EXECUTIVE PAY AND
PERFORMANCE: EVIDENCE FROM
THE U.S. BANKING INDUSTRY

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ABSTRACT

This paper examines an effect of deregulating the market for corporate control on CEO

compensation in the banking industry. Given that each state's banking regulation defines the

competitiveness of its corporate control market, we examine the effect of a state's interstate

banking regulation on the level and structure of bank CEO compensation. Using panel data on

147 banks over the decade of the 1980s, we find evidence supporting the hypothesis that

competitive corporate control markets (*i.e.*, where interstate banking is permitted) require talented

managers whose levels of compensation are higher. We also find that the compensation-

performance relationship is stronger than for managers in markets where interstate banking is not

permitted. Further, CEO turnover increases substantially after deregulation, as does the

proportion in performance-related compensation. These results suggest strong evidence of a

managerial talent market -- that is, one which matches the level and structure of compensation

with the competitiveness of the banking environment.

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1. Introduction

In recent years, much attention has been focused on whether managers indeed maximize shareholder wealth. Beginning with seminal works by Berle and Means (1932) and Jensen and Meckling (1976), researchers have addressed the agency costs incurred by the separation of ownership and control. Many devices have been suggested to help align the incentives of the managers with the interests of shareholders, including such devices as high corporate leverage (Jensen, 1986), more effective monitoring by the board of directors (Hermalin and Weisbach, 1988; Shleifer and Vishny, 1988; Weisbach, 1988), and managerial compensation.

Managerial compensation (more specifically, chief executive officer compensation) has come under increasing scrutiny in the popular press. On one side of the debate are critics who suggest that CEO compensation is not related to performance and is largely "excessive." Suggestions have ranged from capping CEO pay to making pay a prescribed multiple of the lowest worker's salary. On the other side of the debate are proponents of moderate reform of the current executive compensation system. For example, in a recent article in *Business Week*, Peter T. Chingos, a compensation consultant at KPMG Peat Marwick, comments that high pay reflects the limited number of executives who can run large organizations successfully, stating:

> *We're reaching hysterical levels of concern. It's more of a knee-jerk reaction and a paranoia. There are clear examples of abuses out there ... but they make up only a small minority. ... How many Michael Eisners are there in the world? Companies have to pay a premium for business luminaries.* (March 1992, page 56)

We use the banking industry to examine these conflicting views in whether CEO compensation is excessive or used to attract the requisite managerial talent.

Chief executive officer (CEO) compensation has been examined empirically by Jensen and Murphy (1990a), Murphy (1985,1986), Rosen (1992), Barro and Barro (1990), Joskow, Rose, and Shepard (1993), and Houston and James (1992) who find a positive relationship

between pay and performance for samples of publicly-held corporations. Jensen and Murphy (1990a) employ first-differences in shareholder wealth and the pay of chief executive officers (CEOs) and find a significant positive relationship between pay and performance. They find the sensitivity between pay and performance to be small, however -- a \$3.25 change in CEO wealth per \$1,000 change in shareholder wealth. They attribute this small sensitivity to public and private political forces influencing the managerial compensation market, given that managerial compensation is highly visible and attracts "implicit regulation" that truncates the upper tail of managerial compensation. Murphy (1985) also finds a positive relationship between pay and performance, whereas Murphy(1986) finds that the pay-performance sensitivity is negatively influenced by CEO experience. These results are confirmed by Barro and Barro (1990) using a sample of commercial banks. Joskow, Rose, and Shepard (1993) examine the differences in CEO compensation between regulated firms (not including banks) and unregulated firms, and find that regulated firms have lower levels of CEO compensation while offering compensation packages that are less sensitive to CEO performance. Houston and James (1992) compare banks with nonbanking firms, and find no evidence of greater compensation-performance sensitivity in banks than in nonbanking firms. In addition, they find that banks are less reliant on managerial stock options and ownership than nonbanks, and no differences in CEO turnover rates between banking and nonbanking firms. Accordingly, those authors suggest that the compensation arrangement does not reward bank CEOs for taking excessive risks -- which is inherent in the fixed-rate deposit insurance contract offered by the Federal Deposit Insurance Corporation.

While most of the previous academic research has examined CEO compensation in industrial firms, only Barro and Barro (1990) and Houston and James (1992) analyze CEO compensation in commercial banks. This paper extends existing studies by examining the effect of the market for corporate control on both the levels and structure of CEO compensation in commercial banks. Banking is an industry where some variations of the corporate control market can be easily identified. In particular, the bank corporate control market is defined by the regulations legislated by each state, and is largely influenced by whether banks from other states are allowed to compete in local banking markets. Historically, most states did not allow mergers or any sort of branching activity across states, and the McFadden Act of 1927 required national banks to conform to state branching restrictions. Interstate banking became more widespread in the 1980s, when a number of states broadened the boundary restrictions that had originally been imposed on

the industry. Interstate banking legislation introduced in many states allowed banks from out-of-state to acquire banks in their state. This change effectively made the bank market for corporate control more competitive by reducing or eliminating geographical restrictions along county or state lines.

Accordingly, we examine if more competitive environments increase the skills required of CEOs to manage in them. We use interstate bank regulation as a proxy for the competitiveness level of the environment in which banks operate. Analyzing the effects of the changes in regulation on the level and structure of CEO pay is analogous to examining whether talented managers in more competitive environments are appropriately rewarded. That is, the less strict is interstate regulation, the higher the level of competitiveness, the more capable the CEO required to manage, and therefore the higher the level and responsiveness of pay. We focus on only one element of regulation, namely interstate banking. Presumably, other forms of regulation also changed in the 1980s (our sample period), but we restrict our analysis to one form of regulation that put pressure -- via the market for corporate control -- on a manager's need to perform. The interstate regulation data exhibit both cross-section and time-series variation in our sample of banks, allowing us to test whether changes in regulation influence both the level of pay and the pay-performance relationship.

Consequently, we analyze the *managerial talent hypothesis*, which suggests that banks have to compete for CEOs in a competitive labor market. Compensation acts as an equilibrating mechanism to match talented managers with the competitiveness of their environment. Therefore, talented CEOs in competitive environments are awarded higher levels of compensation. In addition, CEOs in competitive markets are likely to have a compensation structure that is more responsive to bank performance than CEOs in protected banking markets (see Jensen and Murphy, 1990b). We also test whether CEO turnover increased after interstate banking legislation was introduced. The talent hypothesis is explained in more detail in Section 3.

