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Trends in Executive Compensation across Bank Types

Shaker Ahmed, Denis Davydov and Sami Vähämaa

Abstract

In this chapter, we present a descriptive analysis of executive compensation in U.S. banks over the period 1992-2018. Specifically, using detailed data on the compensation of the Chief Executive Officers (CEOs) of the S&P 1500 banks, we examine the development trends in the level and structure of bank CEO compensation over time. Moreover, we also assess differences in CEO compensation levels and structures across banking organizations with different types of business models. Our key findings can be summarized as follows: (1) The level of CEO total compensation varies considerably over time. (2) The total compensation of bank CEOs decreased substantially around the global financial crisis and has not yet exceeded the pre-crisis levels despite the systematic increase over the last decade. (3) Bonuses and other types of incentive compensation items comprise a vast proportion of bank CEO compensation. (4) The base salary of bank CEOs has remained relatively constant over time. (5) Both the level and the composition of CEO compensation differ across bank types with the CEOs of investment banks having the highest pay and the highest proportion of performance-based compensation items after controlling for bank size, capital ratio, and financial performance. (6) The structure of bank CEOs' incentive compensation has largely shifted from options towards restricted stock in the aftermath of the financial crisis.

Keywords: Executive compensation, bank CEOs, bank business models

1. Introduction

The Chief Executive Officers (CEOs) of large U.S. banks are among the highest-paid individuals in the economy. Kaplan and Rauh (2010) document that bank CEOs are at the very top end of the income distribution, while the findings of Philippon and Reshef (2012) indicate that the CEOs of financial institutions earn a 250 percent premium relative to CEOs in other industries. Due to their economic and societal importance, banks and their executive compensation policies are subject to extensive regulations, guidelines, and supervision as well as intensive scrutiny by the market participants and the general public.

Compensation policies in the banking industry have often been criticized as being excessive, and in the aftermath of the global financial crisis of 2008-2009, politicians and regulators have alleged that executive compensation and compensation-based risk-taking incentives were among the key factors contributing to the outbreak of the crisis (e.g., Basel Committee on Banking Supervision, 2010; Board of Governors of the Federal Reserve System, 2009; Bebchuk, Cohen and Spamann, 2010; Mehran, Morrison and Shapiro, 2011). As a response to the financial crisis, new legislations such as the 2010 Dodd–Frank Wall Street Reform and Consumer Protection Act as well as say-on-pay provisions within the Troubled Asset Relief Program (TARP) were explicitly designed to regulate executive compensation policies in the banking industry. Thus, in contrast to non-financial firms, the regulatory oversight of financial institutions also encompasses their managerial compensation structures.

In addition to the potential role of bank CEO compensation in the recent financial crisis, executive compensation in the banking industry has important implications for the overall financial stability and the resiliency of the financial system. Unlike non-financial firms, banks are highly leveraged. Because of the limited liability, shareholders enjoy firms' entire profit beyond the cost of debt, but their risk is limited to the contributed capital. This call option like feature on firms' profit encourages bank owners to take more risk at the expense of other stakeholders. The risk-shifting problem in banks gets even more intensified at the presence of government guarantees, deposit insurance systems, and low-cost availability of equity capital (for a review, see, e.g., de Haan and Vlahu, 2016). Therefore, poorly designed executive compensation policies focusing on aligning bank executives' interest with shareholders to reduce agency problem stemming from the separation of ownership and control (see e.g., Berle and Means, 1932; Jensen and Meckling, 1976) can lead to excessive risk-taking and even bank failures (e.g., DeYoung, Peng and Yan, 2013; Bhagat and Bolton, 2014; Bai and Elyasiani, 2013; Iqbal and Vähämaa, 2019). As noted e.g. by Iqbal and Vähämaa (2019), compensation-based managerial incentives may not only increase the riskiness of individual banks but can quickly propagate from one institution to another and create negative externalities on the whole financial system as was seen during the global financial crisis.

