA 90095, USA; and School of Business Administration, Bar-Ilan University, Ramat Gan 52900, ISRAEL. E-mail: beni.lauterbach@anderson.ucla.edu .
*** Bank of Israel, Box 780, Jerusalem 91007, ISRAEL.

PAY AT THE EXECUTIVE SUITE:

How do U.S. Banks Compensate their Top Management Teams?

Abstract

The study examines how 166 U.S. banks compensated their top management teams (top 4-5 executives in each bank) during 1993-1996. We observe two tiers of compensation in the executive suite: CEO and the rest. CEOs are paid more, especially in performance contingent compensation. The weight of base salary in CEO's pay is significantly lower than in other senior managers' pay, and CEO's pay performance elasticity is significantly higher. Beyond the CEO, top executives have a similar structure of compensation and similar pay performance elasticities. Our evidence is consistent with agency theory, and with several labor economics models.

1. Introduction

The paper presents evidence on how 166 U.S. banks compensated their top management teams (top four or five executives in each bank) during the 1993-96 period. The main goal is to extend previous studies on bank executive pay, e.g., Houston and James (1995), Hubbard and Palia (1995), and Crawford, Ezzel and Miles (1995), by examining not only the Chief Executive Officer (CEO), but also three to four other members of each bank top management team.[1] We test for significant differences across executive rank, controlling for the nontrivial intervening effects of bank size.

The compensation structure of top management teams is an important topic, especially when business management is perceived as a multi-person team task rather than a single man's (CEO) show. Zingales (2000) advocates the multi-person team view, pointing out that the new (and future) "dot.com" companies depend critically on the quality and "bond" between their top employees.

The compensation heterogeneity within top executive teams has not been adequately studied yet, as empirical research focused on the CEO position (see Murphy (1999) for a review). A notable exception is Murphy (1986) who cannot find any significant difference in pay performance sensitivity between CEOs and lower rank top executives in the 1964-1981 period.

We identify significant cross rank differences in the structure of compensation and in the pay performance relations. Using data on the compensation of the top five executives in 166

[1] Previous studies also focused on the effects of regulation and deregulation in the banking industry, and find that deregulation increases CEO compensation and pay performance sensitivity. We have a different emphasis.

different banks, we observe two tiers in the executive suite: CEO and the rest. Relative to lower rank executives: 1) A larger proportion of CEO's compensation comes in the form of option awards and performance contingent pay; and 2) CEO's pay performance elasticity is higher. Differences among second tier executives (executives in the number 2 to 5 position in the bank) are less clear, and are in general statistically insignificant, although sometimes it is possible to identify a "Number 2" heir apparent who is distinguished from lower rank executives. In general, the results are consistent with agency theory and with several labor economics models.

The paper is organized as follows. Section 2 suggests some possible effects of executive rank and bank size on executive compensation. Section 3 describes the data. Section 4 presents the results, and section 5 concludes.

2. Pay structure for top executives

2.1. Some basic predictions of the agency theory and tournament model

The agency theory views the CEO as an influential figure that needs incentives in order to align his or her actions and interests with those of shareholders. The board of directors, representing shareholders, is unable to monitor CEOs adequately, hence the need for performance pay. Lower rank managers also need incentives. However, given that they are granted less discretion and are closely monitored by the CEO, executives in the second tier receive fewer incentives. The emerging "agency predicted" pay structure comprises two tiers: CEO and the rest. CEO pay should not only be higher than that of others in the top management. It would also be more contingent on performance, that is a relatively higher

fraction of the CEO's compensation is likely to be paid in the form of bonuses, long-term performance awards (based on multi-year performance goals), and option grants.

The tournament model regards pay differences at the top from a different angle. Lazear and Rosen (1981) discuss how large inter-rank pay differences can motivate lower-rank executives to excel. They argue that when the CEO is paid much higher than other senior managers are, these second-tier senior executives are encouraged to exert effort and perform well, hoping they would win the tournament and become the next CEO. Thus, large pay differences at the top can improve firm performance.

The tournament model also suggests a two-tier compensation structure: CEO and the rest. However, unlike agency theory, it does not require that the structure of compensation and the pay performance sensitivity of the CEO would be different from that of other senior executives.

The debate on the tournament model in the labor economics literature further reveals the weakness of the tournament pay structure – a second tier senior manager may find it optimal to undermine other managers' (his or her competitors') efforts, resulting in a decline in firm performance. O'Reilly, Wade and Pollock (1998) argue that pay compression at the top is optimal. Anyway, to lessen the disruptive effects of competition among second-tier senior executives, firms sometimes find it useful to appoint a "Number 2" heir apparent beneath the CEO, which creates a three-tier structure at the top. Again, there is no clear implication that the structure of compensation and the pay performance relations should vary across executive rank.

2.2. The effect of bank size.

Firm size is a common and important control variable in examinations of executives pay. Rosen (1982) analyzes the market for managerial skill, and explains the equilibrium allocation: larger firms employ better-qualified managers, and offer them a higher level of compensation. However, the effects of firm size extend beyond total pay determination. Firm or bank size may also impact the form of compensation and the pay performance relations. There are factors unique to small banks that might induce them to choose a different mix of compensation. These are:

1) Complexity and scope of operations. Small banks are constrained by both geography and economies of scale in certain lines of business. Thus, small bank operations are less complex and more easily monitored, which suggests less need for incentive pay.
2) Nature of monitoring. In small banks many of the board members are blockholders, insiders or business acquaintances. Monitoring is intimate, and board members who are local, can collect relatively good information on the bank's operations and performance. This suggests a smaller need for incentive pay in small banks.
3) Ownership. In many small banks the top executives hold a substantial amount of bank shares, i.e., are owner-managers. Such owner-managers do not need incentive pay, and would rather receive cash compensation.
4) Political constraints. Banks often face public criticism about "excessive" executive compensation. In response, boards of directors in large banks might bow, and pay a higher proportion of total compensation in the form of performance pay.

All of the above leads to a prediction of lower weight to incentive pay in small banks.