In addition, we use panel data in our empirical work. In an important paper, Jensen and Murphy (1990a) eliminate the implicit heterogeneity among firms in panel data, using first-differences to examine the relationship between compensation and performance. To analyze the effects of regulation, we use a fixed-effects model that control for bank-specific omitted variables (or, in separate specifications, CEO-specific omitted variables) that vary over banks (vary over CEOs). Given that most of the sample had restrictive interstate banking laws at the beginning of our sample period and had deregulated by the end of our

sample period, we estimate our fixed-effects models with and without year dummies. We find that CEO compensation and performance (measured by shareholder wealth) are positively related in our sample of commercial banks, supporting the view that more competitive environments require CEOs with higher talent who have to be given higher levels of compensation. Further, we find that competitive corporate control environments, in which interstate banking is permitted, require talented managers whose compensation-performance relationship is stronger than for managers in environments where interstate banking is not permitted. We also find that the proportion of total compensation in the form of such performance-related components as equity ownership and stock options went up significantly after interstate deregulation. In addition, CEO turnover increased substantially after deregulation. Taken together these results suggest that interstate banking deregulation had an impact on both the level and structure of CEO compensation in a manner consistent with the managerial talent hypothesis.

This paper is organized as follows. In Section 2, we describe our definitions of compensation, performance, and bank size. The effect of interstate regulation on the level of compensation and on the compensation-performance relationship is explained in Section 3. Section 4 describes the data and the variables used in the analysis. We describe our empirical tests and results in Section 5. Section 6 concludes.

2. Compensation, performance, and size

In this section we describe the definitions of compensation, performance and bank size that we follow. As the literature on compensation has grown, various definitions of compensation and performance have been used by different studies. We describe below our choice of compensation and performance measures.

2.1. Compensation

There are many mechanisms by which compensation policy provides value-increasing incentives to improve a CEO's performance. These mechanisms can be classified into performance-based bonus and salary, stock ownership, stock options, and performance-based dismissal actions. We employ two definitions of CEO compensation. Our first definition includes the dollar value of a CEO's salary and bonus in the current year only. The second definition is the CEO's total wealth invested in the bank; and also includes the value of equity ownership in the bank and the value of stock options granted. We use year-end stock prices to calculate the value of equity that a CEO holds directly in the

bank. To price the stock options, we use the Black-Scholes (1973) option valuation model assuming continuously paid dividends (Noreen and Wolfson, 1981; Murphy, 1985; Jensen and Murphy, 1990a). The dollar value of options is calculated as :

$$\sum_{t=1}^{T} N_t \left[S^* \Phi(D^*) - X e^{-rT} \Phi(D^* - \sigma \sqrt{T}) \right] ,$$

where
$$S^* = S - D e^{-rT}, \text{ and}$$

$$D^* = \frac{\ln (S^*/X) + (r + \sigma^2/2) T}{\sigma \sqrt{T}} .$$

N_t is the number of options granted in year t at exercise price X. We assume that each option has a ten-year maturity (as in Houston and James, 1992). S^* is the year-end stock price net of the present value of dividends paid. We estimate σ, the standard deviation of stock returns in the previous twelve-month period, and use the interest rates on the constant maturity ten-year Treasury bonds in year t as the relevant risk-free rate r_t. $\Phi(\cdot)$ is the cumulative standard normal distribution function. Regarding performance-based dismissal actions, studies such as Coughlan and Schmidt (1985), Warner, Watts, and Wruck (1988), Weisbach (1988), Jensen and Murphy (1990a), and Murphy and Zimmerman (1991) have found a negative relationship between the net-of-market firm performance and the probability of managerial turnover. These findings suggest that managers are more likely to leave after bad years than after good years and are disciplined by the credible threat of dismissal. As this issue is not the focus of our study, we do not include the threat of dismissal in our definition of compensation.

2.2. Performance

Principal-agent problems suggest that the compensation of the manager should be related to his or her actions so as to align the insurance motive of the manager with the wealth-maximizing incentive of the shareholder. Consequently, market movements that have less to do with a manager's actions should be excluded from his or her performance measure. On the one hand, relative performance appears to be a significant determinant of compensation -- as shown by Coughlan and Schmidt (1985), who find a positive relationship between compensation and the net-of-market returns, and by Gibbons and Murphy (1990), who find a negative relationship between average industry returns and compensation. On the other hand, Antle and Smith (1986), Murphy (1985), and Barro and

Barro (1990) find that relative performance does not matter. Given that we examine a sample of commercial banks, where market movements (probably) affect the sample uniformly, we analyze measures of performance using individual bank returns only.

Although there is little ambiguity that CEO compensation is related to performance, a debate has occurred as to which measure of performance, stock market returns or accounting returns, is more informative for executive incentives. Whereas Jensen and Murphy (1990a) and Murphy (1985) confine their definition of performance to stock returns (and different transformations thereof), some studies have used accounting numbers as the relevant measure of performance (see, *e.g.*, Kostiuk, 1986). Given the potential for misrepresentation in accounting numbers and the inherent overstatement of value (present in the book-value accounting of bank loans) in a commercial bank's balance sheet, we restrict our analysis to stock market measures.

2.3. Size

A number of empirical studies (see Ciscell and Carroll, 1980, for a survey) have found a positive relationship between firm size and compensation, motivating theoretical studies dating back to Simon (1957) and more recently to Rosen (1982,1992). Rosen analyzes the firm as a hierarchical control structure with the CEO at the top: The CEO's every action multiplies over his or her "scale of operations," allowing him or her to accrue rents in a competitive equilibrium. Consequently, a competitive labor market allocates more talented senior executives to larger firms since the marginal productivity of their actions is magnified across the lower levels of the hierarchy. This hypothesis suggests that we should expect a positive relationship between size and compensation. However, because of the potential correlation between size and performance, many studies (see, *e.g.*, Jensen and Murphy, 1990a; Murphy, 1985, 1986) have not included size in their set of regressors.[2] We include size as a regressor in our panel estimation to examine whether more rapidly growing banks have CEO's with higher levels of compensation. We test whether our estimated fixed-effects are correlated with a bank's asset size.

3. The effect of interstate regulation on the level of CEO pay and the pay-performance relationship

Banking is an industry in which regulation plays a major and relatively easily identified role (see, *e.g.*, the general discussion in Hubbard, 1994, Chapter 14). We focus

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[2] This issue is discussed at some length in Ciscell and Carroll (1980) and Dunlevy (1985).

on one important component of bank regulation, namely, interstate banking. Geographic restrictions on expansion by banks particularly across state lines have long been part of the U.S. banking system. The McFadden Act of 1927 defined banking markets as statewide by allowing national banks to branch within the geographical limits permitted to state chartered banks. However, some banks overcame these restrictions with the use of multi-bank holding companies. If a state did not allow a bank to open a branch, the bank could form a (multi-bank) holding company which acquired a bank across state lines. The Douglas Amendment to the Bank Holding Act of 1956 plugged this loophole by specifying that the Federal Reserve Board may not approve an application by a bank holding company (BHC) to acquire five percent of the voting shares of interest in all, or substantially all, of the aspects of any bank located outside of the holding company's home state.[3] To avoid conflicts with states' rights, the Douglas Amendment allowed a BHC to acquire a bank located outside its (BHC's) home state provided the target bank's state specifically allowed it.