Furthermore, the compensation policies of bank CEOs which are generally designed to maximize shareholder value may lead to managerial short-termism and misaligned incentives that are conflicting with the interests of other stakeholders such as depositors, debt holders, banking supervisors, and the society in general. While financial institutions have a focal role in the financial system, it is important to recognize that their strategic decisions, business models, and lending practices can have far-reaching societal consequences on economic conditions and the overall

functioning of the society. At least implicitly, the objective of the new compensation regulations and guidelines within the Dodd-Frank Act and TARP was to constrain managerial short-termism and nudge banks towards more responsible behavior.

Over the past few years, increasing attention has been devoted to banks' social responsibility and the demands of less salient stakeholders in terms of social and environmental initiatives. As a response to these demands, central banks and bank regulators have now explicitly acknowledged the important role of banks and their compensation policies for sustainable development and the advancement of the United Nations Sustainable Development Goals (see e.g., European Banking Authority, 2019; European Central Bank, 2020).[1] In a few large banks such as Deutsche Bank and the Royal Bank of Canada, executive compensation has already been linked to social and environmental performance.[2] Although the effect of these recent developments is yet to be seen, the integration of social responsibility criteria into bank CEO compensation may be a powerful mechanism for advancing sustainable development in the future.

Considering the potentially wide-ranging societal and economic effects of CEO compensation in the banking industry, we address the following aspects of bank CEO compensation in this chapter:

1. How much are bank CEOs paid?
2. Does the compensation of bank CEOs vary over time?

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[1] For instance, the European Banking Authority (2019) Action Plan on Sustainable Finance notes that executive remuneration "plays a fundamental role in ensuring the inclusion of social and environmental considerations in the decision-making process".

[2] See Deutsche Bank's press release from December 2020 at https://www.db.com/news/detail/20201207-deutsche-bank-plans-to-link-compensation-to-sustainability-criteria.

3. How are bank CEOs paid?
4. Does the compensation structure of bank CEOs vary over time?
5. Does the level and structure of bank CEO pay differ across banking organizations with different types of business models?

2. Data on bank CEO compensation

Our descriptive analysis is based on the grant-date annual total compensation of the Chief Executive Officers of large, publicly traded U.S. banks included in Standard & Poor's ExecuComp database over the period 1992-2018. ExecuComp reports the compensation of the top executives of current and former constitutes of the S&P 500, S&P MidCap 400, and S&P SmallCap 600 indices from 1992 onwards. Following the S&P's Global Industry Classification Standard (GICS), we use the financial institutions categorized as banks in the three sub-categories: diversified banks, regional banks, and thrift and mortgage financial institutions. In addition, we also include investment banks as a separate category classified as investment banks and brokerage or asset management and custody banks in the GICS. Both diversified banks and regional banks are primarily involved in conventional commercial banking activities. While regional banks tend to operate in limited geographic regions, diversified banks are larger and operate nationwide and provide a range of financial services along with basic retail banking and lending activities. In contrast, thrift and mortgage banks provide mortgage and mortgage-related services.

As the main variable of interest for bank CEO compensation, we use ExecuComp's TDC1 as a proxy of the grant-date total compensation. Furthermore, we decompose total compensation into

the following five components: (1) salary, (2) bonus, (3) option grants, (4) stock awards, and (5) other compensation. Salary and bonus are the ExecuComp reported amounts earned by the CEOs during the fiscal year as the base salary and bonuses. Option grants and stock awards are the grant-date fair value of option grants and stock awards to the CEOs. The other compensation is the excess of total compensation over salary, bonus, option grants, and stock awards.

3. Trends in bank CEO pay

Trends in bank CEO pay level

In this section, we focus on the developments in bank CEO compensation and pay structure over time. Figure 1 plots the average annual pay and compensation components across all CEOs of financial institutions. From this figure, we notice three distinct trends in bank CEO pay over time: rapid growth in the 1990s, relatively volatile compensation level during the 2000s, and more stable growth in the 2010s. Table 1 depicts these trends and shows that the average CEO pay was the lowest in the 1990s and the highest during the 2000s, followed by a decline in the 2010s. While the average total compensation across all bank types is around $5 million during our sample period, the level of CEO pay experienced significant variations over the past three decades.