3. Data and measures

3.1. Data

The study is based on data extracted from the SNL Executive Compensation Review. This annual report tabulates in detail the compensations of top executives in a large sample of banks. An attractive feature of the SNL data set is the inclusion of a large number of small banks. Previous studies, based on Compustat, CRSP and Forbes Survey data, included only a few small banks. Hence, this study extends the research into an important segment of the banking industry that due to data unavailability has not received much attention before.

We choose to start the sample in 1993 because of the SEC's new compensation reporting regulation that took effect on December 1992. The new regulations, which require greater disclosure, should result in a better quality data set in terms of uniformity, transparency and precision. Under the new regulations, banks provide more information. For example, the number of options granted in each year is now specified with the exact exercise terms. (The earlier practice of some banks was to report only the aggregate number of options and an average exercise price.) Thus, the second virtue of our data set is that it is more recent and probably more accurate than the data used in previous studies on compensation in banks.

We impose certain restrictions on the selection of the sample. To enter the sample, a bank must report compensation for at least three top executives in all of the sample years (1993-96). Only 194 of the banks included in the 1994 SNL Review (covering 1993) had information about at least three top executives, and 28 of these banks disappeared from the SNL Review by 1996, probably due to mergers and failures. Despite of the inherent selection

bias (against inclusion of failed or merged banks) the sample should reveal useful information on bank executive compensations.

The sample empirically analyzed consists of 166 executives in each of the three highest paid ranks, 153 fourth and 127 fifth highest paid executives, for a total of 3,112 executive years. Our sample of 166 banks compares favorably with three previous studies of executive compensation in U.S. banks. Hubbard and Palia (1995) use 147 banks in the period 1981-90, or a total of 1,202 executive years, Houston and James (1995) examine CEOs in 134 banks during 1980-90, and Crawford, Ezzell and Miles (1995) study CEOs' pay in 124 banks in 1976-88.

For each bank, we collect the following information on each of its top executives in each of the sample years (1993-96): (1) annual base salary, (2) annual cash bonus, (3) annual long-term compensation (non-option awards based on multi year performance goals, incentive plan award, etc..), (4) value of new option grants during the year, estimated by SNL using an approximation of the Black-Scholes model, and (5) annual total compensation. Annual total compensation is usually equal to or slightly higher than the sum of component (1) through (4) above. This is because of small and insignificant amounts of "other compensation" that could not be categorized by SNL as base salary, bonus, long-term compensation, or option grants.

The compensation data collected has a limitation. It includes only the direct compensation paid by the bank to its executives. We do not have data on executives' wealth changes due to their personal holdings of bank stocks and options. The repercussions of this limitation will be discussed when analyzing the empirical results.

General financial information on each bank is also collected from the SNL Review. These data include: total assets, market value of equity, annual stock returns, annual return on

assets (ROA), annual return on equity (ROE), % of non-performing assets (a proxy for bad loans), and equity ratio (equity/total assets).

Table 1 summarizes some descriptive statistics for these variables. The mean total assets of the sample banks is $14.7 billions, the median is $2.1 billions, and the smallest bank reported average 1993-96 total assets of only $128 millions. The wide variations in size are also reflected in disparities in equity market value. The average 1993-96 market value of our banks shares ranges from as low as $4 millions (smallest bank) to $26.8 billions (largest bank), with a mean and median of $1.8 billions and $323 millions, respectively. Measures of performance (return on assets, return on equity, and annualized stock return), and measures of risk (percent of non-performing assets, and leverage) also show considerable variations. Thus, the effects of bank size and performance can be studied over a wide range of parameter values.

(Insert Table 1 about here)

3.2. Measures

To describe the structure of compensation, we calculate the weight of each compensation component in total compensation. This methodology is fairly standard – see Murphy (1999). Another standard methodology is our size control. To control for bank size, we divide the sample into three equal groups (small, medium and large banks) based on the average total assets of the bank in 1993-96. While this split of the sample may not be ideal for isolating bank size effects, it avoids the issue of the functional form of the size dependence, it was used before (e.g., Schaefer (1998), and Murphy (1999)), and it is effective in identifying significant relations in our study too.

A final issue is measurement of the pay performance relation. Two measures are customary: pay sensitivity and pay elasticity. Pay sensitivity is defined as dCOMP/dSW, the marginal dollar change in executive compensation (COMP) in response to a dollar change in shareholders wealth (SW, the market value of firm's equity). Pay elasticity is defined as dCOMP/COMP divided by dSW/SW, the marginal percentage change in executive compensation in response to a 1% stock return (1% change in shareholders wealth).

In this study we focus on pay elasticity. The problem of pay sensitivity is that there is a built-in relation between it and firm size. Pay sensitivity measures the sharing rate between the manager and the firm – see Jensen and Murphy (1990). Obviously, in larger firms this sharing rate decreases because in large firms the risk averse manager can bear only a much smaller fraction of the firm's fluctuation in total value – see Garen (1994). Hall and Liebman (1998) point out that the total exposure of the manager to firm performance is the pay sensitivity times the change in firm value. Hence, pay sensitivity has to be interpreted with care, and is not easily comparable across executives from different banks.

A more transparent measure is pay elasticity, the percentage change in compensation for a 1% change in stock value. Pay elasticity does not necessarily vary with size, hence, it avoids the ex-ante size confounding. In fact, Gibbons and Murphy (1992) find that pay elasticity does not vary significantly across firm size. Murphy (1999) acknowledges that the pay elasticity approach produces better "fit", that is better explanatory power and more accurate estimates, and Hall and Liebman (1998) highlight the pay elasticity results in their report.

To estimate pay elasticity we regress the average 1993-96 annual raise in executive i's pay (i.e., the average Ln (TC_t/TC_{t-1}) of executive i, where TC_t is the total compensation in year

t) on the 1993-96 average annual (continuously compounded) return of the bank's stock. This elasticity measure is longer term than the usual one-year raise on one-year stock return regression measure. We prefer this long-term elasticity measure because it should capture some delayed responses of compensation to performance and some delayed reactions of performance to ex-ante incentive pay.

A final comment is that our pay elasticity measure is the pay elasticity of direct compensation, including all compensation paid to the executive by the bank. It does not measure executive total wealth elasticity, the percentage change in executive wealth as a result of a 1% stock return. Calculating total wealth elasticity requires information on executive wealth and on her or his bank stock holdings, which we could not obtain.