The state boundary restriction for bank expansion has changed considerably since 1980 with a number of states (49 out of 50 as of 1994) passing some type of interstate banking law -- i.e., exploiting the states' rights loophole of the Douglas Amendment. In June 1985, interstate acquisition and mergers were fully legitimized when the Supreme Court ruled in *Northeast Bancorp v. Board of Governors*[4] that "State statutes ... comply with the Douglas Amendment and they do not violate ...clause(s) of the U.S. Constitution." According to this ruling, a state could say nothing and thus prevent entry by any out-of-state BHCs or it could specifically allow out-of-state BHCs to acquire or establish in-state banks to the same extent as could in-state BHCs. Thus, every state had to choose its *de novo* entry and acquisition regulations. With this case, more states passed interstate banking laws. A number of states now belong to what is referred to as interstate regional compacts. A few states have reciprocal relationships with other states in a given region, while some allow national entry or have a specified date past by which nationwide entry is permitted. From the above description, we assume that allowing interstate banking greatly increases the number of participants in the bank's corporate control market, resulting in a more competitive banking environment. Takeovers are credible disciplining devices that prevent managers from entrenching themselves and increasing their compensation above competitive levels. Accordingly, we examine if deregulation (*i.e.*,

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[3] Title 12 US Code Section 1842 (d).

[4] 105 S. Ct. 2545, 1985.

interstate banking) had a significant impact on both the level and structure of bank CEO compensation.

Under the managerial talent hypothesis, more competitive markets in which interstate banking is permitted require managers with greater skills or talent.[5] Takeovers are credible disciplining devices that prevent poorly performing managers from entrenching themselves. Hence, banks in states where interstate banking is permitted attracts managers that can perform with the "credible threat" mechanism of a competitive, well-functioning corporate control market. Accordingly, a higher *level* of compensation is required to attract more talented managers to the more competitive environment (see, *e.g.*, the discussion in Peltzman, 1993).[6,7]

Accordingly, in more competitive banking environments, CEOs would have to perform or be fired. Consequently, one would expect CEO turnover to increase due to the increased competitive environment caused by state deregulation. Many banks would have to increase their managerial talent commensurate with their new operating environment.

We now describe the expected impact of deregulating interstate banking restrictions on the *structure* of managerial compensation under the managerial talent hypothesis. For example, Jensen and Murphy (1990b) explain in the context of the declining trend in the last decade of Harvard Business School students to enter traditional corporate careers (as opposed to investment banking, business law, and consulting careers with their higher pay-performance relationships) "A highly sensitive pay-for-performance system will cause high-quality people to self-select into a company" (page 44). The talent hypothesis suggests that a CEO in a less regulated environment would have a compensation contract structured so that a more significant component of his or her remuneration comes from equity ownership and stock option grants. This compensation scheme allows the talented

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[5]Smith and Watts (1992) propose the "investment opportunity set" hypothesis, which has some similarities to our talent hypothesis. They argue that firms with greater investment opportunities employ more skilled executives who have to be given both a higher level of pay and a more pronounced pay-performance relationship. Contrasting a sample of regulated firms from a sample of unregulated firms, they find strong evidence for their hypothesis. Given that deregulating restrictive banking environments increases banks' investment opportunity set, the Smith-Watts hypothesis is similar in spirit to our talent hypothesis.

[6]If the managerial talent required in the two environments were the same, one would observe a migration of CEOs from the more regulated environment (who have lower levels of pay) to the less regulated environment (who have higher levels of pay). We found no evidence that this migration occurred in our sample.

[7]It is possible that differences in the level of compensation and the pay-performance relationship between firms in regulated and unregulated industries reflect political constraints on compensation (as argued, e.g., by Joskow, Rose, and Shepard, 1993). It is, in general, difficult to distinguish this explanation from the managerial talent hypothesis (see also Peltzman, 1993) that regulated and unregulated firms compete for CEOs of different abilities.

manager operating in the competitive environment to be better paid when he or she performs well. Consequently, with the greater possibility that CEO actions can enhance profitability, the talented manager in markets in which interstate banking is permitted may prefer to have compensation more strongly tied to performance than a manager in markets in which interstate banking is not permitted.[8]

A possible alternative to the talent hypothesis is the following: Aligning CEO pay with bank performance introduces a higher risk in the compensation contract. One might then argue that managers in restrictive banking environments do not have much risk in their contract (since they have a lower sensitivity to pay) and, therefore lower levels of pay.[9] Risk-averse managers -- which given their undiversified human and financial capital in the bank seems an reasonable assumption -- would, however prefer to have their compensation contracts to be less sensitive to performance in the riskier interstate banking environment. This argument suggests an inverse relationship between the risk of the banking environment and the risk of the CEO's compensation. Accordingly, CEOs in deregulated banking markets would prefer to have a diminished pay-performance sensitivity under this risk-differential hypothesis, exactly opposite of the higher pay-performance sensitivity suggested by the managerial talent hypothesis. We provide evidence on this alternative hypothesis in Section 4.

4. Data sources and variables used in the analysis

4.1. Data description

We obtained data for the compensation variables from the annual proxy statements filed by banks with the Securities and Exchange Commission from 1981 to 1990. These

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[8]The implication of a weaker pay-performance relationship in markets with restrictive interstate banking regulation implicitly assumes that managerial contracts are not optimal in the more regulated environments. If the contracts were optimal, deregulation (of the restrictive corporate control market) would decrease the need for a strong pay-performance relationship to align managerial and shareholder interests; since the corporate control markets would substitute for strong pay-performance sensitivities. What permits sub-optimal labor contracts to exist in these regulated environments? One possibility is that CEOs in restricted banking markets have greater political pressures on account of closer supervision by their state banking regulators. This constant regulatory oversight might hinder CEOs from raising their levels of compensation even when the bank performs well. In addition, restrictive interstate banking legislation might be highly correlated with other measures of regulatory supervision by the state banking authorities such as required levels of community lending, etc. Consequently, our measure of CEO performance -- creation of shareholder wealth -- is not necessarily the sole metric by which CEOs are evaluated by banking regulators. Stockholders who privately prefer an optimal compensation scheme might be willing to trade for reduced regulatory stringency in other areas. However, we do not test for these possibilities explicitly, but only propose them as potential reasons for a lesser pay-performance sensitivity under regulation.

