Banking Industry Deregulation and CEO Incentives:

Evidence from Bank CEO Turnover

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April 2015

Abstract

The recent financial crisis has led to unprecedented interest and debate about whether risk-taking incentives provided to bank CEOs played a role in the crisis. We add to this debate by examining the relation between bank CEO turnover and performance and whether this relation has been affected by banking deregulation. We argue that bank CEOs are more willing to engage in risky operations to exploit the growth opportunities arising from deregulation if they are less likely to be penalized for poor performance. Consistent with this expectation, we find that bank CEO turnover is significantly less sensitive to performance in the post-deregulation period. In addition, we find that the reduction in turnover-performance sensitivity primarily exists in large banks, which are best positioned to take advantage of growth opportunities, and in banks that adopt more aggressive business policies in response to deregulation. Furthermore, preliminary results indicate incentives deriving from bank CEO compensation and turnover policies are complementary.

Key words: CEO turnover, Deregulation, Risk-Taking

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We thank workshop participants at Bocconi University and Michigan State University for their helpful comments. We are grateful to Zhonglan Dai for sharing CEO turnover data. We appreciate research funding from our respective schools.

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1. Introduction

The banking industry has undergone substantial changes since the late 1970s, largely as the result of deregulation and rapid market developments. Over that period, banks' growth opportunities expanded, and banks entered new markets, both geographic and product. Perhaps not surprisingly, the recent financial crisis has led to questions about the role of banking regulation in corporate governance and the effectiveness of corporate governance in the banking industry. In particular, policy makers and industry analysts have questioned whether the incentive structures in place encouraged excessive risk taking in the banking industry.

Several recent papers have examined the role that bank CEO compensation might have played in the financial crisis. Fahlenbrach and Stulz (2011) study bank CEOs' equity incentives and conclude that the recent crisis cannot be attributed to a lack of alignment between bank CEO incentives and shareholder value. In contrast, DeYoung et al. (2013) find that CEOs responded to increases in contractual risk-taking incentives by taking on riskier business policies, and the findings in Cheng et al. (2014) indicate that executives were rewarded for taking excessive risks.

We add to this debate by examining the role of banking deregulation in shaping CEO risk-taking incentives through another corporate governance mechanism – CEO turnover decisions. We investigate whether the incentives embedded in CEO turnover decisions are structured to promote risk taking, and whether this relation has been affected by the trend toward deregulation in the banking industry. We argue that CEOs' incentives to take risk depend not only on the compensation rewards, but also on other employment-related performance

consequences (see Houston and James 1995). A high probability of being fired in the case of poor performance can discourage risk taking. As a result, boards that want to encourage the firm's CEO to take risks can provide incentives through turnover policies. If bank boards respond to the growth opportunities arising from deregulation via turnover policies that promote risk taking, we expect to find lower CEO turnover in banks, and lower sensitivity of turnover to poor performance. Therefore, we examine the relation between CEO turnover and performance in the banking industry and whether that relation is affected by banking deregulation. We also consider CEO turnover decisions in nonbank firms, using them as a benchmark to control for other economic and regulatory forces that might affect CEO turnover decisions in general.

Our empirical tests use CEO turnover data from Engel et al. (2003) and Bushman et al. (2010). The combined samples cover the period from 1974-2005 and identify CEO turnovers for banks and nonbanks. As it is not always possible to determine whether a turnover was forced, we conduct our analyses using two measures of turnover: *Turn* (all CEO turnovers) and *Forced* (those turnovers that can be identified as forced). We identify banking firms as those with Bank Compustat data available, and nonbank firms as those with one-digit SIC codes other than 6. Our performance measures are industry-adjusted stock return and industry-adjusted change in ROA.

We first examine CEO turnover-performance sensitivity, running the regressions separately for banks and nonbank firms. When we examine the entire sample period, we do not find a significant difference between the turnover-performance sensitivity of banks and that of nonbank firms. We then allow the turnover-performance relation to differ before and after the deregulation period, consistent with the idea that incentives for risk taking may change as the industry is deregulated. Focusing on the earnings measure, we find that turnover is significantly less sensitive to performance in the post-deregulation period for banks, but not for nonbank firms.

When we allow the coefficients on positive and negative performance to differ, we find that this effect is most evident when accounting performance is negative. These results are consistent with an increased incentive for risk taking embedded in bank CEO turnover decisions as growth opportunities increased.

We next investigate whether the post-deregulation decrease in turnover-performance sensitivity for bank CEOs varies predictably in the cross-section. DeYoung et al. (2013) find that CEOs at large banks were most responsive to the contractual incentives for risk taking after deregulation. This result is in line with earlier work suggesting that small banks were the beneficiaries of more stringent regulation and large banks were better able to take advantage of the growth opportunities arising from deregulation (e.g., Economides, Hubbard and Palia 1996, Strahan 2003). Given these findings, we expect that larger banks are more likely to have incentive policies that encourage CEOs to exploit growth opportunities after deregulation. Consistent with this expectation, we find that larger banks display lower turnover-performance sensitivity in the post-deregulation era.

Our second cross-sectional prediction takes an ex-post perspective. We conjecture that if deregulation leads some bank boards to adopt turnover policies that encourage risk taking, then banks that have done so are likely to demonstrate higher risk taking after deregulation. Accordingly, we expect these banks to have lower turnover-performance sensitivity following deregulation. We regress return volatility on four bank-specific measures that capture the riskier components of banking operations in the post-deregulation era and use the predicted return volatility as an indicator of risky policies. The results of this analysis suggest that turnover-performance sensitivity is lower after deregulation when bank risk taking is higher.

Our final tests examine the relation between the incentives arising from bank CEO compensation contracts and the incentives embedded in turnover policies for bank CEOs. Partitioning the sample according to high or low pay-risk sensitivity (i.e., vega), we find that the firms with high equity incentives for risk taking also have low turnover-performance sensitivity in the post-deregulation period. This result suggests that the incentives deriving from bank CEO compensation and turnover are complementary.

Overall, our results suggest that CEO turnover policies in banking firms were structured to provide incentives for risk taking. Banks display lower sensitivity of CEO turnover to performance in the post-deregulation period. This relation does not hold for nonbank firms. Further, larger banks—those best positioned to take advantage of post-deregulation growth opportunities—and banks that adopt riskier business policies in response to deregulation had lower CEO turnover-performance sensitivity after deregulation. Finally, we provide some initial evidence suggesting that the incentives embedded in CEO turnover policies appear to complement the incentives arising from CEO compensation contracts in the post-deregulation period. While our sample period predates the financial crisis, our results have implications for the debate about whether bank CEO incentives were a precipitating factor in the crisis. Many observers have suggested that CEOs' incentives for excessive risk taking played an important role in the financial crisis, and our findings indicate that turnover policies are another incentive mechanism for encouraging risk taking in the post-deregulation banking environment.

2. Background and Hypothesis Development

2.1 Background

Since the late 1970s, the banking industry has undergone a trend towards deregulation, resulting in a banking regulation structure very different from the structure in place during the 1930s. The banking regulation structure in the 1930s was a result of the Great Depression, which imposed strict restrictions on banks' business activities, including products and geographic location. The evolution in the industry has resulted from fast-paced technology and market developments, and major federal and state regulations. We provide a brief summary of the key changes brought about by deregulation of the banking industry below.[1]

First, deregulation removed the restrictions on prices banks charge in both borrowing and lending activities. On the borrowing side, the Federal Reserve's Regulation Q, which imposed ceilings on bank deposit interest rates, was in effect until the early 1980s, when the passage of Depository Institutions Deregulation and Monetary Control Act of 1980 (DIDMCA) gradually phased out most deposit rate ceilings. On the lending side, the 1978 Marquette decision by the Supreme Court undermined the importance of state usury laws that had historically restricted the rates banks could charge.[2] This was particularly important for credit card lending, as these activities are not geographically based. As a result, states gradually removed interest rate ceilings, resulting in a rapid expansion of credit card businesses.[3]

Second, deregulation eliminated the restrictions on geographic locations where banks could operate. Historically, states had regulatory authority over banks, and states had imposed numerous restrictions on banks' geographic expansion, including restrictions on both interstate

[1] Our discussion is based on Carnell, Macey and Miller (2008), Sherman (2009), and Kroszner and Strahan (2013).
[2] The court ruled that Section 85 of the National Banking Act permitted a bank to charge up to the maximum interest rate allowed in its *home state*. As a consequence, the location of the borrower no longer mattered.
[3] At the same time, Congress passed the Garn-St. Germain Depository Institutions Act in 1982, which authorized thrifts to engage in commercial loans up to 10% of assets and to offer a new account that competed directly with money market mutual funds. These new expanded powers allowed thrifts to act more like banks and less like specialized mortgage lending institutions.

banking and branching.[4] The first move toward change took place in 1978, when Maine passed a law allowing out-of-state bank holding companies (BHCs) to enter the state if banks from Maine were allowed to enter those states. However, no state responded until 1982, when similar laws were passed in Alaska and New York. Subsequently, other states also responded by passing similar laws. Eventually, full interstate banking was achieved with the passage of the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994, which effectively permitted banks and holding companies to enter another state without permission.

Third, deregulation removed the restrictions prohibiting commercial banks' involvement in underwriting and insurance activities. These restrictions originated with the passage of the Banking Act of 1933 (the Glass-Steagall Act) but began to be relaxed in the 1980s. In 1987, the Federal Reserve derived the "engaged principally" clause (under Section 20 of the Banking Act), permitting BHC subsidiaries to underwrite certain "ineligible securities" if the revenue from such activities was below 5% of the subsidiary's gross revenue.[5] Subsequently, the Federal Reserve expanded the securities that "Section 20 subsidiaries" could underwrite to include corporate debt and equity securities (January 1989), and also increased the revenue limitation to 10% (September 1989) and 25% (December 1996). At the same time, several OCC rulings loosened the limitations on national banks' involvement in the insurance business. Congress eventually passed the Gramm-Leach-Bliley Act (GLBA), which completely dismantled the banking regulatory structure of Glass-Steagall, in 1999. GLBA effectively permitted Financial Holding Companies (FHCs) to have affiliates engaged in banking, insurance, and securities activities.