4. Empirical results

4.1. The variation of executive compensation with executive rank

Table 2 describes executive compensation in the overall sample of 166 U.S. banks. For each top executive in each sample bank, we compute the average 1993-96 level of base salary, cash bonuses, long-term compensation, value of options granted, total compensation, and annual raise in total compensation. The executives are then sorted by pay rank in their bank, and across-banks summary statistics are calculated. These summary statistics include the mean, median, standard deviation, minimum and maximum values of each pay component for each executive rank.

(Insert Table 2 about here)

Table 2 documents a sizable gap between the compensations of the CEO and the second highest paid executive, and a much narrower gap between the second highest paid and the rest. The compensation packages of the number 3, 4 and 5 executives appear similar. This three-tier structure in the level of top management compensation is consistent with the practice of some banks to have a #2 "heir apparent" or even "co-manager" position behind the CEO and before the rest of the senior executives.

The observed structure of the level of compensation is also broadly consistent with the labor economics models. For example, the sizable difference between the compensations of the CEO and other executives is likely to motivate non-CEO senior executives to invest efforts in their job in order to become the next CEO, just like the tournament model predicts. (Becoming a CEO definitely appears like winning a prize.) In addition, the appointment of a #2 in some banks, and the relative pay equality of executives 3-5 may be designed to mitigate the destructive competition and friction between senior managers that may accompany a tournament pay structure.

The observed pay differences by rank persist across all pay components. However, when pays are standardized by total compensation (the last two columns in Table 2), the difference between executive 2 and executives 3 to 5, is somewhat blurred. This might indicate that while executive 2 receives on average higher pay in dollars, the structure of her or his compensation contract is similar to that of executives 3-5. In other words, when the form of compensation is analyzed, there appear to be only two tiers: CEO and the rest.

Table 3 tests the two-tier structure of the form of compensation using Analysis of Variance (ANOVA). Because the ANOVA technique is more reliable when all categories (all

executive ranks) have an equal number of observations, we omit from the analysis executive #5 (because of the numerous missing observations on this executive rank) and 13 banks that did not report a #4 executive. The 153 remaining banks have data on all four top executives, and are the primary research sample in the rest of the study as well.

(Insert Table 3 about here)

The ANOVA tests in Table 3 confirm the two-tier structure of the form of compensation. The first F-test rejects at the 1% level the null hypothesis that the weight of base salary in total compensation is equal across all executive ranks, and at the 5% level the hypothesis that the weight of long-term compensation is equal across all ranks. The second test focuses on executives 2 to 4, and cannot reject the hypothesis that the form of compensation, i.e., the weight of each compensation component in total pay, is identical across executives 2-4.

The third and fourth tests in Table 3 sharpen the picture. The third test finds a significant difference in the form of compensation between the CEO and executives 2-4. CEOs receive a higher (lower) proportion of their total pay in the form of performance-contingent pay (base salary). Beyond the CEO, the form of compensation is similar. The fourth test fails to unveil any significant form of compensation differences between executive 2 and executives 3 and 4.

The difference in the form of compensation between the CEO and the rest of the executives supports the agency approach to executive compensation. According to agency theory incentive pay and monitoring are substitutes in solving agency problems. The actions and decisions of CEOs are difficult to monitor. Thus, CEOs receive a considerably higher portion of their pay in the form of performance-based or incentive pay. Executives below the

CEO are monitored directly by the CEO, which explains the less need and lower actual incentive payments they receive.

A final observation is that the annual percentage raise of total compensation is similar across all executive ranks – see Table 2. A formal ANOVA test cannot reject the hypothesis that all executives, including the CEO, receive equal percentage raises. This indicates that while the dollar wedge between CEO and next four executives continuously widens over time, the ratio of CEO to next four executives' total pay remains fairly constant.

The result of a similar percentage pay raise to all executive ranks lends support to a recent literature in labor economics which contends that at the top, firm executives should be rewarded as a team. Main, O'Reilly and Wade (1993) present the teamwork view of executive compensation. The approximate equality in the form of compensation among second-tier managers, and the similar pay raises observed by us, may be designed to foster team spirit, in an attempt to introduce some sense of partial equality into the compensation contracts. The ultimate goal of "partial equality" may be to minimize friction among second-tier managers.

4.2. Size-controlled results

An important factor in executive compensation design is firm size. We divide the sample into three equal-number-of-observations subsamples: small banks (less than $1.3 billions in assets), medium banks (between $1.3 to $6.2 billions in assets), and large banks (over $6.2 billions in assets). Table 4 compares the compensation practices of these banks.

(Insert Table 4 about here)

Besides the expected result of higher payments to all executives as bank size increases, Table 4 affords some interesting observations on the form of compensation. Table 4 demonstrates that in large banks all ranks of executives receive more of their compensation in performance contingent forms of pay.

The variations in pay level and pay structure across executive rank and bank size are formally examined using a series of two-way Analysis of Variance (ANOVA) tests. For each compensation component we run four tests, two on the level of compensation and two on the form (weight in total compensation). The two tests of the level of compensation are: a test of pay component equality across bank size and executive rank using all executives, and a test of pay component equality across bank size and executive rank using executives 2-4 data only. Similarly, the two tests of the form of compensation differ in their sample: all executives, and executives 2-4 only.

In tests of the level of compensation, summarized in the first four columns of Table 4, we find significant differences between executives across all pay components. For example, ANOVA tests of base salary, summarized beneath the mean base salary statistics, reveal a significant size effect (F-statistic of 421.3) and a significant rank effect (F-statistic of 143.3) on the level of base salary. Even among second-tier executives (executives 2-4) there are significant cross-rank differences in the level of base salary, bonus, and long-term compensation.

The results on the form of compensation are presented in the last four columns of Table 4. When all executives are considered, in the first set of tests, the weights of base salary and long term compensation differ significantly across executive rank. When only executives 2 to 4

are examined, in the second set of tests, we cannot find any significant differences in the form of compensation. It appears that as far as the structure of compensation is concerned, there are two tiers in the executive suite: CEO and the rest. CEOs receive a significantly higher fraction of their compensation in the form of performance contingent and incentive pays.