[9]We estimated the standard deviations of bank returns before and after interstate banking deregulation and found no significant differences.

compensation data were then matched with bank performance data. Each bank's yearly stock return is calculated from the *Center for Research in Security Prices (CRSP)* stock return file, and all other bank-specific data (*e.g.*, asset size, annual dividends paid) from *Standard and Poor's Bank Compustat.* We obtained the 1981 to 1990 interest rates on the ten-year constant maturity Treasury bonds from the *Economic Report to the President* 1993. We selected a longitudinal sample in order to examine banks that were traded and had compensation data available for a number of years. Many of the banks are not traded, restricting our sample. The final sample consists of 147 banks, most of which have a complete ten years of data (1980-1989); see Table 1. More specifically, we have 1202 bank CEO data points, as data for a few banks is missing for some years. The dummy for bank regulation was created using information from Golembe and Holland (1986) and Amel (1991).[10] All monetary variables are adjusted for inflation and represent constant (1989) dollars. These 147 banks are from 36 different states plus the District of Columbia and capture substantial time variations in the interstate banking variable.

4.2. Variables

We use two definitions of a bank CEO's compensation as our dependent variable. The first definition includes the CEO's salary and bonus in the current year only.[11] The second definition includes the value of equity stock owned in the bank and the value of options granted to the CEO. The compensation variables are in units of thousand dollars. As in Jensen and Murphy (1990a), performance is measured by shareholder wealth, defined as the stock returns earned during the year, times the price at the beginning of the year, times the number of shares outstanding and is expressed in units of hundreds of millions of dollars. We expect the shareholder wealth variable to be positively related to compensation. To examine the possible effects of bank regulation on compensation we include a proxy for interstate entry barriers introduced by state banking regulation. The

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[10] Both Golembe and Holland (1986), and Amel (1991) have listed the characteristics of each state's interstate bank regulation. We converted their description into a dummy variable based on the restrictiveness of the legislation.

[11] We also included as compensation the variable for other payments received by the CEO, obtained from *Forbes.* These payments include long-term compensation plans, thrift plan contributions, company paid health insurance plans, and restricted stock awards that are vested or released from restrictions. The dollar value of these other payments is substantially less than the salary and bonus that a CEO receives. None of our results changed significantly when we included these other payments in our compensation variable. However, in the case of banks, *Forbes* has compensation data on a substantially less number of banks those who file with the Securities and Exchange Commission (SEC). Accordingly, in all our analysis we restrict our tests to the compensation data from the annual bank proxy statements filed with the SEC.

dummy variable (*IS*) assumes the value of unity if the state in which the bank is located has very restrictive interstate banking laws. Such states would restrict their banks from to being acquired by an out-of-state bank, belong to interstate regional pacts, or to practice some form of national banking. Values for these interstate variables are not constant over the ten-year period studied, as many states moved toward less restrictive regulation. We also create the interaction variable between performance and interstate regulation, *IS* * *SW*. As explained in Section 3, we expect the signs on *IS*, and *IS* * *SW*, to be negative under the managerial talent hypothesis.

To control for possible bank size effects, we include the asset size of the bank in the current year *AS*. Note that when we enter this variable as an independent variable in the panel regressions, it tests whether fast-growing banks have CEOs with higher levels of compensation. Consequently, to test whether, *ceteris paribus*, large banks have CEOs with higher levels of compensation, we regress the estimated fixed-effects on the average asset size of a bank.

5. Empirical tests and results

We begin our empirical tests by examining whether CEO compensation increased following the relaxation of restrictive interstate banking legislation. Sample averages of the three components of compensation (salary and bonus, equity ownership in the bank, and the value of stock options) before and after regulatory liberalization are presented in Table 2.

We find that all three components of total real compensation increased significantly after deregulation. These differences in compensation before and after deregulation are statistically significant. More importantly, the percentage of total compensation in the form of performance-related compensation (*i.e.*, equity ownership and options) increased significantly after restrictive interstate banking legislation was relaxed. These results provide preliminary evidence that interstate banking affected both the level and the structure of compensation, commensurate with the managerial talent hypothesis.

To consider the managerial talent hypothesis more carefully, we examine CEO turnover before and after deregulation. Using the 125 banks for which CEO data are completely available, we find that 21 banks experienced changes in CEO in the three years

before interstate banking was legislated, resulting in a turnover rate (defined as the percentage of banks where CEO changes occurred divided by the total number of banks where data is available) of 16.8 percent. We attribute this rate as the normal turnover rate due to factors other than the relaxation of restrictive interstate regulation. We find that the number of banks whose CEOs changed in the three years after interstate banking deregulation jumped to 49; an increase of 133 percent. The higher turnover ratio of 39.2 percent also confirms that turnover increased after deregulation, in support of the managerial talent hypothesis. Since interstate banking deregulation occurred at different periods for the banks in the sample, the possibility that increased turnover is due to some macroeconomic trend is remote.

Our estimation strategy is as follows: We estimate panel regressions[12] of compensation on managerial performance (that is, shareholder wealth *SW*) and interstate banking regulation. Compensation is initially defined as salary and bonus, and then broadened to include equity ownership in the bank and stock options. In panel A of Table 4, we control for bank-specific omitted variables. We find shareholder wealth to be positive and statistically significant at the one-percent level, consistent with Jensen and Murphy (1990a), Barro and Barro (1992), Murphy (1985) and Houston and James (1992). This coefficient of 0.129 translates to 1.29 cents increase in a bank CEO's salary and bonus per $1,000 increase in bank shareholder wealth, consistent with the Jensen and Murphy (1990a) result of 1.35 cents change in a firm CEO's salary and bonus per $1,000 increase in firm performance. We then include the dummy variable for restrictive interstate banking regulation *(IS)* as a regressor, and find that it is negatively related to compensation at the one-percent significance level. Including bank assets *(AS)* does not change any of our results (although the statistically significance of the estimated *AS* coefficient suggests that more rapidly growing banks have CEOs with higher salary and bonus packages). We next use the more comprehensive definition of total compensation as our dependent variable

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[12]Given the longitudinal nature of our data we test if panel regressions (the fixed-effects or random-effects models) are more efficient to use in our sample than pooling the data and using OLS. Specifically, we perform an F-test on the restriction of equal intercepts at the group level. This restriction is rejected at the five-percent level for all our specifications, suggesting that the fixed-effects model does better than running OLS on the pooled data. We also conduct Breusch and Pagan's (1980) Lagrange multiplier test and find that the random-effects model also does better than OLS on the pooled data. We test which of these two panel estimation techniques (fixed-effects or random-effects) should we use by conducting Hausman and Taylor's (1981) specification test. Using the Wald criterion, they suggest that the covariance of an efficient estimator with its difference from an inefficient estimator, is zero. We find evidence in support of the fixed-effects procedure over the random-effects procedure. Accordingly, we always use the fixed-effects technique.

and find that shareholder wealth has a larger coefficient and is still positively related to compensation. The interstate banking dummy variable *IS* is still negatively related to compensation. These results support the managerial talent hypothesis, wherein restrictive banking environments have CEOs with lower levels of compensation.