[4] States collected fees for granting bank charters, and levied taxes on these banks. However, states did not receive charter fees from banks chartered in other states. This provided strong incentives for states to prohibit interstate banking.

[5] These securities include municipal revenue bonds, commercial paper, and mortgage-related securities.

A large literature explores the economic consequences of banking deregulation. In general, the empirical evidence suggests that banking deregulation is associated with fewer but larger and more diversified banks, improvements in bank operating efficiency, reductions in bank operating costs, and better pricing of bank services for consumers (see, for example, Jayaratne and Strahan 1998; Black and Strahan 2001; Kroszner and Strahan 2013).

2.2 Hypothesis Development

Our objective is to investigate whether the incentives embedded in bank CEO turnover decisions are structured to promote risk taking, and whether this relation has been affected by the trend toward deregulation in the banking industry. In developing our hypotheses, we begin by discussing important features of bank governance and prior work on incentives in the banking industry.

Two key features of banks set bank governance apart from that of nonfinancial firms. First, compared with nonfinancial firms, banks have multiple stakeholders. Mehran, Morrison, and Shapiro (2011) note that financial institutions usually have over 90% debt in their capital structure, so debtholders are major stakeholders. Shareholders' interests may diverge from those of debtholders, especially with respect to risk taking: shareholders may prefer risk taking to a certain extent, while debtholders prefer low volatility.

This risk-shifting agency problem is particularly relevant for banks for two reasons. First, banks are in the business of taking risks, and their business is usually opaque and complex. As Levine (2004) describes, "Banks can alter the risk composition of their assets more quickly than most non-financial industries, and banks can readily hide problems by extending loans to clients that cannot service previous debt obligations." Second, banks do not face the same intensity of

creditor monitoring that other borrower firms do. Creditors of most firms (the banks themselves) monitor their borrowers' risk taking, but an important class of bank creditors—insured depositors—does not monitor banks because their claims are insured by the government. The government is effectively a key creditor of insured banks, and government regulators are tasked with constraining bank risk taking. Government regulators, however, may not have the same monitoring incentives as other creditors. Deposit insurance therefore generates moral hazard for banks. Given the importance of addressing risk-shifting incentives, corporate governance in banks involves not only aligning managers with shareholders, but also considering the interests of debtholders. John and John (1993) propose that providing managers with compensation structures that have low pay-performance sensitivity might be optimal in highly levered firms such as those in the banking industry.

The second key feature of banks is that they are regulated to a higher degree than nonbank firms. In addition to the restrictions on pricing, geographic location, and business activities mentioned earlier, banks are subject to supervision and monitoring by banking regulators. Banks are required to file detailed regulatory reports to bank regulators on a regular basis, and regulators examine banks' financial condition and their compliance with laws and regulations. Banks are also subject to capital requirements imposed by the authority. It is not clear, however, whether regulatory monitoring substitutes for or complements other corporate governance mechanisms at the bank.

The unique features of the banking industry have given rise to a growing body of research examining corporate governance decisions in banks—in particular, the effects of banks' capital structure on the incentives of their CEOs. Early empirical research on bank CEO incentive structures focuses on the strength of incentives embedded in CEO compensation

contracts. Barro and Barro (1990) find that changes in bank CEO compensation are associated with bank performance measured by stock returns and accounting earnings. However, when compared to CEOs in other industries, John and Qian (2003) document that bank CEOs have lower pay-performance sensitivity, supporting the prediction in John and John's (1993) model. Another line of early empirical research investigates whether bank CEO compensation is structured to promote risk taking. Saunders, Strock and Travlos (1990) find a positive association between bank CEOs' stock ownership and bank risk. In contrast, Houston and James (1995) document that, relative to CEOs in other industries, bank CEOs receive less cash compensation, holder fewer stock options, and have a smaller percentage of total compensation in equity. They also show a positive relation between equity-based incentives and bank charter values, which they interpret as contrary to the hypothesis that bank compensation policies are designed to encourage risk taking.

Deregulation of the banking industry has the potential to affect incentives for risk taking in banks. Keeley (1990) argues that risk-taking incentives from deposit insurance are constrained by access to monopoly rents. Therefore, the lack of competition resulting from the banking regulation structure of the 1930s might explain bank stability during the period from 1940 to 1970. The removal of restrictions on pricing, geographic location, and underwriting activities could have a significant impact on banks' risk taking. The increased competition following deregulation is likely to threaten monopoly rents and could result in greater risk taking to exploit deposit insurance. However, the impact is also likely a function of how banks adapt to the new regulatory environment. Thus far, the empirical evidence on the impact of banking industry deregulation on bank risk taking is mixed. Galloway, Lee and Roden (1997) hypothesize that the market and regulatory developments beginning in the 1980s provided banks with more

incentives to take risk, and find evidence consistent with that hypothesis. On the other hand, Kwan (1997) documents that the securities activities of BHCs are associated with greater risk, but there are also some potential diversification benefits.

Other work on the risk-taking consequences of banking industry deregulation focuses on the incentive structures of bank CEOs. Bank CEOs, as key decision makers, should have a significant impact on banks' business policies. Crawford, Ezzell and Miles (1995) test the hypothesis that bank CEO compensation is more sensitive to performance as a result of banking deregulation, and they find a significant increase in CEO pay-performance sensitivity during the 1982-1988 deregulation period compared to the 1976-1981 regulation period. Hubbard and Palia (1995) reach a similar conclusion using changes in interstate banking regulation as the empirical setting. Hubbard and Palia also find a substantial increase in CEO turnover following state-level deregulation of interstate banking. While they do not examine the relation between performance and CEO turnover, they interpret their collective findings as support for a managerial labor market that matches CEO incentives to the competitiveness of the banking environment.

The severe consequences of the financial crisis of 2007-2008 have prompted additional research into whether and how bank CEO compensation structures affect bank performance and risk taking. Fahlenbrach and Stulz (2011) show that bank CEOs' equity incentives preceding the financial crisis are not associated with banks' performance during the crisis. They conclude that the recent crisis cannot be attributed to a lack of alignment between bank CEO incentives and shareholder value. In contrast, DeYoung et al. (2013) study the relation between business policy decisions and risk-taking incentives from bank CEOs' compensation contracts at large commercial banks between 1994 and 2006. They find that bank CEOs' contractual risk-taking incentives increased substantially at large US commercial banks around 2000, and CEOs

responded to these incentives by taking on more risk. Their findings indicate that the structure of bank CEO compensation may have played a role in the financial crisis through its effects on bank business policies.[6]

Our paper extends the above literature by examining CEO risk-taking incentives through another corporate governance mechanism – CEO turnover decisions. Prior research has largely ignored how the incentives provided through the turnover process affect bank CEO risk taking, with the notable exception of Houston and James (1995). However, their sample covers an earlier time period (1980 through 1990), and they do not investigate the role of banking deregulation in shaping CEO incentives, which is the objective of our study.

We argue that the likelihood of taking risk depends on the rewards for risk taking as well as the managerial consequences of poor performance. CEOs should be more inclined to take risk if there is a lower likelihood of being fired conditional on poor performance. As noted earlier, deregulation expands banks' growth opportunities and allows for more competition. Both effects seem likely to encourage more risk taking. Given DeYoung et al.'s (2013) findings of increased contractual risk-taking incentives following deregulation, we might also expect the incentives embedded in CEO turnover decisions to be structured to promote risk taking. In this case, banking industry deregulation would be associated with an overall reduction in bank CEO turnover-performance sensitivity.

However, DeYoung et al. (2013) also find evidence that some bank boards responded to increased CEO risk taking by moderating CEO compensation incentives, which raises the possibility that risk-taking incentives embedded in CEO replacement decisions were similarly

[6] More recently, this line of research investigates the role of bank culture on risk taking. Cheng, Hong and Scheinkman (2014) hypothesize and find that riskier firms provide higher total pay to compensate for the extra risk borne by CEOs. Fahlenbrach, Prilmeier and Stulz (2012) document that a bank's stock performance during the 1998 crisis explains the stock performance during the 2007-2008 financial crisis, suggesting a bank's risk culture or business model plays a role in poor performance during the crisis.

moderated. Further, banks might adapt to deregulation with different operating and financial decisions. To explore these possibilities, we examine cross-sectional variation in the impact of deregulation on bank CEO turnover-performance sensitivity. First, the results in DeYoung et al. (2013) also suggest that CEOs at larger banks were particularly responsive to compensation incentives. If turnover incentives elicit similar responses, we expect the reduction in CEO turnover-performance sensitivity to be greatest in large banks. Second, banks that respond to the opportunities brought about by deregulation by adopting more aggressive business policies will be more risky post deregulation, and we expect the incentive structure to reflect that additional riskiness. Therefore, the impact of banking industry deregulation on bank CEO turnover-performance sensitivity is likely to be more salient for riskier banks. We partition banks based on proxies for bank riskiness and investigate how the effect of deregulation on CEO turnover-performance sensitivity varies with the risk profile of different banks.

3. Data and Sample

The data in our study come from several sources. We use CEO turnover, CEO age, and tenure data from Engel et al. (2003) and Bushman et al. (2010), with the combined sample covering the period from 1974-2005. Financial accounting and stock return data are drawn from Compustat and CRSP, respectively. In addition, we use Bank Compustat to construct revenue volatility and different risk-taking measures, and ExecuComp to compute pay-risk sensitivity (vega).