Looking back at Table 3, none of the findings about the effects of executive rank has changed. Nevertheless, the size control is important because the size effect is present and cannot be ignored. Table 4 shows, for instance, that in small banks base salary comprises 71% of the executive 4's total compensation, whereas in large banks base salary is only about 41% of executive 4's compensation. Similarly, option grants comprise about 21% of executive 4's compensation in large banks, and only 8.5% of executive's 4 compensation in small banks.

The size findings support the agency theory perspective. Potential agency problems are more severe in large banks whose operations are more complex and where monitoring is relatively more difficult. Hence, in large banks, much larger incentive pays are required to offset the executives' greater potential gains from agency behaviors. The larger incentive compensation in large banks is also consistent with the ideas that:

(a) There is a political constraint on executive pay (Jensen and Murphy, 1990), as public opinion tends to perceive high pay, especially salary, as unconscionable. Therefore, large banks, which are more likely to have pay exceeding the "politically correct" constraint, rely more on contingent pay vis-a-vis cash salary.

(b) Some small and medium-size banks are owned by their managers. Such owner-managers prefer more cash payments and less contingent pay, because a considerable proportion of their wealth is already tied up to the bank's stock value.

4.3. Pay performance relations

Table 5 examines the pay performance elasticity and its variation across executive rank. The pay performance elasticity of CEO's total compensation is highest, 0.65. Executives 2, 3 and 4 have an estimated pay elasticity of 0.49, 0.37, and 0.40, respectively.

(Insert Table 5 about here)

The estimates of pay elasticity in Table 5 are higher than the approximately 0.3 CEO pay elasticity found by Hall and Liebman (1998) in a sample of publicly traded companies. This difference may be due to our more recent sample. Hall and Liebman's sample period is 1980-1994, and ours is 1993-1996. Several studies observe that option grants and other contingent pay increased dramatically in the 1990's – see Murphy (1999) pp. 21-23 for a discussion. Murphy (1999) further reports, in Table 8, a pay elasticity of 0.7 in 1990-96, for a sample of Finance firms included in the S&P index. Thus, our pay elasticity estimates appear consistent with existing evidence.

To test for significant differences in pay elasticity across executive rank, we set up the following multivariate regression system:

$$RAISE_{1,j} = a_1 + b_1\, RET_j + e_{1,j} \quad (1)$$

$$RAISE_{2,j} = a_2 + b_2\, RET_j + e_{2,j} \quad (2)$$

$$RAISE_{3,j} = a_3 + b_3\, RET_j + e_{3,j} \quad (3)$$

$$RAISE_{4,j} = a_4 + b_4\, RET_j + e_{4,j} \quad (4)$$

where $RAISE_{i,j}$ is the average 1993-96 annual (continuously compounded) raise in the total compensation of executive *i* in bank *j*, and RET_j is the average 1993-96 annual (continuously

compounded) return on the bank stock. Then, we use the Seemingly Unrelated Regressions (SUR) methodology to test the hypothesis that the pay elasticity coefficients are equal across all executive ranks, i.e., that $b_1 = b_2 = b_3 = b_4$. Judge, Hill, Griffith, Lutkepohl and Lee (1988) show (in ch. 11) that SUR provides more efficient estimators than other least squares methods, in the case of cross-equation parameter restrictions.

Table 5 reports that the hypothesis of equal pay elasticity across all executive ranks can be rejected at the 10% level. The Chi-square Likelihood Ratio test statistic of the restriction has a *p*-value of 0.09. In contrast, a test of the equality of pay elasticity across second-tier executives (executives 2-4) fails to reject the null hypothesis of no differences across rank. This evidence suggests a two-tier structure in performance pay: CEO and the rest. The elasticity of CEO's pay with respect to stock performance appears higher than that of the rest of the executives. The statistical reliability of the two-tier structure is, however, weak.

Size adjustments strengthen the statistical significance of the two-tier structure of the pay performance elasticity. The following SUR system is employed:

$$RAISE_{1,j} = a_1 + b_1\, RET_j * LARGE_j + c_1\, RET_j * MEDIUM_j + d_1\, RET_j * SMALL_j + e_{1,j} \quad (5)$$

$$RAISE_{2,j} = a_2 + b_2\, RET_j * LARGE_j + c_2\, RET_j * MEDIUM_j + d_2\, RET_j * SMALL_j + e_{2,j} \quad (6)$$

$$RAISE_{3,j} = a_3 + b_3\, RET_j * LARGE_j + c_3\, RET_j * MEDIUM_j + d_3\, RET_j * SMALL_j + e_{3,j} \quad (7)$$

$$RAISE_{4,j} = a_4 + b_4\, RET_j * LARGE_j + c_4\, RET_j * MEDIUM_j + d_4\, RET_j * SMALL_j + e_{4,j} \quad (8)$$

where, $RAISE_{i,j}$ and RET_j definitions are as before, and $LARGE_j$, $MEDIUM_j$, and $SMALL_j$ are size dummy variables equal to 1 when the average 1993-96 total assets of bank *j* are above $6.2 billions, between $1.3 and $6.2 billions, and below $1.3 billions, respectively.

Results of the size-controlled analysis are reported in Table 6. First, an unrestricted estimation of the system of equations (5)-(8) is offered. It can be observed that for all executive ranks pay elasticity tends to increase with bank size. The size effect is formally tested by imposing the restriction that in the system of equations (5) to (8): $b_1 = c_1 = d_1$, $b_2 = c_2 = d_2$, $b_3 = c_3 = d_3$, and $b_4 = c_4 = d_4$. This restriction allows pay elasticity to vary with executive rank while requiring no differences in pay elasticity across bank size.

The "no size dependence" hypothesis is rejected at the 1% level by the data. Clearly, pay elasticity increases with bank size. This result differs from Gibbons and Murphy (1992)'s finding that in an earlier period pay elasticity is almost invariant across firm size. It suggests that in the 1990's (due to political constraints?) large banks increased their performance-based pay more than small banks. Anyway, the finding that pay performance elasticity increases with bank size appears consistent with agency theory. The more-complex and less easily monitored large banks offer their top executives a compensation package entailing more generous pay for performance – higher pay performance elasticity.