It is certain that the higher levels of compensation in deregulated banking environments is due partially to a time trend, since most of the states were without interstate banking in 1980, and had converted to interstate banking by 1989. We allow for this possibility by estimating a fixed-effects model where the intercept term not only includes bank-specific effects but year dummies. The results of this experiment are presented in panel B of Table 4. We find that none of our results changed dramatically, although the t-statistics associated with our variables decreased. However, we find that fast-growing banks still have a positive relationship to their CEO's salary and bonus levels but not to their CEO's total compensation.

In the tests describes thus far, we used bank effects as our group stratification variable, allowing us to control for omitted variables that are specific to the bank. This procedure ignores the fact that different CEOs might have managed the bank over the sample period, so that the calculated mean differences in compensation abstract from the differences between the old and new CEOs. Accordingly, we re-estimate our previous model controlling for CEO-specific omitted variables. We use the sample (described in Table 3) in which there were no CEO changes three years before and after interstate banking was deregulated. This allows us to get sufficient number of years for each CEO, resulting in a sample of 55 bank CEOs. We re-estimate the specifications reported in Table 4, the results of which are given in Table 5. These results suggest that shareholder wealth is still positively related to compensation. In addition, the presence of restrictive interstate banking regulation is negatively and significantly related to compensation when we control for CEO-specific effects. Introducing year dummies changes none of our results when compensation is defined as salary and bonus. When we use total compensation as the dependent variable, the estimated coefficients on interstate banking dummies remain negative and are precisely estimated.

Next, we estimate the effect of loosening restrictive interstate banking laws on the

relationship between CEO compensation and bank performance. To do this, we construct an interaction variable between shareholder wealth and the dummy for restrictive interstate banking regulation. The results of this experiment are presented in Table 6 (controlling for bank-specific omitted variables) and Table 7 (controlling for CEO-specific omitted variables).

Shareholder wealth remains positively related to compensation, whether compensation is defined as salary and bonus, or defined as total compensation. Moreover, the interaction term between shareholder wealth and restrictive interstate banking regulation is negative and statistically significant. This result is robust to a specification in which year dummies are included. When we control for CEO-specific omitted variables, we find that the negative effect of restrictive interstate banking regulation on the compensation-performance relationship still holds.[13] Consequently, we find evidence that deregulating restrictive interstate banking legislation strengthens the relationship between compensation and performance.

To summarize, we find evidence that higher levels of compensation, higher turnover, and higher pay-performance sensitivities accompanying the deregulation of restrictive interstate banking legislation, consistent with the managerial talent hypothesis. These results of a stronger compensation-performance relationship in deregulated banking environments are inconsistent with the predictions of the "risk-differential hypothesis" described in Section 2.

Effect of asset size on CEO compensation

To test whether compensation is related to asset size, all other things being equal, we obtained the fixed-effects estimators from our previous estimation procedures. We do not choose specifications in which *AS* already appears as an regressor so as to avoid any spurious correlations. We also use the fixed-effects estimators that are constant for each bank, or constant for each CEO, but not include year dummies. The relevant subset of our specifications that we use is presented in the first column of Table 8. The average asset

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[13]We also estimated alternative specifications that included both the regulation variable *(IS)* and the interaction of shareholder wealth with regulation variable *(SW * IS)*. In many such specifications, the interaction term is imprecisely estimated, suggesting that the regulation variable may be more important than the interaction variable.

size of a bank during the sample period is then regressed on the intercept term obtained from the fixed-effects estimation. The results of this experiment are given in Table 8.

We find strong evidence that asset size is related to compensation, *ceteris paribus*, whether compensation is defined as salary and bonus or total compensation. These results are consistent with the hierarchal hypothesis of Rosen (1982), wherein larger firms have senior executives whose managerial productivity of actions is magnified over a bigger scale of operations. The explanatory power of bank asset size is much higher in explaining variations in compensation when compensation includes only salary and bonus, and not other performance-enhancing components such as equity ownership and stock options.

6. Conclusions

The business press and the legislative process have focused much attention on the "excessive" pay of CEOs. Indeed, many proposals have been made to introduce regulation limiting CEO pay. In contrast, Jensen and Murphy (1990a, 1990b) have observed that the lack of any large correlation between pay and performance can be attributed to some form of implicit regulation (*i.e.*, the political forces present in the public sector and in organizations that truncate the upper tail of the compensation distribution which should be awarded to exceptional managers). They suggest that to align managerial incentives with shareholders' interests, caps on managerial salaries should not be considered; the pay-performance sensitivity should be enhanced to properly reward the better-performing managers.

Using the banking industry, in which interstate regulations allow relatively straight-forward identification of varying corporate control environments, we examine panel data on 147 banks over the decade of the 1980s. We find both higher levels of CEO compensation and a stronger compensation-performance relationship in competitive corporate control environments (in which interstate banking is permitted) than for CEOs in environments in which interstate banking is not permitted. This result is robust to controlling for omitted variables at the CEO-specific or bank-specific level. In addition, we find that CEO turnover increases substantially after interstate banking deregulation. While such results must be interpreted with caution, they are consistent with the idea that restricting pay levels of chief executive officers would reduce the effectiveness of a well-functioning managerial labor market and its associated compensation structure to attract talented managers to challenging careers. We also find evidence that the size of the

bank is positively related to the level of compensation.

In future work, we plan to examine family-controlled banks and the differences in CEO compensation of these banks from our current sample. However, such an analysis requires data on much smaller banks which might or might not be traded. Consequently, shareholder performance measures that involve modifying accounting data would likely be appropriate.