We obtain the CEO turnover data from Engel et al. (2003) and Bushman et al. (2010). Using Forbes' annual compensation surveys, Engel et al. (2003) identify potential CEO turnover events from cases where the CEO listed in the survey changes. The sample in Engel et al. (2003)

contains 1,631 unique firms over the period 1974-2000, with 1,813 CEO turnovers and 19,220 firm-year observations in the control sample (i.e., firm-years with no CEO turnover). On the other hand, Bushman et al. (2010) employ Standard & Poor's (S&P) ExecuComp database, and identify a CEO turnover for each year when the designated CEO in ExecuComp changes. Their sample includes 2,455 unique firms over the period 1992-2005, with 2,281 CEO turnovers and 19,124 firm-year observations in the control sample.

Given the differences in data sources used to construct the two CEO turnover samples, not all firms appear in both samples. In order to use the longest sample period possible, we include the 748 firms that have at least two years of data in both the pre- and post-deregulation periods.[7] The initial sample has 16,310 firm-year observations (2,622 observations for banks, and 13,688 for nonbank firms) and 1,627 CEO turnovers spanning the years 1974-2005. After we impose data requirements for returns, earnings, and control variables, the sample is reduced to 14,988 firm-year observations, including 1,526 CEO turnovers. Finally, after removing the 34 CEO turnovers due to CEO death and the 29 CEO turnovers due to a control change, we have a regression sample of 14,925 firm-year observations, with 1,463 CEO turnovers and 13,462 firm-year observations in the control sample. Of the 14,925 firm-year observations, 12,692 are for nonbank firms, and 2,233 are for banks. We impose additional data restrictions in our subsequent cross-sectional analyses. As a result, the number of observations varies across tests.

Both Engel et al. (2003) and Bushman et al. (2010) use Nexus and/or Factiva to search for articles or press releases to determine the reason for each CEO turnover. They identify forced turnovers according to whether the articles suggest that the CEO was forced out. Following their

[7] Although banking industry deregulation is an evolving process, we use the passage of the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 to partition our sample period into the pre- and post-deregulation periods. See section 4 for more details. Further, while the sample requirements induce the usual survivorship bias, the long time period allows us to provide evidence about CEO turnover decisions and the banking industry deregulation process, rather than a single regulatory act.

definitions, we categorize turnovers classified as "fired," "poor performance," "pursue other interests," "policy differences," "legal or scandal," "demoted," "resign under questionable circumstances," and "no reason" as forced. We drop observations where the turnover is due to either CEO death or a merger.[8] Prior studies (Warner et al. 1988; DeFond and Park, 1999) suggest that involuntary turnovers are often presented as retirements in press releases. Therefore, we also classify retirements when the CEO is younger than 60 as forced turnovers (Parrino 1997). Out of the 1,463 CEO turnovers in the regression sample, 356 are classified as forced turnovers.

4. Empirical Design and Results

4.1 CEO Turnover-Performance Sensitivity and Deregulation

Table 1 reports descriptive firm and CEO characteristics for banks and nonbank firms. We also test mean and median differences between banks and nonbank firms. Perhaps not surprisingly, all firm characteristics differ significantly between banks and nonbank firms. Consistent with prior literature, *Size* and *BTM* are significantly higher for banks than nonbank firms. Interestingly, for the whole sample period, rates of both turnover and forced turnover at banks are significantly lower than those at nonbank firms.

To examine bank CEO turnover-performance sensitivity, we start by using the following probit regression. We run the same test for nonbank firms as a benchmark.

$$Prob(Forced/Turn=1) = a_0 + a_1 Return_{t-1} + a_2 \Delta ROA_{t-1} + a_3 Age_t + a_4 Tenure_t + a_5 Size_{t-1} + a_6 BTM_{t-1} + a_7 Firm\_Risk_{t-1} + a_8 Sys\_Risk_{t-1} + \varepsilon \quad (1)$$

The indicator variable *Turn* equals one if there is a CEO turnover, and zero otherwise. The indicator variable *Forced* equals one if the CEO is forced to leave the company, and zero

[8] While merger-related turnovers might be driven by poor performance, they can also follow good performance. We drop these observations to avoid the ambiguity in interpretation.

otherwise. We include control variables to capture factors other than performance that may lead to CEO turnover. *Age* is the age of the CEO. *Tenure* is the number of years the CEO has been in office. *Size* is the log of total assets. *BTM* is book value of assets divided by the market value of assets. Following Bushman et al. (2010), we control for performance risk by including both idiosyncratic risk (*Firm_Risk*) and systematic risk (*Sys_Risk*).[9] *Firm_Risk* is calculated as the standard deviation of residuals from regression of daily stock returns on daily industry median returns and market returns, and *Sys_Risk* is calculated as the standard deviation of the predicted values from regression of daily stock returns on daily industry median returns and market returns. Both variables are calculated over the previous twelve months.

We use two measures of performance in our tests. *Return* is the annual buy-and-hold stock return. *ΔROA* is the change in return on assets, which is measured as pre-tax operating income divided by total assets. Both are industry-adjusted, with industry classifications based on two-digit SIC codes. In an additional test, we include positive and negative prior year performance separately in the regressions, since our hypotheses relate to the turnover consequences of poor performance for bank CEOs.

While we study both accounting and stock performance measures, we focus on the accounting performance measure, *ΔROA*. Hermalin and Weisbach (1998) argue that accounting performance measures are better predictors of management turnover than stock performance because earnings reflect the actions of current management while stock returns reflect both current management and expectations about future management changes. This point is especially relevant for banks because bank leverage is typically very high. The payoff functions for debtholders and depositors are asymmetric; that is, debtholders do not receive additional

[9] Bushman et al. (2010) focus how performance risk impacts a board's ability to learn about a CEO's unknown talent. They find robust evidence that the likelihood of CEO turnover is increasing in idiosyncratic risk and decreasing in systematic risk.

payments for future growth options (e.g., when a firm's net asset value is higher than its current liquidation value), but they may be harmed by the firm's current losses. Thus, debtholders and depositors are likely to care more about firms' current earnings performance than growth expectations. These arguments are also consistent with DeYoung (1998), who finds that accounting performance is highly correlated with management quality for banks, and Murphy (2001), who presents evidence suggesting that financial industry firms employ earnings as a primary performance measure more frequently relative to firms in other industries. Murphy's data comes from a comprehensive survey conducted in 1996-1997 of the specific performance measures used in annual incentive plans of US corporations.

Our focus on accounting performance is potentially problematic if accounting standard changes affect the computation of the measure, or the quality of the accounting performance measure otherwise changes across time. We attempt to address this problem in two ways. First, our estimation of different coefficients on positive and negative performance can help to rule out coincident accounting standard changes as an alternative explanation for our results if the standard change is not expected to have asymmetric earnings effects. Second, if the quality of the accounting performance measure has decreased over time, then an observed reduction in CEO turnover-performance sensitivity could be due to changes in performance measure quality rather than incentives. In untabulated results, we examine the earnings timeliness of our sample firms.[10] We find that banks' earnings timeliness has not changed significantly during our sample period. Further, earnings timeliness in reflecting bad news is much higher for banks than for nonbank

[10] See, for example, Basu (1997) or Engel, Hayes, and Wang (2003) for details about the calculation of earnings timeliness.

firms.[11] Prior work suggests that conditional conservatism is most likely explained by debt contracting (Watts 2003, Basu 1997, Collins et al. 2014, etc.). Banks' leverage is very high relative to leverage of firms in other industries. Thus, it is probably not surprising that banks' earnings are more timely in reflecting bad news. The high timeliness of earnings also suggests that accounting performance might be an important factor in bank CEO turnover.

We run regression (1) for both banks and nonbank firms. Table 2 reports the results. The specifications presented in the first three columns examine the likelihood of all types of CEO turnovers, and the last three specifications examine the likelihood of the CEO turnovers identified as forced. Consistent with prior work, the coefficient on *Return* is negative and significant in all six columns, indicating higher (lower) stock return performance is associated with lower (higher) CEO turnover. The coefficient on *ΔROA* is significantly negative for both banks and nonbank firms when *Turn* is the dependent variable, which indicates that accounting performance is also negatively related to CEO turnover. When *Forced* is the dependent variable, however, the coefficient on *ΔROA* is significant for banks only. We also test whether the sensitivity of CEO turnover to accounting performance differs between nonbank firms and banks, and find insignificant differences between the coefficients on *ΔROA* for the *Turn* regressions. For the *Forced* regressions, the coefficients are significantly different at the 5% level.

The results presented in Table 2 suggest that both stock returns and accounting performance are related to bank CEO turnover over the 1974-2005 period. However, given our hypothesis that turnover policies changed in response to deregulation, the weights on stock return and accounting performance measures in CEO turnover decisions may also have changed over this time period. By examining CEO turnover in both the pre- and post-deregulation periods, we

[11] Specifically, we measure the timeliness of bad news as the coefficient on negative returns in a Basu-type reverse regression, and we find that the timeliness of bad news for banks is about 0.9, while that of nonbank firms is about 0.3. The timeliness of good news, however, is similar between nonbank firms and banks.

can provide insight into the potentially evolving role of accounting performance measures in CEO turnover decisions.

To investigate the effects of banking deregulation on the sensitivity of CEO turnover to performance, we run regression (1) separately for banks and nonbank firms in both the pre- and post-deregulation periods. As discussed in Section 2, deregulation in the banking industry has been an evolving process, which makes a clear delineation between pre- and post-deregulation difficult. However, the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 (IBBEA) was a significant event in deregulation, and the deregulation process in the banking industry moved quickly after that. Thus, we partition the sample period using the passage of IBBEA in September of 1994.[12] Table 3 reports summary statistics for the variables used in the deregulation analyses. As can be seen from the table, the values of the performance measures are generally higher for the control sample relative to the CEO turnover samples in both periods.