The second test in Table 6 examines the restrictions implied by the hypothesis that the pay performance elasticity does not vary across executive rank. The test rejects this hypothesis at the 5% level. The statistical significance of the result is stronger than in the corresponding test in Table 5. In Table 5 the equality of pay elasticity across executive rank is rejected at the 10% level only. Apparently, the size-control cuts some of the noise, and affords a more powerful test of the hypothesis.

The size-control also increases the power of tests examining the differences in pay elasticity across second-tier executives. The last test in Table 6 finds that the hypothesis of

equal pay elasticity across second-tier executives can be rejected at the 10% level. However, the source of this marginally significant difference is most probably the relatively low pay elasticity of executives 3 and 4 in small banks. This suggests an alternative interpretation of the findings: there are indeed only two tiers as far as the structure of pay elasticity is concerned, but small banks do not really have meaningful #3 and #4 positions.

We have also attempted several extensions of the pay performance relations. We added the average 1993-96 Return on Assets (ROA) of the bank as an explanatory variable in equations (1) through (4). Lambert and Larcker (1987) advocate the use of accounting returns as a standard for performance pay. In all of the regressions attempted, the coefficient of ROA was statistically insignificant while the coefficient of average stock return remained highly significant. It does not appear that return on assets can explain much of the cross-sectional variations in the pay raises received by executives. Accounting returns may still influence executive pay, especially via bonus plans. However, cross-bank differences in accounting returns cannot explain the cross-sectional differences in executive pay raises.

Further, we added a measure of relative performance to regression (1)-(4). The SNL data offer the ROA ranking of each bank relative to a group of comparable "peer" banks. We calculated the 1996 percentile ranking of the bank (in its peer group) minus its 1993 percentile ranking. This difference estimates the advance of the bank relative to a controlled group of peer banks. The relative performance approach predicts compensation to advances relative to comparable firms – see Gibbons and Murphy (1990). Hence, we expected positive coefficients to the "ROA ranking advance" variable that we constructed. In practice, the coefficients of the advance variable were statistically insignificant. Thus, we fail to support the relative performance hypothesis. Our results are consistent with Gibbons and Murphy (1990) who

cannot find any significant relation between the CEO's compensation and firm performance relative to its industry index.

Finally, we would like to comment that our central conclusions are not likely to be sensitive to or emanate from our sample imperfections. For example, correcting for personal holdings of stocks and options will probably only underpin our conclusion that CEOs' incentive pay and CEOs' pay performance elasticity are higher than those of lower rank senior executives. This is because CEOs usually own more stocks and options than other executives do. The only possible exception is the conclusion about small bank executives having a less performance sensitive compensation. If small bank CEOs are more likely to be owner-managers, they also have relatively larger personal stock holdings, and may end up with pay performance elasticities that are not lower than those of large bank CEOs. It is however noted that we find that executives 2 to 4 in small banks also have a lower pay performance elasticity than their counterparts in large banks, which is more difficult to explain or revert with arguments about owner-managers.

5. Summary and Conclusions

The study examines the compensation practices of 166 U.S. banks, using a previously unexplored data set collected from the SNL Executive Compensation Review. These data afford the extension of analysis to compensations of non-CEO top executives, and to compensations in various size banks, including some of the relatively small banks. In general, substantial variations in the level and mix of compensations are found. The compensations of top bank executives are shown to depend on executive rank, bank size, and bank performance.

More specifically, we observe two tiers of compensation in the executive suite: CEO and the rest. CEOs are paid more, especially in performance-contingent incentive-type payments such as options and awards based on multi-year goal achievements ("long-term" compensation). The weight of base salary in CEO's pay is significantly lower than in other senior managers' pay, and the pay performance elasticity of CEO's pay is significantly higher.

Beyond the CEO, top executives have a similar structure of compensation. That is, the weights (or percentages) of base salary, bonuses, long-term compensation, and option grants, in total compensation do not vary much across second-tier executives (executives 2 to 4). Executives 2 to 4 also have a similar pay performance elasticity. Sometimes, though, executive 2 has a considerably higher level of compensation than executives 3, 4, and 5 do. This may reflect the existence of an heir apparent in some banks.

The evidence in this study broadly supports the labor economics approaches to executive pay. The sizable pay differences between the CEO and the second-tier executives may indicate a tournament pay structure, designed to motivate second-tier executive to exert efforts on the job. On the other hand, the close resemblance in the form of compensation, in the pay performance elasticity, and in the raises received by second-tier executives suggests some value to "partial equality" at the top. This partial equality can mitigate the friction among second-tier executives, and it is consistent with the recent "teamwork" approach to top management compensation.

The evidence also supports the agency theory. The CEO has the strongest impact on the firm. Yet, her or his decisions are not easily monitored. Thus, in order to align the CEO with shareholders interests, the board of directors offers the CEO a relatively large amount of

incentive pay. Other senior executives are monitored by the CEO and have less discretion. Hence, their performance incentives are lower. A similar logic can explain the finding of larger absolute and percentage performance pays in large banks. Large bank operations are more diverse and complex, and the opportunity for agency behavior increases. To mitigate agency problems, large banks offer compensation contracts that rely more heavily on performance pay.

An interesting question is how representative are our results with respect to other industries. This question is left for future research. Future work can also explore the heir-apparent position in banks where it exists. Finally, the results entice some further investigation of the teamwork approach to top management compensation.

References

Crawford, A.J., J.R. Ezzell, and J.A. Miles, 1995. Bank CEO pay performance relations and the effects of deregulation, *Journal of Business* 68, 231-256.

Gallant, A.R. and D.W. Jorgenson, 1979. Statistical inference for a system of simultaneous, nonlinear, implicit equations in the context of instrumental variable estimation. *Journal of Econometrics* 11, 275-302.

Garen, J.E., 1994. Executive compensation and principal-agent theory. *Journal of Political Economy* 102, 1175-1199.