Table 1
Banks in the sample, the state in which they are located, and the year the state changed its
interstate banking legislation

Name of Bank	State	Year[a]	Name of Bank	State	Year[a]
Affiliated Bancshares Colorado Inc.	Colorado	1988	Equimark Corp.	Pennsylvania	1986
Ameritrust Corp.	Ohio	1985	Equitable Bancorp	Maryland	1985
Amsouth Bancorp	Alabama	1987	Fifth Third Bancorp	Ohio	1985
Arizona Commerce Bank	Arizona	1986	First Alabama Bancshares	Alabama	1987
B B & T Financial Corp.	N. Carolina	1985	First American Corp.	Tennessee	1985
BSD Bancorp	California	1987	First Bancorp of Ohio	Ohio	1985
Baltimore Bancorp	Maryland	1985	First Bank Systems Inc.	Minnesota	1986
Banc One Corp.	Ohio	1985	First Chicago Corp.	Illinois	1984
BancOklahoma Corp.	Oklahoma	1987	First Citizens Bancshare Inc.	N. Carolina	1985
Bancorp Hawaii Inc.	Hawaii	1988	First City Bancorp Texas Inc.	Texas	1987
BancTexas Group South	Texas	1987	First Commerce Corp.	Louisiana	1987
Bank of Boston Corp.	Massachusetts	1983	First Empire State Corp.	New York	1982
Bank of New England Corp.	Massachusetts	1983	First Federal Bank	Alabama	1987
Bank of New York Inc.	New York	1982	First Fidelity Bancorp	New Jersey	1986
Bank of San Francisco Holding Co.	California	1987	First Florida Banks Inc.	Florida	1985
Bank South Corp.	Georgia	1985	First Hawaiian Inc.	Hawaii	1988
BankAmerica Corp.	California	1987	First Interstate Bancorp	California	1987
Bankers Trust	New York	1982	First Maryland Bancorp	Maryland	1985
Barnett Banks Inc.	Florida	1985	First National Cincinnati Corp.	Ohio	1985
Bay Banks Inc.	Massachusetts	1983	First National Corp.	California	1987
Boatmens Bancshares Inc.	Missouri	1986	First of America Bancorp	Michigan	1986
C B & T Bancshares	Georgia	1985	First Pennsylvania Corp.	Pennsylvania	1986
C V B Financial Corp.	California	1987	First Republic Bancorp	Texas	1987
Central Fidelity Banks Inc.	Massachusetts	1983	First Security Corp.	Utah	1984
Chase Manhattan Corp.	New York	1982	First Tennessee National Corp.	Tennessee	1985
Chemical Banking Corp.	New York	1982	First Union Corp.	N. Carolina	1985
Citicorp	New York	1982	First Virginia Banks Inc.	Virginia	1985
Citizens First Bancorp	New Jersey	1986	First Wachovia Corp.	N. Carolina	1985
Citizens Trust Bank	Virginia	1985	First Wisconsin Corp.	Wisconsin	1987
Citizens & Southern Corp.	Georgia	1985	Fleet Financial Group Inc.	Rhode Island	1984
City National Corp.	California	1987	Florida National Banks	Florida	1985
City Trust Bancorp	Connecticut	1983	Fourth Financial Corp.	Kansas	1989
Colorado National Bancshares	Colorado	1988	Hibernia	Louisiana	1987
Comerica Corp.	Michigan	1986	HUBCO	New Jersey	1986
Commerce Bancshares	Missouri	1986	Huntington Bancshares Inc.	Ohio	1985
Commercial Bancshares Inc.	New Jersey	1986	Indiana National Corp.	Indiana	1986
Community Nat'l Bank & Trust	New York	1982	Interchange Financial	New Jersey	1986
Continental Bancorp	Illinois	1984	International Bank	D. Columbia	1985
Corestates Financial Corp.	Pennsylvania	1986	J.P. Morgan & Co.	New York	1982
Crestar Financial Corp.	Virginia	1985	Key Corp	New York	1982
Cullen Frost Bankers Inc.	Texas	1987	La Jolla Bancorp	California	1987
Dauphin Deposit Corp.	Pennsylvania	1986	Landmark Bancshares Corp.	Missouri	1986
Deposit Guaranty Corp.	Mississippi	1988	Liberty National Bancorp	Kentucky	1984
Dominion Bancshares	Virginia	1985	M N C Financial Inc.	Maryland	1985
Eldorado Bancorp	California	1987	Manufacturers Nat'l Corp.	Michigan	1986

(continued)

Table 1 *(continued)*

Name of Bank	State	Year[a]	Name of Bank	State	Year[a]
Marshall & Ilsley Corp.	Wisconsin	1987	Security Pacific Corp.	California	1987
Mellon Bancorp	Pennsylvania	1986	Shawmut National Corp.	Connecticut	1983
Mercantile Bancorp Inc.	Missouri	1986	Signet Banking Corp.	Virginia	1985
Mercantile Bancshares Corp.	Maryland	1985	S. Carolina National Corp.	S. Carolina	1986
Merchants Bank	New York	1982	Southeast Banking Corp.	Florida	1985
Merchants National Corp.	Indiana	1986	Southern National Corp.	N. Carolina	1985
Meridian Bancorp	Pennsylvania	1986	Southtrust Corp.	Alabama	1987
Michigan National Corp.	Michigan	1986	Southwest Bancorp	California	1987
Midlantic Corp.	New Jersey	1986	Sovran Financial Corp.	Virginia	1985
Moore Financial Group	Idaho	1985	Standard Federal Bank	Michigan	1986
Multibank Financial Corp.	Massachusetts	1983	State Street Boston Corp.	Massachusetts	1983
N B D Bancorp	Michigan	1986	Sterling Bancorp	New York	1982
NCNB Corp.	N. Carolina	1985	Suntrust Banks Inc.	Georgia	1985
National Bancshares Corp.	Texas	1987	Texas American Bancshares Inc.	Texas	1987
National City Corp.	Ohio	1985	Texas Commerce Bancshares	Texas	1987
North Fork Corp.	New York	1982	Toledo Trust Corp.	Ohio	1985
Northeast Bancorp Inc.	Connecticut	1983	U J B Financial Corp.	New Jersey	1986
Northern Trust Corp.	Illinois	1984	United Banks Colorado	Colorado	1988
Old Kent Financial Corp.	Michigan	1986	United Missouri Bancshares Inc.	Missouri	1986
P N C Financial Corp.	Pennsylvania	1986	United States Bancorp	Oregon	1986
Pacific Western Bancshares	California	1987	United States Trust Corp.	New York	1982
Penn Bancorp	Pennsylvania	1986	University Bank	Massachusetts	1983
Premier Bancorp	Louisiana	1987	Valley National Corp.	Arizona	1986
Puget Sound Bancorp	Washington	1987	Wells Fargo & Co.	California	1987
Rainier Bancorp	Washington	1987	West America Bancorp	California	1987
Republic NY Corp.	New York	1982	Westlands Diversified Bancorp	California	1987
Riggs National Corp.	D. Columbia	1985	Worthen Banking Corp.	Arkansas	1989
Santa Monica Bank	California	1987	Zions Bancorp	Utah	1984
Seattle Bank	Washington	1987			

[a] *Source:* Golembe and Holland (1986) and Amel (1991).