We present the regression results in panel A of Table 4. The specifications presented in the first four columns examine the likelihood of all types of CEO turnovers, and the last four specifications examine the likelihood of the CEO turnovers identified as forced. The results for banks are shown in columns 3 and 4 when the dependent variable is *Turn*, and in columns 7 and 8 when the dependent variable is *Forced*. For both measures of turnover, the coefficient on *ΔROA* is negative and significant in the pre-deregulation period, but not in the post-deregulation

[12] Given that deregulation in the banking industry has taken place over time, we run robustness tests to check the sensitivity of our results to different deregulation cutoffs. We first repeat our analyses using the year 2000, the year of passage of the Gramm-Leach-Bliley Act, to partition the sample period. The coefficients on performance for banks are statistically insignificant overall, which suggests that treating the 1994-1999 period as pre-deregulation might be problematic. To further investigate this possibility, we repeat our analyses comparing the 1994-1999 period to the pre-1994 period, and comparing the 2000-2005 period to the pre-1994 period. The results from the two separate analyses are similar to the results reported in the paper. Taken together, it seems that, relative to the pre-1994 period, bank CEO turnover is significantly less sensitive to accounting performance in the 1994-1999 period and in the 2000-2005 period, but there is no additional dampening of the turnover accounting performance sensitivity from the 1994-1999 period to the 2000-2005 period. Finally, as a separate robustness test, we use the deregulation index from Philippon and Reshef (2012) as our deregulation variable. Our results, with the exception of the second cross-sectional analysis, are robust to using the index measure.

period. This suggests that CEO turnover is negatively related to accounting performance in the more regulated period (i.e., before IBBEA), but not after. The difference in coefficients on *ΔROA* between the pre- and post-deregulation periods is statistically significant at the 10% level for *Turn*, and at the 5% level for *Forced*. On the other hand, the coefficient on *Return* is negative and statistically significant only in the post-deregulation period for both turnover measures, although the differences in *Return* coefficients between the pre- and post-deregulation periods are not statistically significant. Collectively these results suggest that the weights on performance measures, particularly the accounting measure, in bank CEO turnover decisions have changed in the more recent, deregulated period.

As a benchmark, we conduct similar tests using nonbank firms. The results when the dependent variable is *Turn* are shown in columns 1 and 2, and in columns 5 and 6 when the dependent variable is *Forced*. We find negative coefficients on both the stock return and accounting performance measures. For the *Turn* measure, the coefficients on the individual performance measures are statistically significant only in the post-deregulation period, although a test of their joint significance rejects the hypothesis that both coefficients are zero in the pre-deregulation period. The coefficients on *Return* are significantly negative in both periods for the forced turnovers. In contrast to the bank findings, none of the coefficients on the performance measures in post-deregulation period are significantly different from their counterparts in the pre-deregulation period. While these results for nonbank firms are generally consistent with prior work documenting a relatively stable relation between CEO turnover likelihood and firm performance across time (Huson, Parrino, and Starks 2001), they appear to be different from the patterns we observe in the bank CEO turnover decisions.

Given our interest in the effects of poor performance on CEO turnover, in panel B of Table 4, we present the results of regressions where we allow the coefficients on performance to vary according to whether performance is positive or negative. The specifications presented in the first four columns examine the likelihood of all types of CEO turnovers, and the last four specifications examine the likelihood of the CEO turnovers identified as forced. We include separate measures of positive and negative performance. For the nonbank firms, the results when the dependent variable is *Turn* are shown in columns 1 and 2, and in columns 5 and 6 when the dependent variable is *Forced*. Similar to panel A, we do not find significant differences between the coefficients on the performance variables in the pre- and post-deregulation periods.

The results for banks are shown in columns 3 and 4 of Table 4, panel B when the dependent variable is *Turn*, and in columns 7 and 8 when the dependent variable is *Forced*. For both measures of turnover, the coefficient on *NegΔROA* is negative and significant in the pre-deregulation period, but not in the post-deregulation period. This suggests that CEO turnover is negatively related to accounting performance when ROA declines, but only in the more regulated period (i.e., before IBBEA). The difference in *NegΔROA* between the pre- and post-deregulation periods is statistically significant at the 5% level for *Turn*. On the other hand, the coefficient on *PosReturn* is negative and statistically significant in the post-deregulation period for both measures of turnover, and for *Forced* in the pre-deregulation period. The differences in coefficients on *PosReturn* between the pre- and post-deregulation periods are not statistically significant. Collectively, the results from Table 4 suggest that the weights on accounting performance measures in bank CEO turnover decisions have changed in the more recent, deregulated period.

As mentioned earlier, changes in accounting standards or earnings quality that coincide with our pre- and post-deregulation periods are potentially problematic for the interpretation of our results. FAS 115 is particularly relevant in this context, given its timing and topic. This standard requires earnings recognition of unrealized gains and losses on trading securities and likely has a greater effect on banks than on other firms. Further, the standard was effective for fiscal years beginning after December 15, 1993, which coincides with the beginning of our deregulation period. While we cannot rule out the possibility that changes in the calculation of the earnings number for banks have an effect on the turnover-performance relation, we note that we would not expect the standard to have an asymmetric effect on earnings and thus an asymmetric effect on the responsiveness of turnover to performance.[13]

For ease of presentation and comparability with the cross-sectional tests below, we also present an alternative regression specification that allows us to test the pre-/post-deregulation difference between nonbank firms and banks in a more straightforward manner. Specifically, we use an indicator for deregulation (*Dereg*) and interact it with the annual performance measures. *Dereg* is set to one for firms with fiscal years ending after the passage of IBBEA in September of 1994, and zero otherwise. The probit regression model is as follows:

$$Prob(Forced/Turn=1) = a_0 + a_1 Return_{t-1} + a_2 \Delta ROA_{t-1} + a_3 Dereg + a_4 Return_{t-1} * Dereg + a_5 \Delta ROA_{t-1} * Dereg + a_6 Age_t + a_7 Tenure_t + a_8 Size_{t-1} + a_9 BTM_{t-1} + a_{10} Firm\_Risk_{t-1} + a_{11} Sys\_Risk + \varepsilon \quad (2)$$

Table 5 presents the results from probit regression (2). Consistent with the results in panel A, the coefficients on *ΔROA* are significantly negative for banks in both the *Turn* and *Forced* regressions. We find a significantly positive coefficient on the interaction of *Dereg* and

[13] Relatedly, if bank CEOs take greater risks and bank performance becomes riskier as a result, it is possible that turnover would show a weaker relation with performance due to the added noise in the performance measure. The asymmetric changes in the relation between positive and negative performance and turnover following deregulation also help to mitigate this concern.

ΔROA when *Turn* is the measure of turnover, while the coefficient on the interaction is positive but insignificant when *Forced* is the turnover measure. The significantly positive coefficient implies that the sensitivity of bank CEO turnover to accounting performance is lower in the post-deregulation period. As a benchmark, we conduct similar regressions using nonbank firms. We do not observe the same pattern for CEOs in nonbank firms (columns 1 and 3), suggesting that the lower turnover-performance sensitivity in the post-deregulation period is specific to banks rather than driven by economy-wide factors. Further, the coefficient on *ΔROA*Dereg* is significantly higher in banks than nonbank firms in the *Turn* regressions, consistent with banking deregulation having a greater impact on banks than nonbank firms.

4.2 Cross-Sectional Tests

In this section, we investigate whether the decrease in CEO turnover-performance sensitivity for banks varies predictably in the cross-section. We first examine whether the impact of deregulation on CEO turnover-performance sensitivity differs between large and small banks. Since large banks are better positioned to take advantage of the opportunities brought about by deregulation, we expect to observe a greater decrease in CEO turnover-performance sensitivity for large banks than for small banks. Banks are classified as large (small) if total assets are higher (lower) than the sample median. Table 6 reports the results. As expected, the coefficient on *ΔROA*Dereg* is positive and significant for columns (1) and (3), consistent with the notion that CEO turnover policies at large banks were less likely to penalize poor accounting performance in the deregulated period. The coefficients on the interactions between accounting performance and *Dereg* are insignificant for the small banks in columns (2) and (4), suggesting that large and small banks responded differently to accounting performance after deregulation.

For both turnover measures, the differences between the coefficients on *ΔROA*Dereg* for large and small banks are statistically significant. Interestingly, the coefficients on the interactions between *Return* and *Dereg* are significantly negative—suggesting greater likelihood of turnover for poor stock returns after deregulation—for both measures of turnover at large banks. This finding does not hold for small banks. These results provide support for the hypothesis that large banks adjusted CEO turnover incentives to take advantage of the growth opportunities from deregulation.

Next, we examine how variation in the extent to which banks adopt aggressive policies following deregulation affects CEO turnover-performance sensitivity. We expect that boards wanting more aggressive policies to take advantage of growth opportunities will provide career incentives for CEOs to implement those policies. Consequently, CEO turnover should be less sensitive to performance when banks adopt more aggressive policies. We use a measure of banks' predicted return volatility in the post-deregulation era to gauge which banks have adopted aggressive business policies following deregulation.

We note the following features of the measure. First, volatility captures many aspects of a bank's operating environment, but our purpose is to capture bank risk taking rather than noise in performance measures or uncertainty about the firm. Thus, we regress return volatility on four bank-specific measures that reflect the riskier components of post-deregulation banking operations: the ratio of non-interest income to net operating income, the risk-adjusted Tier 1 ratio, short-term borrowings scaled by total assets, and the ratio of tangible common equity to tangible total assets. We use the coefficients to calculate a predicted return volatility and separate banks into high and low risk-taking subsamples. The use of predicted return volatility is intended to help us isolate the part of return volatility that is related to banks' risk taking.