Gibbons, R. and K. Murphy, 1990. Relative performance evaluation for Chief Executive Officers. *Industrial and Labor Relations Review* 43 (3), 30s-51s.

Gibbons, R. and K. Murphy, 1992. Optimal incentive contracts in the presence of career concerns: Theory and evidence. *Journal of Political Economy* 100, 468-505.

Hall, B. and J. Liebman, 1998. Are CEOs really paid like bureaucrats? *Quarterly Journal of Economics* 113, 653-691.

Houston, J.F. and C. James, 1995. CEO compensation and bank risk: Is compensation in banking structured to promote risk taking? *Journal of Monetary Economics* 36, 405-431.

Hubbard, R.G. and D. Palia, 1995. Executive pay and performance: Evidence from the U.S. banking industry, *Journal of Financial Economics* 39, 105-130.

Jensen, M.C and K.J. Murphy, 1990. Performance and top management incentives," *Journal of Political Economy* 98, 225-263.

Judge, G.G., R.C. Hill, W.E. Griffith, H. Lutkepohl and T.C. Lee, 1988. *Introduction to the Theory and Practice of Econometrics*, (Wiley).

Lambert, R.A. and D.F. Larcker, 1987. An analysis of the use of accounting and market measures of performance in executive compensation contracts, *Journal of Accounting Research*, Supplement, 85-125.

Lazear, E.P. and S. Rosen, 1981. Rank-order tournaments as optimum labor contracts, *Journal of Political Economy* 89, 841-864.

Main, B.G., O'Reilly, C.A. and J. Wade, 1993. Top executive pay: Tournament or teamwork?, *Journal of Labor Economics* 11, 606-628.

Murphy, K., 1986. Incentives, learning, and compensation: A theoretical and empirical investigation of managerial labor contracts. *Rand Journal of Economics* 17, 59-76.

Murphy, K., 1999. Executive compensation. Working paper, Marshall School of Business, University of Southern California.

O'Reilly, C., Wade, J., and T. Pollock, 1998. Overpaid CEOs and underpaid managers: Equity and executive compensation. Working paper, Stanford University.

Rosen, S., 1982. Authority, control, and the distribution of earnings, *Bell Journal of Economics* 13, 311-323.

Schaefer, S., 1998. The dependence of the pay performance sensitivity on the size of the firm. *Review of Economics and Statistics* 80, 436-443.

Zingales, L., 2000. The next 2000 years. Paper presented at the American Finance Association Meetings.

Table 1
Descriptive Statistics for the Sample of 166 U.S. Banks

For each bank, the average 1993-1996 level of each characteristic is computed. Then, the across-banks mean, median, standard deviation, minimum and maximum of these characteristics are calculated and presented.

Characteristic	Mean	Median	Std. Dev.	Minimum	Maximum
Total Assets ($M)	14,696	2,116	36,888	128	251,233
Return on Assets-ROA (%)	1.15	1.21	0.36	-0.33	2.20
Market Value of Equity ($M)	1,822	323	4,017	4	26,761
Annual Stock Return (%)	21.07	19.50	9.09	0.67	50.20
Non-Performing Assets (%)	0.91	0.58	1.17	0.02	7.62
Return on Equity-ROE (%)	13.15	13.55	4.33	-4.02	23.00
Equity Ratio=Equity/Assets (%)	8.56	8.34	1.58	4.14	13.79

Table 2
The Structure of Senior Executives' Compensation in U.S. Banks, 1993-96

For each bank, we compute the average 1993-96 level of each pay component, for each of the top five executives. Then, the across-banks means, median, standard deviation, minimum and maximum of this pay component are calculated and presented. Using similar methodology, the last two columns report means and medians of the compensation components as a percentage of base salary. The source of the data is SNL Executive Compensation Review.

	Mean ($)	Median ($)	Std. Dev. ($)	Minimum ($)	Maximum ($)	Mean[a] (%)	Median[a] (%)
1. Highest Paid Executive (n=166)							
a. Base salary	397,331	331,310	216,361	116,166	1,297,917	49.5	50.3
b. Annual bonus	338,787	143,240	591,731	0	3,646,025	20.8	20.3
c. Long-term compensation[b]	270,459	62,027	519,704	0	3,281,325	13.0	10.0
d. Value of options granted	351,874	98,239	646,793	0	4,535,292	16.2	14.5
e. Total compensation	1,373,614	650,917	1,728,015	188,673	9,176,709	100[c]	100
f. Annual raise in total pay (%)[d]	12.3	11.3	15.8				
2. Second Highest Paid Executive (n=166)							
a. Base Salary	267,705	211,688	148,344	91,620	747,917	54.4	56.5
b. Annual bonus	194,070	81,578	354,947	0	2,657,575	19.7	19.0
c. Long-term compensation[b]	138,425	31,367	347,289	0	2,716,300	11.1	7.7
d. Value of options granted	178,082	54,971	330,781	0	2,049,938	14.5	13.1
e. Total compensation	780,590	401,159	1,025,302	138,875	7,417,574	100[c]	100
f. Annual raise in total pay (%)[d]	11.8	11.7	13.8				
3. Third Highest Paid Executive (n=166)							
a. Base Salary	217,965	174,531	123,795	77,335	772,917	56.4	59.0
b. Annual bonus	143,243	55,609	275,395	0	2,113,675	18.5	18.0
c. Long-term compensation[b]	90,547	19,961	196,701	0	1,478,950	10.2	7.3
d. Value of options granted	136,254	38,197	268,859	0	2,176,302	14.6	13.3
e. Total compensation	589,408	307,627	755,408	121,619	5,324,253	100[c]	100
f. Annual raise in total pay(%)[d]	12.0	10.1	12.5				
4. Fourth Highest Paid Executive (n=153)							
a. Base salary	195,605	162,000	109,031	73,108	772,917	57.0	59.3
b. Annual bonus	127,309	46,018	254,840	0	1,914,300	17.8	17.8
c. Long-term compensation[b]	81,581	19,963	182,016	0	1,424,875	10.1	7.3
d. Value of options granted	126,477	41,446	254,191	0	1,946,094	15.1	14.3
e. Total compensation	530,974	291,283	710,494	100,947	4,916,197	100[c]	100
f. Annual raise in total pay (%)[d]	10.0	9.4	18.8				