Table 2

Sample averages of components of CEO compensation and tests for differences in these components before and after interstate banking was legislated. Sample consists of 147 banks from 1980 to 1989. All variables are measured in thousands of 1989 dollars.

Compensation component	Before interstate	After interstate	t-statistic for differences
Salary and bonus	393.35	551.80	$(-10.32)^a$
Equity ownership	3489.50	5816.60	$(-2.70)^a$
Options granted	133.52	190.28	$(-2.09)^b$
Percentage of total compensation that is from performance related compensation components	69.08%	76.57%	$(-2.70)^a$

[a]Significant at the 1% level.
[b]Significant at the 5% level.

Table 3
CEO turnover before and after interstate banking was legislated

Total number of banks in sample	147
Banks for which data on the number of years the bank executive has been CEO are missing	22
Total number of banks for which data on the number of years executive has been CEO are available	125
Number of banks for which CEO changes occurred in the three years after inter- state legislation was introduced	49
Number of banks for which CEO changes occurred in the three years before inter- state legislation was introduced	21
Number of banks for which CEO changes did not occur in the three years before and after interstate legislation was introduced	55
Turnover ratio[a] in the three years after interstate legislation was introduced	39.2%
Turnover ratio[a] in the three years before interstate legislation was introduced	16.8%
Number of banks with no CEO turnover in the three years before and after inter- state legislation was introduced	44.0%

[a]Turnover ratio is defined as the percentage of banks in which CEO changes occurred divided by the total number of banks where data are available.

Table 4

Bank-specific (fixed-effects) estimation of the effect of interstate regulation on the level of CEO compensation for 147 banks during 1980 to 1989.

The dependent variable is CEO compensation, defined as the dollar value of salary and bonus in the first three columns, and the dollar value of salary, bonus, equity owned in the bank, and options granted in the last three columns. All CEO compensation is expressed in thousands of dollars. Shareholder wealth is defined as the stock returns earned during the year, times the price at the beginning of the year, times the number of shares outstanding, and is expressed in millions of dollars. The asset size of the bank is expressed in hundreds of millions of dollars. All monetary variables are reported in constant (1989) dollars. t-statistics are in parentheses.

Regressors	Panel A : Controlling for bank-specific omitted variables					
	(1)	(2)	(3)	(4)	(5)	(6)
Shareholder wealth *(SW)*	0.129 $(6.323)^a$	0.119 $(6.763)^a$	0.124 $(7.064)^a$	2.912 $(3.697)^a$	2.834 $(3.645)^a$	2.886 $(3.714)^a$
Dummy equal to unity for restrictive interstate regulation *(IS = 1)*	—	-177.50 $(-19.016)^a$	-169.32 $(-17.835)^a$	—	-2173.8 $(-5.013)^a$	-1988.1 $(-4.465)^a$
Asset size *(AS)*	—	—	0.115 $(3.981)^a$	—	—	2.845 $(1.799)^c$
$\bar{R}^2$	0.566	0.676	0.681	0.794	0.799	0.800

Regressors	Panel B : Controlling for bank-specific omitted variables and year-effects[d]					
	(1)	(2)	(3)	(4)	(5)	(6)
Shareholder wealth *(SW)*	0.099 $(5.724)^a$	0.099 $(5.692)^a$	0.101 $(5.848)^a$	2.153 $(2.565)^a$	2.133 $(2.541)^b$	2.166 $(2.576)^a$
Dummy equal to unity for restrictive interstate regulation *(IS = 1)*	—	-23.074 $(-1.987)^b$	-22.796 $(-1.697)^c$	—	-829.98 $(-2.056)^b$	-825.33 $(-1.991)^b$
Asset size *(AS)*	—	—	0.056 $(2.032)^b$	—	—	1.188 (0.731)
$\bar{R}^2$	0.730	0.731	0.732	0.799	0.801	0.802

[a]Significant at the 1% level.
[b]Significant at the 5% level.
[c]Significant at the 10% level.
[d]The estimated year-effects are not reported.

Table 5
CEO-specific (fixed-effects) estimation of the effect of interstate regulation on the level of CEO compensation for 55 banks during 1980 to 1989.

The dependent variable is CEO compensation, defined as the dollar value of salary and bonus in the first three columns, and the dollar value of salary, bonus, equity owned in the bank, and options granted in the last three columns. All CEO compensation is expressed in thousands of dollars. Shareholder wealth is defined as the stock returns earned during the year, times the price at the beginning of the year, times the number of shares outstanding, and is expressed in millions of dollars. The asset size of the bank is expressed in hundreds of millions of dollars. All monetary variables are reported in constant (1989) dollars. t-statistics are in parentheses.

Regressors	Panel A : Controlling for CEO-specific omitted variables					
	(1)	(2)	(3)	(4)	(5)	(6)
Shareholder wealth *(SW)*	0.138 $(3.026)^a$	0.124 $(3.705)^a$	0.121 $(3.654)^a$	6.505 $(3.161)^a$	6.513 $(3.198)^a$	6.447 $(3.165)^a$
Dummy equal to unity for restrictive interstate regulation *(IS = 1)*	—	-191.20 $(-14.188)^a$	-182.25 $(-13.098)^a$	—	-2594.5 $(-2.985)^a$	-2296.0 $(-2.533)^b$
Asset size *(AS)*	—	—	0.115 $(2.395)^b$	—	—	3.775 (1.155)
$\bar{R}^2$	0.655	0.713	0.716	0.824	0.828	0.828

Regressors	Panel B : Controlling for CEO-specific omitted variables and year-effects[d]					
	(1)	(2)	(3)	(4)	(5)	(6)
Shareholder wealth *(SW)*	0.101 $(2.999)^a$	0.096 $(2.593)^a$	0.088 $(2.712)^a$	5.339 $(2.351)^b$	5.326 $(2.349)^b$	5.334 $(2.351)^a$
Dummy equal to unity for restrictive interstate regulation *(IS = 1)*	—	-22.897 $(-4.356)^a$	-41.245 $(-2.018)^b$	—	-2123.1 $(-1.775)^c$	-2022.8 $(-1.662)^c$
Asset size *(AS)*	—	—	0.006 (1.435)	—	—	2.420 (0.690)
$\bar{R}^2$	0.700	0.702	0.766	0.816	0.817	0.816

[a]Significant at the 1% level.
[b]Significant at the 5% level.
[c]Significant at the 10% level.
[d]The estimated year-effects are not reported.