Second, ideally we would like the measure to reflect any *change* in risk taking from the pre- to the post-deregulation period, as our interest is in the extent to which banks adopt aggressive policies in response to deregulation. We note that we are not able to compare the measure across the two periods because the bank-specific variables needed to estimate the predicted stock return volatility are not available in the earlier period. Therefore we use the bank's predicted return volatility in the post-deregulation period as our measure. However, the use of this measure carries an implicit assumption that banks with higher predicted return volatility in the post-deregulation period also experienced an increase in risk taking. To test the validity of this assumption, we would like to be able to assess the aggressiveness of a bank's business policies in both the pre- and post-deregulation periods. Making the presumption that banks with more aggressive and hence riskier policies are likely to display higher operating volatilities, we use revenue volatility to proxy for operating volatility (Hribar and Nichols 2007).[14] Specifically, we obtain data on interest revenues from trading, investment securities, loans/claims/advances, and miscellaneous items, along with non-interest income, from Bank Compustat and calculate revenue as the sum of these income items. Revenue volatility is estimated as the standard deviation of revenues over the past four years. We then regress revenue volatility on an indicator for the post-deregulation period, as well as an interaction of the post-deregulation indicator and an indicator for banks with higher predicted return volatility in the post-deregulation period. We include firm fixed effects to control for heterogeneous firm attributes. The untabulated results show a positive and significant coefficient on the post-deregulation indicator, which is consistent with the notion that the overall risk taking of banks increased following deregulation. Further, we find the interaction term to be positive and

[14] Another common proxy for operating volatility is operating cash flow volatility. We are unable to use this proxy because cash flow data is not available on Compustat until after 2004.

significant, suggesting that banks with higher predicted return volatility post deregulation increased risk taking more, relative to banks with lower predicted return volatility, following deregulation. While we cannot directly test our assumption about banks' responses to deregulation, these findings help to mitigate concerns about the use of predicted return volatility post deregulation to capture banks' risk-taking responses to deregulation.

Table 7 reports the results of our analysis of turnover-performance sensitivity for high and low risk-taking banks around deregulation. Consistent with our expectation, the coefficient on *ΔROA*Dereg* is positive and significant for columns (1) and (3) (high risk-taking banks) but not for columns (2) and (4) (low risk-taking banks). Furthermore, the coefficients on *ΔROA*Dereg* are significantly different between high and low risk-taking banks when turnover is measured by *Turn*. As a falsification test (untabulated), we replace the predicted return volatility with the residual return volatility, and repeat the analyses. We do not find significant differences between banks with high residual return volatility and those with low residual return volatility, which suggests it is important to disentangle the effect of banks' risk-taking activities from other sources of return volatility. Overall, these results suggest that high risk-taking banks followed riskier policies after deregulation and reduced their sensitivity of CEO turnover to accounting performance.

4.3 Compensation and Turnover Incentives

In our final test, we investigate whether CEO incentives from compensation and turnover appear to be substitutes or complements. We use vega, the sensitivity of a manager's wealth to stock return volatility, to proxy for incentives embedded in compensation contracts (Guay 1999). The indicator *High_Vega* equals one if the vega in a CEO's option portfolio is higher than the

sample median, and zero otherwise.[15] We interact *High_Vega* with the performance measures and run the following probit regression.

$$Prob(Forced/Turn=1) = a_0 + a_1 Return_{t-1} + a_2\, \Delta ROA_{t-1} + a_3 High\_Vega_{t-1} + a_4\, \Delta Return_{t-1} * High\_Vega_{t-1} + a_4\, \Delta ROA_{t-1} * High\_Vega_{t-1} + a_5\, Age_{t} + a_6 Tenure_{t} + a_7 Size_{t-1} + a_8\, BTM_{t-1} + a_9\, Firm\_Risk_{t-1} + a_{10}\, Sys\_Risk_{t-1} + \varepsilon \quad (3)$$

The results are presented in Table 8. The coefficients on $\Delta ROA_{t-1} * High\_Vega_{t-1}$ are positive when the dependent variables are *Turn* and *Forced,* and the coefficient is significant for *Forced*. These results indicate that banks with high CEO vega also display low turnover-performance sensitivity in the post-deregulation period, providing some initial evidence that incentives derived from bank CEO compensation and turnover are complementary.

5. Conclusion

The recent financial crisis has generated considerable debate over whether bank CEOs are provided with incentives to take excessive risks. Several recent papers have examined the role that bank CEO compensation may have played in the financial crisis, providing mixed evidence (Fahlenbrach and Stulz 2011, DeYoung et al. 2013, Cheng et al. 2014). We add to this debate by examining how banking deregulation affects the provision of risk-taking incentives through CEO turnover decisions. We argue that CEOs will have greater incentives to take risk if they are less likely to be fired for bad performance. Thus, if bank boards respond to the growth opportunities from deregulation by adjusting turnover policies to encourage risk taking, we expect CEO performance sensitivity to decrease after deregulation. Consistent with this expectation, we find that bank CEO turnover is significantly less sensitive to accounting

[15] The data to calculate vega is not available for the entire sample period. We use the available post-1992 data to calculate a firm-specific measure of CEO risk-taking incentives from equity-holdings. Therefore, our results do not speak to the relationship between incentives from compensation and incentives from turnover in the pre-deregulation period.

performance after deregulation. We also find that the decrease in turnover-performance sensitivity exists only in large banks, which are best positioned to take advantage of the growth opportunities arising from deregulation, and in banks that adopt more aggressive business policies in response to deregulation. Furthermore, we provide some initial evidence of a complementary relation between the incentives deriving from bank CEO compensation and turnover policies.

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Table 1: Descriptive Statistics for Nonbank Firms and Banks

This table reports the descriptive statistics for nonbank firms and banks for the whole sample period (1974-2005). The indicator variable *Turn* equals one if there is a CEO turnover, and zero otherwise. The indicator variable *Forced* equals one if the CEO is forced to leave the company, and zero otherwise. *Return* is the industry-adjusted buy-and-hold stock return for the past 12 months. *ΔROA* is the industry-adjusted change in return on assets, which is measured as pre-tax operating income divided by total assets. *Age* is the age of the CEO. *Tenure* is the number of years the CEO has been in office. *Size* is the log of total assets. *BTM* is book value of assets divided by the market value of assets. *Firm_Risk* is the standard deviation of residuals from regression of daily stock returns on daily industry median returns and market returns for the past 12 months. *Sys_Risk* is the standard deviation of the predicted value from regression of daily stock returns on daily industry median returns and market returns for the past 12 months.

	Nonbank firms (N=12,692)			Banks (N=2,233)		
Variable	Mean	Median	Std Dev	Mean	Median	Std Dev
Turn	0.101	0.000	0.301	0.081	0.000	0.272
Forced	0.027	0.000	0.162	0.019	0.000	0.137
Return	0.085	0.036	0.330	0.044	0.017	0.275
ΔROA	0.004	0.002	0.057	0.000	0.000	0.011
Age	57.631	58.000	6.961	57.742	58.000	6.553
Tenure	9.029	7.000	7.631	9.577	8.000	7.287
Size	8.038	7.966	1.329	9.594	9.377	1.406
BTM	0.739	0.764	0.265	0.949	0.975	0.094
Firm_Risk	0.273	0.243	0.134	0.241	0.220	0.104
Sys_Risk	0.146	0.128	0.084	0.126	0.108	0.084

Table 2: CEO turnover-performance sensitivity

This table reports the coefficients and t-statistics from the following probit regression for both nonbank firms and banks.
$Prob(Forced/Turn=1) = a_0 + a_1 Return_{t-1} + a_2 \Delta ROA_{t-1} + a_3 Age_t + a_4 Tenure_t + a_5 Size_{t-1} + a_6 BTM_{t-1} + a_7 Firm\_Risk_{t-1} + a_8 Sys\_Risk_{t-1} + \varepsilon$

The indicator variable *Turn* equals one if there is a CEO turnover, and zero otherwise. The indicator variable *Forced* equals one if the CEO is forced to leave the company, and zero otherwise. *Return* is the industry-adjusted buy-and-hold stock return for the past 12 months. *ΔROA* is the industry-adjusted change in return on assets, which is measured as pre-tax operating income divided by total assets. *Age* is the age of the CEO. *Tenure* is the number of years the CEO has been in office. *Size* is the log of total assets. *BTM* is book value of assets divided by the market value of assets. *Firm_Risk* is the standard deviation of residuals from regression of daily stock returns on daily industry median returns and market returns for the past 12 months. *Sys_Risk* is the standard deviation of the predicted value from regression of daily stock returns on daily industry median returns and market returns for the past 12 months. *, **, *** denote significance at the 10%, 5% and 1% levels with two-tailed tests. Standard errors are clustered by firm.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	Turn	Turn	Turn	Forced	Forced	Forced
	All	Nonbank Firms	Banks	All	Nonbank Firms	Banks
Return	-0.144***	-0.130**	-0.336*	-0.372***	-0.357***	-0.822***
	(2.75)	(2.35)	(1.79)	(4.37)	(3.95)	(2.72)
ΔROA	-0.895***	-0.818***	-6.150*	-0.513	-0.422	-9.043**
	(3.03)	(2.79)	(1.68)	(1.04)	(0.86)	(2.20)
Age	0.064***	0.060***	0.099***	0.001	0.001	-0.002
	(11.33)	(10.09)	(9.01)	(0.37)	(0.26)	(0.21)
Tenure	-0.014***	-0.011***	-0.030***	-0.012***	-0.012***	-0.001
	(4.92)	(3.60)	(3.88)	(3.27)	(3.02)	(0.06)
Size	0.025**	0.035**	0.128***	0.057***	0.067***	0.168***
	(2.08)	(2.45)	(2.99)	(2.99)	(3.16)	(2.63)
BTM	-0.045	0.042	-0.869	0.026	0.084	-0.416
	(0.68)	(0.62)	(1.57)	(0.23)	(0.74)	(0.51)
Firm_Risk	1.078***	1.037***	1.484***	1.784***	1.807***	0.758
	(6.93)	(6.44)	(3.04)	(9.22)	(8.89)	(1.09)
Sys_Risk	-0.354	-0.427	-0.683	-0.802**	-0.879**	-0.476
	(1.42)	(1.59)	(0.85)	(2.37)	(2.37)	(0.48)
Constant	-5.642***	-5.577***	-7.479***	-2.470***	-3.690***	-3.843***
	(9.29)	(9.04)	(8.09)	(4.81)	(8.87)	(3.35)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14925	12692	2233	13818	11725	2093

Table 3: Descriptive Statistics for Nonbank Firms and Banks in the Pre-Deregulation and Post-Deregulation Periods

This table presents the descriptive statistics for firm and CEO characteristics for both nonbank firms and banks in the sample periods before and after deregulation. The *Turn* sample includes all CEO turnovers. The *Forced* sample includes only the turnovers that are classified as forced turnovers. The control sample includes observations without turnovers.