Table 2 (Continued)

	Mean ($)	Median ($)	Std. Dev. ($)	Minimum ($)	Maximum ($)	Mean[a] (%)	Median[a] (%)
5. Fifth Highest Paid Executive (n=127)							
a. Base Salary	191,188	158,000	100,402	78,166	742,518	57.4	58.8
b. Annual bonus	119,720	48,632	215,533	0	1,541,475	17.7	17.8
c. Long-term compensation[b]	73,015	20,337	149,792	0	1,137,200	9.8	7.0
d. Value of options granted	130,250	41,400	296,418	0	2,622,344	15.1	13.5
e. Total compensation	515,730	286,170	655,175	144,006	3,977,237	100[c]	100
f. Annual raise in total pay (%)[d]	11.1	9.7	14.3				

[a] Pay component weight in total compensation.
[b] Long term compensation includes annual cash, stock, or performance unit awards, paid in accordance with multi-year performance goals.
[c] The weights above may not add up to 100 because there exist nonsignificant amounts of other compensation that could not be categorized as either of the above.
[d] Calculated as the average of the raise in total compensation in 1994 (relative to 1993), in 1995 (relative to 1994), and in 1996 (relative to 1995).

Table 3

Variations in the Form of Compensation Across Executive Rank

For each executive in each bank we compute the (across 1993-96) average weight of base salary, bonuses, long term performance awards, and options granted in total compensation. Then, we sort by executive rank and average across banks. The sample includes 153 banks for which complete data on all four top executives was available.

	Mean Pay Component as a % of Total Compensation			
	Base	Bonus	Long Term	Options
Highest Paid Executive	48.9	20.5	13.4	16.8[a]
Second Top Executive	53.5	19.7	11.6	14.9
Third Top Executive	55.7	18.4	10.7	14.9
Fourth Top Executive	57.0	17.9	10.0	15.1
F-test of equal weights across all executives (*p*-value)[b]	6.2 (0.00)	1.9 (0.12)	2.6 (0.05)	0.9 (0.43)
F-test of equal weights across executives 2-4 (*p*-value)[b]	2.1 (0.13)	1.2 (0.32)	0.6 (0.57)	0.0 (0.98)
F-test for difference between highest paid and second-tier executives (*p*-value)[b]	14.4 (0.00)	3.5 (0.06)	6.8 (0.01)	2.7 (0.10)
F-test for difference between executive 2 and executives 3-4 (*p*-value)[b]	3.0 (0.08)	2.1 (0.15)	1.1 (0.30)	0.0 (0.91)

[a] The weights in each row may not add up to 100% because there exist trivial amounts of other compensation that could not be categorized as base salary, bonus, long term awards or option grants.

[b] Calculated using Analysis of Variance.

Table 4
Variation of Compensation by Executive Rank and Bank Size

For each bank we compute the average 1993-96 level and weight in total compensation of each pay component for each of the top four executives. Then, across-banks averages are calculated for three bank-size groups: small banks (average 1993-96 assets of less than $1.3 billion), medium banks (average 1993-96 assets between $1.3 and $6.2 billion), and large banks (average 1993-96 assets over $6.2 billion). Each of these size groups includes 51 banks. Analysis of Variance tests are used to examine any bank size and executive rank effects on the level and form of compensation.

	Executive Rank							
	Top	Second	Third	Fourth	Top	Second	Third	Fourth
1. **Base Salary**	*Level* (in $)				*Weight in total compensation* (in %)			
Small Banks	237,979	158,432	128,079	113,538	62.3	66.1	70.0	70.9
Medium Banks	349,857	235,699	199,464	167,935	51.3	56.6	58.7	59.0
Large Banks	648,484	436,740	350,807	305,342	33.0	37.9	38.3	41.2
ANOVA test (F-Statistic)	Size effect = Yes (421.3*) Rank effect = Yes (143.3*) Interaction = Yes (13.3*)				Size effect = Yes (227.8*) Rank effect = Yes (10.1*) Interaction = No (0.2)			
ANOVA test of second tier, executives 2-4, (F-statistic)	Size effect = Yes (302.2*) Rank effect = Yes (36.2*) Interaction = Yes (3.8*)				Size effect = Yes (185.9*) Rank effect = No (2.9) Interaction = No (0.3)			
2. **Annual Bonus**	*Level* (in $)				*Weight in total compensation* (in %)			
Small Banks	78,622	48,016	31,659	23,862	17.9	16.7	14.9	14.1
Medium Banks	169,416	97,694	66,351	55,309	19.1	18.2	16.0	15.8
Large Banks	822,853	468,254	357,176	302,756	24.5	24.1	24.3	23.0
ANOVA test (F-Statistic)	Size effect = Yes (99.6*) Rank effect = Yes (13.6*) Interaction = Yes (5.5*)				Size effect = Yes (38.1*) Rank effect = No (2.5) Interaction = No (0.3)			
ANOVA test of second tier, executives 2-4, (F-statistic)	Size effect = Yes (76.0*) Rank effect = Yes (3.4*) Interaction = No (1.1)				Size effect = Yes (32.9*) Rank effect = No (1.7) Interaction = No (0.2)			

Table 4 (continued)