Table 6

Bank-specific (fixed-effects) estimation of the effect of interstate regulation on the relationship between CEO compensation and bank performance for 147 banks during 1980 to 1989.

The dependent variable is CEO compensation, defined as the dollar value of salary and bonus in the first two columns, and the dollar value of salary, bonus, equity owned in the bank, and options granted in the next two columns. All CEO compensation is expressed in thousands of dollars. Shareholder wealth is defined as the stock returns earned during the year, times the price at the beginning of the year, times the number of shares outstanding, and is expressed in millions of dollars. The asset size of the bank is expressed in hundreds of millions of dollars. All monetary variables are reported in constant (1989) dollars. t-statistics are in parentheses.

Regressors	Panel A : Controlling for bank-specific omitted variables			
	(1)	(2)	(3)	(4)
Shareholder wealth *(SW)*	0.169	0.175	3.364	3.377
	$(7.967)^a$	$(8.422)^a$	$(4.033)^a$	$(4.064)^a$
Shareholder wealth *(SW)* times the dummy for restrictive interstate regulation *(IS)*	-0.286	-0.271	-3.088	-3.001
	$(-5.900)^a$	$(-5.707)^a$	$(-7.636)^a$	$(-6.751)^a$
Asset size *(AS)*	–	0.219	–	4.321
		$(6.876)^a$		$(2.775)^a$
$\bar{R}^2$	0.579	0.597	0.794	0.795

Regressors	Panel B : Controlling for bank-specific omitted variables and year-effects[d]			
	(1)	(2)	(3)	(4)
Shareholder wealth *(SW)*	0.104	0.107	2.289	2.321
	$(5.670)^a$	$(5.829)^a$	$(2.566)^b$	$(2.598)^a$
Shareholder wealth *(SW)* times the dummy for restrictive interstate regulation *(IS)*	-0.135	-0.134	-2.547	-2.432
	$(-2.046)^b$	$(-1.835)^c$	$(2.650)^a$	$(2.321)^b$
Asset size *(AS)*	–	0.056	–	1.207
		$(2.061)^b$		(0.742)
$\bar{R}^2$	0.730	0.731	0.799	0.799

[a]Significant at the 1% level.
[b]Significant at the 5% level.
[c]Significant at the 10% level.
[d]The estimated year-effects are not reported.

Table 7

CEO-specific (fixed-effects) panel estimation of the effect of interstate regulation on the
relationship between CEO compensation and bank performance for 55 banks during 1980 to 1989.

The dependent variable is CEO compensation, defined as the dollar value of salary and bonus in
the first two columns, and the dollar value of salary, bonus, equity owned in the bank, and
options granted in the next two columns. All CEO compensation is expressed in thousands of
dollars. Shareholder wealth is defined as the stock returns earned during the year, times the price
at the beginning of the year, times the number of shares outstanding, and is expressed in millions
of dollars. The asset size of the bank is expressed in hundreds of millions of dollars. All monetary
variables are reported in constant (1989) dollars. t-statistics are in parentheses.

Regressors	Panel A : Controlling for CEO-specific omitted variables			
	(1)	(2)	(3)	(4)
Shareholder wealth (SW)	0.159 $(3.929)^a$	0.150 $(3.820)^a$	6.708 $(3.204)^a$	6.355 $(3.348)^a$
Shareholder wealth (SW) times the dummy for restrictive interstate regulation (IS)	-0.413 $(-4.190)^a$	-0.378 $(-3.934)^a$	-2.653 $(-5.315)^a$	-2.717 $(-5.289)^a$
Asset size (AS)	—	0.269 $(4.985)^a$	—	5.921 $(1.872)^c$
$\bar{R}^2$	0.596	0.617	0.824	0.825

Regressors	Panel B : Controlling for CEO-specific omitted variables and year-effects[d]			
	(1)	(2)	(3)	(4)
Constant	427.78 $(39.32)^a$	436.37 $(66.129)^a$	7084.6 $(14.699)^a$	6818.1 $(12.122)^a$
Shareholder wealth (SW)	0.128 $(2.339)^b$	0.091 $(2.728)^a$	5.305 $(2.309)^b$	5.104 $(2.126)^b$
Shareholder wealth (SW) times the dummy for restrictive interstate regulation (IS)	-0.148 $(-2.100)^b$	-0.142 $(-1.998)^b$	-2.615 $(-2.103)^b$	-2.322 $(-1.999)^b$
Asset size (AS)	—	0.025 (0.072)	—	2.916 (0.834)
$\bar{R}^2$	0.755	0.731	0.826	0.827

[a]Significant at the 1% level.
[b]Significant at the 5% level.
[c]Significant at the 10% level.
[d]The estimated year-effects are not reported.

Table 8
OLS regression of the fixed-effects on bank asset size.

The dependent variable is the estimated fixed-effects for each bank in Panel A, and for each CEO in Panel B. The independent variable is the average asset size of the bank, and is expressed in hundreds of millions of dollars. All monetary variables are reported in constant (1989) dollars. t-statistics are in parentheses.

Specification	Panel A : Controlling for bank-specific omitted variables					
	constant	AS	$\bar{R}^2$	constant	AS	$\bar{R}^2$
Columns 1, 4 Panel A, Table 4	37.477 $(10.138)^a$	0.859 $(24.457)^a$	0.332	595.64 $(3.515)^a$	5.619 $(3.198)^a$	0.123
Columns 2, 5 Panel A, Table 4	46.673 $(10.504)^a$	0.978 $(23.173)^a$	0.309	709.61 $(4.112)^a$	7.023 $(4.590)^a$	0.189
Columns 1, 3 Panel A, Table 6	38.037 $(10.132)^a$	0.868 $(24.347)^a$	0.330	602.33 $(3.551)^a$	5.717 $(3.800)^a$	0.127

Specification	Panel B : Controlling for CEO-specific omitted variables					
	constant	AS	$\bar{R}^2$	constant	AS	$\bar{R}^2$
Columns 1, 4 Panel A, Table 5	32.238 $(6.381)^a$	1.937 $(22.335)^a$	0.501	780.08 $(2.041)^b$	17.923 $(2.902)^a$	0.167
Columns 2, 5 Panel A, Table 5	42.746 $(6.629)^a$	2.229 $(20.128)^a$	0.500	923.27 $(2.386)^b$	21.706 $(3.471)^a$	0.246
Columns 1, 3 Panel A, Table 7	32.798 $(6.332)^a$	2.021 $(22.723)^a$	0.510	783.80 $(2.049)^b$	18.498 $(2.993)^a$	0.179

[a]Significant at the 1% level.
[b]Significant at the 5% level.
[c]Significant at the 10% level.

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