Return is the industry-adjusted buy-and-hold stock return for the past 12 months. *PosReturn* equals *Return* when *Return* is positive and zero otherwise. *NegReturn* equals *Return* when *Return* is negative and zero otherwise. *ΔROA* is the industry-adjusted change in return on assets, which is measured as pre-tax operating income divided by total assets. *PosΔROA* equals *ΔROA* when *ΔROA* is positive and zero otherwise. *NegΔROA* equals *ΔROA* when *ΔROA* is negative and zero otherwise. *Age* is the age of the CEO. *Tenure* is the number of years the CEO has been in office. *Size* is the log of total assets. *BTM* is book value of assets divided by the market value of assets. *Firm_Risk* is the standard deviation of residuals from regression of daily stock returns on daily industry median returns and market returns for the past 12 months. *Sys_Risk* is the standard deviation of the predicted value from regression of daily stock returns on daily industry median returns and market returns for the past 12 months.

Panel A: Nonbank Firms

Before deregulation									
	Turn Sample (N=621)			Forced Sample (N=88)			Control Sample (N=6756)		
Variable	Mean	Median	Std Dev	Mean	Median	Std Dev	Mean	Median	Std Dev
Return	0.037	0.017	0.266	-0.027	-0.060	0.294	0.088	0.039	0.313
PosReturn	0.117	0.017	0.188	0.097	0.000	0.192	0.153	0.039	0.253
NegReturn	-0.080	0.000	0.130	-0.124	-0.060	0.158	-0.066	0.000	0.118
ΔROA	-0.003	0.000	0.050	-0.007	-0.002	0.065	0.005	0.003	0.050
PosΔROA	0.014	0.000	0.030	0.018	0.000	0.040	0.018	0.003	0.035
NegΔROA	-0.017	0.000	0.034	-0.024	-0.002	0.042	-0.013	0.000	0.029
Age	63.132	65.000	7.628	56.364	57.000	8.026	57.766	58.000	6.678
Tenure	10.072	8.000	8.014	6.807	5.500	5.473	9.403	7.000	7.653
Size	7.990	7.882	1.210	7.883	7.778	1.322	7.699	7.651	1.182
BTM	0.828	0.863	0.245	0.868	0.916	0.280	0.797	0.827	0.259
Firm_Risk	0.251	0.232	0.123	0.326	0.274	0.211	0.254	0.237	0.103
Sys_Risk	0.131	0.117	0.075	0.131	0.119	0.075	0.136	0.123	0.075

After the start of deregulation period									
	Turn Sample (N=662)			Forced Sample (N=228)			Control Sample (N=4653)		
Variable	Mean	Median	Std Dev	Mean	Median	Std Dev	Mean	Median	Std Dev
Return	0.046	0.011	0.348	-0.061	-0.085	0.358	0.092	0.039	0.358
PosReturn	0.151	0.011	0.251	0.107	0.000	0.237	0.171	0.039	0.286
NegReturn	-0.105	0.000	0.162	-0.169	-0.085	0.189	-0.079	0.000	0.138
ΔROA	-0.005	0.000	0.068	-0.011	-0.002	0.079	0.004	0.001	0.064
PosΔROA	0.020	0.000	0.040	0.022	0.000	0.046	0.022	0.001	0.043
NegΔROA	-0.025	0.000	0.045	-0.032	-0.002	0.052	-0.019	0.000	0.037
Age	60.456	62.000	6.436	55.667	56.000	5.419	56.300	57.000	6.842
Tenure	10.048	8.000	7.196	7.232	6.000	4.618	8.202	6.000	7.531
Size	8.473	8.464	1.356	8.488	8.541	1.442	8.475	8.458	1.395
BTM	0.672	0.688	0.255	0.704	0.727	0.274	0.652	0.668	0.251
Firm_Risk	0.333	0.272	0.210	0.412	0.330	0.274	0.294	0.257	0.153
Sys_Risk	0.163	0.134	0.106	0.186	0.152	0.124	0.159	0.137	0.092

Panel B: Banks

Before deregulation									
	Turn Sample (N=104)			Forced Sample (N=17)			Control Sample (N=1222)		
Variable	Mean	Median	Std Dev	Mean	Median	Std Dev	Mean	Median	Std Dev
Return	0.005	0.001	0.264	-0.066	-0.044	0.231	0.060	0.030	0.281
PosReturn	0.097	0.001	0.177	0.052	0.000	0.089	0.127	0.030	0.220
NegReturn	-0.092	0.000	0.143	-0.118	-0.044	0.180	-0.067	0.000	0.116
ΔROA	-0.002	0.000	0.008	-0.007	-0.004	0.010	0.000	0.000	0.007
PosΔROA	0.001	0.000	0.004	0.001	0.000	0.003	0.002	0.000	0.005
NegΔROA	-0.004	0.000	0.007	-0.007	-0.004	0.009	-0.002	0.000	0.004
Age	62.760	64.000	5.283	57.176	57.000	4.246	57.145	58.000	6.493
Tenure	9.577	10.000	6.335	8.235	7.000	6.026	8.873	7.000	6.478
Size	9.426	9.424	1.195	9.894	9.944	1.134	9.121	8.891	1.176
BTM	0.995	0.999	0.029	1.002	0.999	0.026	0.988	0.996	0.054
Firm_Risk	0.260	0.226	0.153	0.318	0.275	0.191	0.241	0.219	0.110
Sys_Risk	0.118	0.088	0.087	0.153	0.120	0.115	0.108	0.088	0.078

After the start of deregulation period									
	Turn Sample (N=76)			Forced Sample (N=23)			Control Sample (N=831)		
Variable	Mean	Median	Std Dev	Mean	Median	Std Dev	Mean	Median	Std Dev
Return	0.004	-0.002	0.207	-0.054	-0.010	0.225	0.029	0.000	0.271
PosReturn	0.083	0.000	0.121	0.059	0.000	0.097	0.114	0.000	0.193
NegReturn	-0.079	-0.002	0.122	-0.112	-0.010	0.166	-0.085	0.000	0.129
ΔROA	0.000	0.000	0.011	-0.002	-0.001	0.013	0.001	0.000	0.014
PosΔROA	0.003	0.000	0.006	0.003	0.000	0.005	0.003	0.000	0.011
NegΔROA	-0.003	0.000	0.008	-0.005	-0.001	0.011	-0.002	0.000	0.008
Age	62.132	63.000	5.965	56.043	57.000	5.539	57.592	57.000	6.428
Tenure	11.539	9.000	7.164	8.826	9.000	5.424	10.433	8.000	8.345
Size	10.325	10.152	1.523	10.863	10.808	1.514	10.245	10.154	1.445
BTM	0.897	0.926	0.098	0.902	0.938	0.094	0.892	0.917	0.113
Firm_Risk	0.234	0.220	0.092	0.249	0.251	0.094	0.239	0.221	0.089
Sys_Risk	0.150	0.133	0.088	0.166	0.153	0.059	0.151	0.138	0.086

Table 4: Deregulation and CEO turnover-performance sensitivity

Panel A of this table reports the coefficients and t-statistics from the following probit regression for both nonbank firms and banks.
$Prob(Forced/Turn=1) = a_0 + a_1 Return_{t-1} + a_2 \Delta ROA_{t-1} + a_3 Age_t + a_4 Tenure_t + a_5 Size_{t-1} + a_6 BTM_{t-1} + a_7 Firm\_Risk_{t-1} + a_8 Sys\_Risk_{t-1} + \varepsilon$

Panel B of this table reports the coefficients and t-statistics from the following probit regression for both nonbank firms and banks.
$Prob(Forced/Turn=1) = a_0 + a_1 PosReturn_{t-1} + a_2 NegReturn_{t-1} + a_3 Pos\Delta ROA_{t-1} + a_4 Neg\Delta ROA_{t-1} + a_5 Age_t + a_6 Tenure_t + a_7 Size_{t-1} + a_8 BTM_{t-1} + a_9 Firm\_Risk_{t-1} + a_{10} Sys\_Risk_{t-1} + \varepsilon$

The indicator variable *Turn* equals one if there is a CEO turnover, and zero otherwise. The indicator variable *Forced* equals one if the CEO is forced to leave the company, and zero otherwise. *Return* is the industry-adjusted buy-and-hold stock return for the past 12 months. *PosReturn* equals *Return* when *Return* is positive and zero otherwise. *NegReturn* equals *Return* when *Return* is negative and zero otherwise. *ΔROA* is the industry-adjusted change in return on assets, which is measured as pre-tax operating income divided by total assets. *PosΔROA* equals *ΔROA* when *ΔROA* is positive and zero otherwise. *NegΔROA* equals *ΔROA* when *ΔROA* is negative and zero otherwise. *Age* is the age of the CEO. *Tenure* is the number of years the CEO has been in office. *Size* is the log of total assets. *BTM* is book value of assets divided by the market value of assets. *Firm_Risk* is the standard deviation of residuals from regression of daily stock returns on daily industry median returns and market returns for the past 12 months. *Sys_Risk* is the standard deviation of the predicted value from regression of daily stock returns on daily industry median returns and market returns for the past 12 months. *, **, *** denote significance at the 10%, 5% and 1% levels with two-tailed tests. Standard errors are clustered by firm.