	Executive Rank							
	Top	Second	Third	Fourth	Top	Second	Third	Fourth
3. **Long Term Compensation**	*Level* (in $)				*Weight in total compensation* (in %)			
Small Banks	42,260	23,042	12,938	12,592	9.7	7.8	6.4	6.5
Medium Banks	128,128	62,403	45,019	36,111	12.0	10.6	9.9	9.6
Large Banks	699,568	361,160	234,691	196,041	18.5	16.4	15.8	14.8
ANOVA test (F-Statistic)		Size effect = Yes (79.6*) Rank effect = Yes (14.8*) Interaction = Yes (7.5*)				Size effect = Yes (42.6*) Rank effect = Yes (3.0*) Interaction = No (0.1)		
ANOVA test of second tier, executives 2-4, (F-statistic)		Size effect = Yes (50.0*) Rank effect = Yes (3.4*) Interaction = No (1.8)				Size effect = Yes (34.6*) Rank effect = No (0.7) Interaction = No (0.1)		
4. **Options Granted**		*Level* (in $)				*Weight in total compensation* (in %)		
Small Banks	47,041	25,820	18,159	18,210	9.5	9.0	8.0	8.5
Medium Banks	219,890	90,165	70,911	58,122	17.4	14.5	15.2	15.2
Large Banks	862,531	451,027	346,886	303,098	23.5	21.4	21.6	20.9
ANOVA test (F-Statistic)		Size effect = Yes (93.9*) Rank effect = Yes (15.6*) Interaction = Yes (6.3*)				Size effect = Yes (81.6*) Rank effect = No (1.2) Interaction = No (0.2)		
ANOVA test of second tier, executives 2-4, (F-statistic)		Size effect = Yes (84.6*) Rank effect = No (2.5) Interaction = No (1.2)				Size effect = Yes (67.1*) Rank effect = No (0.1) Interaction = No (0.2)		

Table 4 (continued)

	Executive Rank			
	Top	Second	Third	Fourth
5. **Total Compensation**	*Level* (in $)			
Small Banks	409,398	256,542	192,178	165,911
Medium Banks	868,891	486,886	382,620	318,728
Large Banks	3,077,435	1,722,352	1,291,660	1,108,953
ANOVA test (F-Statistic)	Size effect = Yes (172.0*) Rank effect = Yes (32.5*) Interaction = Yes (10.9*)			
ANOVA test of second tier, executives 2-4, (F-statistic)	Size effect = Yes (126.7*) Rank effect = Yes (7.1*) Interaction = No (2.3)			

* Indicates statistical significance at the 5% level.

Table 5
Executive Rank Effects on the Pay Performance Elasticities

The average 1993-96 raise in total compensation of executive *i* is regressed on the average 1993-96 bank stock return, where *i* = 1,…,4 indicates executive rank. Sample size is 153 banks. Standard errors, corrected for heterosceoasticity using White's method, are reported in parentheses.

	Intercept	Coefficient of Average Stock Return	Adjusted R^2
Highest Paid Executive	0.002 (0.034)	0.65 (0.19)	0.087
Second Top Executive	0.027 (0.034)	0.49 (0.19)	0.061
Third Top Executive	0.055 (0.030)	0.37 (0.16)	0.039
Fourth Top Executive	0.032 (0.036)	0.40 (0.18)	0.031

Chi-square test of the equality of the pay-performance elasticity (i.e., the coefficient of average stock return) across all four executive ranks = 6.40 (*p*-value=0.09)[a].

Chi-square test of the equality of the pay performance elasticity (i.e., the coefficient of average stock return) across second-tier executives (executives 2-4) = 1.79 (*p*-value=0.41)[a].

[a] The likelihood ratio test statistics are calculated in a Seemingly Unrelated Regressions (SUR) setup of the above four regressions, using the procedure discussed in Gallant and Jorgenson (1979).

Table 6
Executive Rank Effects on the Pay Performance Elasticities: Size-Controlled Results

The following Seemingly Unrelated Regressions system is fitted to the data:

$RAISE_1, j = a_1 + b_1\ RETj * LARGEj + c_1\ RETj * MEDIUMj + d_1\ RETj * SMALLj + e_1j$

$RAISE_2, j = a_2 + b_2\ RETj * LARGEj + c_2\ RETj * MEDIUMj + d_2\ RETj * SMALLj + e_2j$

$RAISE_3, j = a_3 + b_3\ RETj * LARGEj + c_3\ RETj * MEDIUMj + d_3\ RETj * SMALLj + e_3j$

$RAISE_4, j = a_4 + b_4\ RETj * LARGEj + c_4\ RETj * MEDIUMj + d_4\ RETj * SMALLj + e_4j$

where RAISEi,j is the average annual raise in the total compensation of executive *i* in bank *j* over the period 1993-96 (i = 1 to 4; j=1 to 153); RETj is the average annual stock return of bank *j* over 1993-96; and $LARGE_j$, $MEDIUM_j$, and $SMALL_j$ are size dummy variables equal to 1 when the average 1993-96 total assets of bank *j* are above $6.2 billions, between $1.3 and $6.2 billions, and below $1.3 billions, respectively. Then, several restrictions, representing alternative executive rank and bank size effects, are imposed on the system and are examined using the Likelihood Ratio test (see Gallant and Jorgensen, 1979).

Table 6 (continued)

Restrictions	Estimated Coefficients (t-statistics in parentheses)												Chi-Square Test of the Restriction (p-value)
	b_1	b_2	b_3	b_4	c_1	c_2	c_3	c_4	d_1	d_2	d_3	d_4	
Unrestricted	0.77 (4.0)	0.59 (3.5)	0.59 (3.8)	0.67 (3.6)	0.63 (3.5)	0.48 (3.0)	0.35 (2.5)	0.38 (2.2)	0.59 (3.1)	0.40 (2.4)	0.18 (1.2)	0.18 (1.0)	
No Difference Across Bank Size $b_1=c_1=d_1$ $b_2=c_2=d_2$ $b_3=c_3=d_3$ $b_4=c_4=d_4$	0.65 (4.0)	0.49 (3.3)	0.37 (2.8)	0.40 (2.5)	0.65	0.49	0.37	0.40	0.65	0.49	0.37	0.40	30.28 (0.000)
No Difference Across Executive Rank $b_1=b_2=b_3=b_4$ $c_1=c_2=c_3=c_4$ $d_1=d_2=d_3=d_4$	0.64 (4.6)	0.64	0.64	0.64	0.44 (3.4)	0.44	0.44	0.44	0.32 (2.3)	0.32	0.32	0.32	18.96 (0.03)
No Difference Across Second Tier Executives $b_2=b_3=b_4$ $c_2=c_3=c_4$ $d_2=d_3=d_4$	0.75 (4.1)	0.60 (4.3)	0.60	0.60	0.59 (3.4)	0.40 (3.0)	0.40	0.40	0.53 (2.9)	0.26 (1.8)	0.26	0.26	12.06 (0.06)