Panel A: Before versus after the start of deregulation period for *Return* and *ΔROA*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variables	Turn	Turn	Turn	Turn	Forced	Forced	Forced	Forced
	Nonbanks	Nonbanks	Banks	Banks	Nonbanks	Nonbanks	Banks	Banks
	Before 1994	After 1994	Before 1994	After 1994	Before 1994	After 1994	Before 1994	After 1994
Return	-0.148	-0.125*	-0.072	-0.534*	-0.302*	-0.388***	-0.327	-1.025**
	(1.64)	(1.72)	(0.29)	(1.86)	(1.89)	(3.59)	(0.82)	(2.39)
ΔROA	-0.772	-0.873**	-16.011**	-1.141	-0.238	-0.498	-28.508***	4.356
	(1.55)	(2.32)	(1.96)	(0.34)	(0.25)	(0.89)	(2.87)	(0.39)
Age	0.064***	0.057***	0.112***	0.088***	-0.004	0.004	0.011	-0.015
	(6.64)	(10.19)	(8.12)	(4.62)	(0.59)	(0.82)	(0.74)	(0.78)
Tenure	-0.016***	-0.004	-0.034***	-0.029**	-0.024***	-0.007	0.005	0.001
	(4.00)	(1.08)	(3.01)	(2.55)	(2.89)	(1.46)	(0.23)	(0.07)
Size	0.051**	0.019	0.191***	0.027	0.060	0.064***	0.218*	0.073
	(2.54)	(1.03)	(3.65)	(0.37)	(1.20)	(2.69)	(1.78)	(0.79)
BTM	0.088	-0.051	-1.358	-0.148	0.329	-0.013	8.748	1.194
	(0.95)	(0.53)	(1.10)	(0.23)	(1.51)	(0.10)	(1.35)	(1.09)
Firm_Risk	0.721***	1.163***	1.976***	0.744	1.852***	1.785***	0.634	3.795**
	(3.30)	(5.38)	(3.61)	(0.65)	(5.66)	(7.05)	(0.63)	(2.44)
Sys_Risk	-0.820*	-0.153	-0.759	-0.483	-0.528	-0.856**	-0.475	0.102
	(1.90)	(0.48)	(0.94)	(0.33)	(0.64)	(2.05)	(0.27)	(0.07)
Constant	-5.705***	-4.901***	-9.264***	-6.778***	-3.631***	-3.003***	-14.564**	-9.125***
	(7.55)	(12.73)	(7.02)	(5.82)	(6.12)	(8.24)	(2.28)	(4.95)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7377	5315	1326	907	6844	4881	1239	854

Panel B: Before versus after the start of deregulation period for positive and negative components of *Return* and *ΔROA*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variables	Turn	Turn	Turn	Turn	Forced	Forced	Forced	Forced
	Nonbanks	Nonbanks	Banks	Banks	Nonbanks	Nonbanks	Banks	Banks
	Before 1994	After 1994	Before 1994	After 1994	Before 1994	After 1994	Before 1994	After 1994
PosReturn	-0.094	-0.120	-0.263	-1.013**	-0.260	-0.278*	-1.267**	-1.610***
	(0.79)	(1.14)	(0.82)	(2.27)	(1.19)	(1.81)	(2.11)	(3.01)
NegReturn	-0.271	-0.138	0.338	0.138	-0.379	-0.593**	0.817	-0.121
	(1.34)	(0.73)	(0.64)	(0.21)	(1.19)	(2.57)	(0.80)	(0.13)
PosΔROA	-0.651	-0.123	0.703	-2.817	1.470	0.733	-18.838	18.495
	(0.78)	(0.20)	(0.06)	(0.39)	(1.09)	(0.93)	(0.45)	(1.40)
NegΔROA	-0.854	-1.607***	-25.943***	-1.070	-1.887	-1.628**	-32.141**	-10.188
	(1.09)	(2.79)	(2.85)	(0.16)	(1.56)	(1.96)	(2.52)	(1.50)
Age	0.064***	0.057***	0.112***	0.087***	-0.004	0.005	0.011	-0.017
	(6.66)	(10.22)	(8.13)	(4.56)	(0.59)	(0.90)	(0.73)	(0.94)
Tenure	-0.016***	-0.004	-0.033***	-0.029**	-0.023***	-0.007	0.008	0.003
	(4.02)	(1.06)	(2.95)	(2.51)	(2.90)	(1.44)	(0.39)	(0.16)
Size	0.051**	0.022	0.199***	0.037	0.066	0.068***	0.245*	0.077
	(2.52)	(1.17)	(3.83)	(0.51)	(1.31)	(2.84)	(1.96)	(0.87)
BTM	0.093	-0.025	-0.958	-0.305	0.352	0.038	8.693	1.951
	(1.01)	(0.25)	(0.78)	(0.38)	(1.63)	(0.28)	(1.31)	(1.53)
Firm_Risk	0.662***	1.109***	2.064***	1.151	1.721***	1.651***	1.085	3.697**
	(2.79)	(4.66)	(3.67)	(1.06)	(5.06)	(6.13)	(0.88)	(2.30)
Sys_Risk	-0.837*	-0.213	-1.017	-0.648	-0.672	-0.965**	-0.676	0.047
	(1.93)	(0.66)	(1.18)	(0.43)	(0.80)	(2.30)	(0.38)	(0.03)
Constant	-5.705***	-4.963***	-9.720***	-6.604***	-3.676***	-3.133***	-14.743**	-9.461***
	(7.55)	(12.82)	(7.14)	(5.20)	(6.28)	(8.30)	(2.26)	(4.41)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7377	5315	1326	907	6844	4881	1239	854

Table 5: Deregulation and CEO turnover-performance sensitivity: alternate specification

Panel A of this table reports the coefficients and t-statistics from the following probit regression for both nonbank firms and banks.

$Prob(Forced/Turn=1) = a_0 + a_1 Return_{t-1} + a_2 \Delta ROA_{t-1} + a_3 Dereg + a_4 Return_{t-1} * Dereg + a_5 \Delta ROA_{t-1} * Dereg + a_6 Age_t + a_7 Tenure_t + a_8 Size_{t-1} + a_9 BTM_{t-1} + a_{10} Firm\_Risk_{t-1} + a_{11} Sys\_Risk_{t-1} + \varepsilon$

The indicator variable *Turn* equals one if there is a CEO turnover, and zero otherwise. The indicator variable *Forced* equals one if the CEO is forced to leave the company, and zero otherwise. *Return* is the industry-adjusted buy-and-hold stock return for the past 12 months. *ΔROA* is the industry-adjusted change in return on assets, which is measured as pre-tax operating income divided by total assets. *Age* is the age of the CEO. *Tenure* is the number of years the CEO has been in office. *Size* is the log of total assets. *BTM* is book value of assets divided by the market value of assets. *Firm_Risk* is the standard deviation of residuals from regression of daily stock returns on daily industry median returns and market returns for the past 12 months. *Sys_Risk* is the standard deviation of the predicted value from regression of daily stock returns on daily industry median returns and market returns for the past 12 months. *Dereg* equals one for firms with fiscal years end after the passage of IBBEA in September of 1994, and zero otherwise. *, **, *** denote significance at the 10%, 5% and 1% levels with two-tailed tests. Standard errors are clustered by firm.

	(1)	(2)	(3)	(4)
	Turn	Turn	Forced	Forced
	Nonbanks	Banks	Nonbanks	Banks
Return	-0.138*	-0.096	-0.312**	-0.562
	(1.74)	(0.39)	(2.20)	(1.33)
ΔROA	-0.836*	-16.557**	-0.387	-24.192**
	(1.88)	(1.96)	(0.46)	(2.48)
Dereg	0.519	1.118*	1.242***	0.671*
	(1.11)	(1.79)	(3.53)	(1.65)
*Return*Dereg*	0.013	-0.494	-0.059	-0.340
	(0.14)	(1.33)	(0.40)	(0.67)
*ΔROA*Dereg*	0.025	15.110*	-0.034	21.456
	(0.05)	(1.66)	(0.04)	(1.49)
Age	0.060***	0.101***	0.001	-0.001
	(10.09)	(9.10)	(0.25)	(0.05)
Tenure	-0.011***	-0.032***	-0.012***	-0.003
	(3.60)	(3.93)	(3.02)	(0.24)
Size	0.035**	0.106**	0.068***	0.125*
	(2.44)	(2.25)	(3.18)	(1.81)
BTM	0.042	-0.530	0.084	0.305
	(0.62)	(0.86)	(0.73)	(0.29)
Firm_Risk	1.037***	1.565***	1.807***	0.844
	(6.44)	(3.05)	(8.88)	(1.13)
Sys_Risk	-0.427	-0.539	-0.879**	-0.327
	(1.60)	(0.64)	(2.37)	(0.30)
Constant	-5.575***	-8.556***	-3.692***	-4.548***
	(9.04)	(8.76)	(8.89)	(4.07)
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	12692	2233	11725	2093

Table 6: Deregulation, Bank Size and Bank CEOs' Turnover-Performance Sensitivity

This table reports the coefficients and t-statistics from the following probit regression for both small and large banks. Banks are classified as large (small) if total assets are higher (lower) than the sample median prior to the start of deregulation period.

$Prob(Forced/Turn=1) = a_0 + a_1 Return_{t-1} + a_2\ \Delta ROA_{t-1} + a_3 Dereg + a_4 Return_{t-1} * Dereg + a_5\ \Delta ROA_{t-1} * Dereg + a_6\ Age_t + a_7 Tenure_t + a_8 Size_{t-1} + a_9\ BTM_{t-1} + a_{10}\ Firm\_Risk_{t-1} + a_{11}\ Sys\_Risk_{t-1} + \varepsilon$

The indicator variable *Turn* equals one if there is a CEO turnover, and zero otherwise. The indicator variable *Forced* equals one if the CEO is forced to leave the company, and zero otherwise. *Return* is the industry-adjusted buy-and-hold stock return for the past 12 months. *ΔROA* is the industry-adjusted change in return on assets, which is measured as pre-tax operating income divided by total assets. *Age* is the age of the CEO. *Tenure* is the number of years the CEO has been in office. *Size* is the log of total assets. *BTM* is book value of assets divided by the market value of assets. *Firm_Risk* is the standard deviation of residuals from regression of daily stock returns on daily industry median returns and market returns for the past 12 months. *Sys_Risk* is the standard deviation of the predicted value from regression of daily stock returns on daily industry median returns and market returns for the past 12 months. *Dereg* equals one for firms with fiscal years end after the passage of IBBEA in September of 1994, and zero otherwise. *, **, *** denote significance at the 10%, 5% and 1% levels with two-tailed tests. Standard errors are clustered by firm.

	(1)	(2)	(3)	(4)
	Turn	Turn	Forced	Forced
	Large Banks	Small Banks	Large Banks	Small Banks
Return	-0.026	-0.228	-0.437	-1.565
	(0.08)	(0.68)	(0.82)	(1.20)
ΔROA	-31.592***	0.287	-41.688***	18.356
	(3.12)	(0.03)	(3.59)	(1.21)
Dereg	0.269	4.322***	0.110	3.770***
	(0.31)	(12.78)	(0.17)	(6.65)
*Return*Dereg*	-1.505**	0.008	-1.485**	1.151
	(2.52)	(0.02)	(2.24)	(0.91)
*ΔROA*Dereg*	40.460**	-4.761	90.872***	-34.151
	(2.11)	(0.56)	(3.92)	(1.59)
Age	0.136***	0.084***	0.010	-0.004
	(8.02)	(6.09)	(0.62)	(0.20)
Tenure	-0.015	-0.039***	0.002	-0.012
	(1.02)	(3.81)	(0.14)	(0.70)
Size	0.196***	-0.021	0.205*	0.103
	(2.90)	(0.20)	(1.81)	(0.64)
BTM	-1.044	0.016	2.454	1.091
	(0.57)	(0.02)	(1.02)	(0.62)
Firm_Risk	2.348***	0.541	1.086	-0.122
	(3.88)	(0.48)	(1.31)	(0.06)
Sys_Risk	-2.509**	0.854	-2.143	2.480
	(2.51)	(0.47)	(1.34)	(1.11)
Constant	-11.037***	-10.260***	-7.991***	-8.041***
	(5.67)	(9.33)	(3.35)	(3.49)
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	1117	1116	1033	1060

Table 7: Deregulation, Banks' Risk Taking and Bank CEOs' Turnover-Performance Sensitivity

This table reports the coefficients and t-statistics from the following probit regression for high versus low risk-taking banks.

$Prob(Forced/Turn=1) = a_0 + a_1 Return_{t-1} + a_2 \Delta ROA_{t-1} + a_3 Dereg + a_4 Return_{t-1} * Dereg + a_5 \Delta ROA_{t-1} * Dereg + a_6 Age_t + a_7 Tenure_t + a_8 Size_{t-1} + a_9 BTM_{t-1} + a_{10} Firm\_Risk_{t-1} + a_{11} Sys\_Risk_{t-1} + \varepsilon$

We use post-deregulation data to separate banks into high and low risk taking according to predicted return volatility. The predicted return volatility is calculated by regressing return volatility on four bank-specific measures: the ratio of non-interest income to net operating income, risk-adjusted Tier 1 ratio, short-term borrowings scaled by total assets, and the ratio of tangible common equity to tangible total assets. Banks with predicted return volatility higher (lower) than sample median are classified as high (low) risk taking.

The indicator variable *Turn* equals one if there is a CEO turnover, and zero otherwise. The indicator variable *Forced* equals one if the CEO is forced to leave the company, and zero otherwise. *Return* is the industry-adjusted buy-and-hold stock return for the past 12 months. *ΔROA* is the industry-adjusted change in return on assets, which is measured as pre-tax operating income divided by total assets. *Age* is the age of the CEO. *Tenure* is the number of years the CEO has been in office. *Size* is the log of total assets. *BTM* is book value of assets divided by the market value of assets. *Firm_Risk* is the standard deviation of residuals from regression of daily stock returns on daily industry median returns and market returns for the past 12 months. *Sys_Risk* is the standard deviation of the predicted value from regression of daily stock returns on daily industry median returns and market returns for the past 12 months. *Dereg* equals one for firms with fiscal years end after the passage of IBBEA in September of 1994, and zero otherwise. *, **, *** denote significance at the 10%, 5% and 1% levels with two-tailed tests. Standard errors are clustered by firm.

	(1)	(2)	(3)	(4)
	Turn	Turn	Forced	Forced
	High Risk-Taking	Low Risk-Taking	High Risk-Taking	Low Risk-Taking
Return	-0.388	-0.130	-1.188**	-0.470
	(1.20)	(0.46)	(2.01)	(1.55)
ΔROA	-33.045**	30.684**	-56.847**	21.708
	(2.44)	(2.30)	(2.17)	(1.03)
Dereg	0.137	1.540***	1.454***	0.271
	(0.23)	(2.87)	(3.77)	(0.59)
*Return*Dereg*	-0.057	-0.408	0.670	0.060
	(0.10)	(0.67)	(0.83)	(0.11)
*ΔROA*Dereg*	37.529*	-19.957	69.237**	12.733
	(1.87)	(1.08)	(2.50)	(0.47)
Age	0.148***	0.095***	-0.013	0.026*
	(6.61)	(7.31)	(0.57)	(1.88)
Tenure	-0.023*	-0.041***	-0.000	-0.023
	(1.68)	(3.81)	(0.01)	(1.52)
Size	-0.056	0.199**	0.015	0.432***
	(0.83)	(2.08)	(0.14)	(3.26)
BTM	0.518	0.821	8.635*	3.124**
	(0.21)	(0.44)	(1.94)	(1.96)
Firm_Risk	1.860***	2.230*	1.430	2.462
	(2.85)	(1.79)	(1.57)	(1.48)
Sys_Risk	1.044	0.374	-2.943	1.164
	(0.70)	(0.15)	(0.97)	(0.37)
Constant	-10.722***	-10.702***	-11.736**	-11.854***
	(6.10)	(4.66)	(2.54)	(4.33)
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	1133	994	1057	939

Table 8: Deregulation, Bank CEO Compensation, and Bank CEOs' Turnover-Performance Sensitivity

This table reports the coefficients and t-statistics from the following probit regression for the post deregulation period.

$Prob(Forced/Turn=1) = a_0 + a_1 Return_{t-1} + a_2 \Delta ROA_{t-1} + a_3 High\_Vega_{t-1} + a_4 \Delta Return_{t-1} * High\_Vega_{t-1} + a_4 \Delta ROA_{t-1} * High\_Vega_{t-1} + a_5 Age_t + a_6 Tenure_t + a_7 Size_{t-1} + a_8 BTM_{t-1} + a_9 Firm\_Risk_{t-1} + a_{10} Sys\_Risk_{t-1} + \varepsilon$

The indicator variable *Turn* equals one if there is a CEO turnover, and zero otherwise. The indicator variable *Forced* equals one if the CEO is forced to leave the company, and zero otherwise. *Return* is the industry-adjusted buy-and-hold stock return for the past 12 months. *ΔROA* is the industry-adjusted change in return on assets, which is measured as pre-tax operating income divided by total assets. *Age* is the age of the CEO. *Tenure* is the number of years the CEO has been in office. *Size* is the log of total assets. *BTM* is book value of assets divided by the market value of assets. *Firm_Risk* is the standard deviation of residuals from regression of daily stock returns on daily industry median returns and market returns for the past 12 months. *Sys_Risk* is the standard deviation of the predicted value from regression of daily stock returns on daily industry median returns and market returns for the past 12 months. *High_Vega* equals one if a firm's Vega is higher than the sample median. Since Vega data is available only after deregulation, the test is run on post-deregulation data. *, **, *** denote significance at the 10%, 5% and 1% levels with two-tailed tests. Standard errors are clustered by firm.

	(1)	(2)
	Turn	Forced
Return	-0.149	-0.120
	(0.47)	(0.29)
ΔROA	-5.500**	-14.316***
	(2.26)	(2.58)
High_Vega	-0.241	-0.061
	(1.41)	(0.21)
Return * *High_Vega*	0.071	-0.189
	(0.16)	(0.36)
ΔROA * *High_Vega*	12.016	37.600**
	(1.17)	(2.18)
Age	0.094***	-0.011
	(4.72)	(0.53)
Tenure	-0.020	0.006
	(1.49)	(0.38)
Size	0.087	0.104
	(1.06)	(1.21)
BTM	-0.151	0.799
	(0.23)	(0.69)
Firm_Risk	0.679	0.992
	(0.61)	(0.64)
Sys_Risk	-0.509	0.350
	(0.41)	(0.23)
Constant	-7.466***	-3.509**
	(5.15)	(2.54)
Year Fixed Effects	Yes	Yes
Observations	769	724