[Insert Figure 1 about here]

[Insert Table 1 about here]

The rapid growth in bank CEO pays during the 1990s mostly occurred during the second half of the decade. Due to the deregulation of the banking industry, this time period can be characterized by substantial restructuring processes (Rhoades, 1994; Berger, Demsetz and Strahan, 1999). Specifically, the Gramm–Leach–Bliley Act (GLBA) of 1999 permitted U.S. commercial banks to diversify into non-traditional activities and has facilitated mergers with institutions that engage in capital market activities and insurance underwriting. As a result, many banks became larger and started to engage in more diverse activities (Hagendorff and Vallascas, 2011). The increases in bank size and complexity of the operating structure have also likely had a positive effect on bank CEO compensation (Bliss and Rosen, 2001; Anderson, Becher and Campbell II, 2004). Besides, the booming stock market with the record levels of bank profitability in the 1990s provided a favorable atmosphere for a further increase in bank CEO compensation during this period.

Bank CEO compensation continued the growth in the 2000s. The average bank CEO pay of $4.96 in the 1990s increased to $5.69 million in the 2000s. In 2000, the yearly average compensation rose to its peak of $8.70, witnessing a staggering 36% increase from the prior year's pay level. The dot-com crisis in the early 2000s had significantly reduced the pay and slowed down its growth. The pay level dropped to $6.8 million in 2001 and remained relatively stable until 2006. At the onset of the financial crisis in 2007, bank CEO pay continued to fall drastically and reached its lowest level of $2.70 million in 2009. We observe the highest and the lowest level of annual bank CEO compensation during the same decade since the beginning of the 21st century.

A number of factors have contributed to this volatile trend in bank CEO compensation in the 2000s. The introduction of the Sarbanes-Oxley Act (SOX) in 2002, among other regulations, contained

the prohibition of all personal loans to executives and directors.[3] The introduction of the "clawback" provision that entitled the SEC to sue the CEOs and CFOs to recover their incentive-based earnings within one year of misstated financial reports (Natarajan and Zheng, 2019) and requiring swift disclosure of granted option, also had a significant impact on the structure of executive compensation.[4] Another significant regulatory change was the tightening of deferred compensation related tax laws in 2002 (Section 409A), mainly triggered by the Enron scandal on employee deferred accounts.[5]

Even stricter regulations on bank CEO compensation emerged during and in the aftermath of the global financial crisis of 2008-2009. For government-assisted bailed-out banks through the Troubled Asset Relief Program (TARP), the tax-deductibility for the total CEO pay was reduced to only half a million dollars in late 2008. Subsequently, all forms of incentive payments except for restricted stock awards were disallowed until the banks have fully repaid the government bailout package. This restriction changed not only the level of CEO compensation but also the structure of CEO pay.

[3] Previously, executives were awarded a non-recourse loan to buy company's share, forgivable loans for housing subsidy and a short-term bridge loan to exercise stock options through so-called cashless exercise programs.

[4] Under option backdating practice, companies deliberately reported an earlier date for granted stock options when the stock price was unusually low (see, e.g., Lie 2005; Heron and Lie, 2007; 2009).

[5] Just before filing for Chapter 11 bankruptcy, Enron allowed a small number of employees to withdraw millions from deferred compensation accounts while about 400 senior and former executives having money in their accounts became unsecured creditors and eventually lost most of them.

Around the same time, in early 2009, the Financial Stability Board (FSB) developed principles and standards for sound compensation practices that framed national regulation for all financial institutions within the FSB jurisdiction in 2011 (Cerasi et al., 2020). These principles aim to ensure effective governance of compensation by aligning compensation with prudent risk-taking of banks adjusted for all types and different time horizons of risk. They also assume effective supervisory oversight and stakeholder engagement in compensation but they do not establish any particular structure or level of compensation.

In the 2010s, the Dodd-Frank Act set the government's blueprint for CEO pay in the U.S. Among other requirements, this Act included provisions like say-on-pay[6], independent compensation committee, disclosure of CEO pay ratio[7], extended "clawback" rules with the cover period shifting from 12 months under the SOX to three years and restricting certain risk-taking incentives. In addition to constraining excessive risk-taking, the objective of these new compensation regulations and guidelines, at least implicitly, was to restrain managerial short-termism and nudge banks towards more responsible behavior. As a result and as depicted in Figure 1, the average CEO pay remained between $3.8 and $5.4 million during the past decade. The most recent period after the financial crisis is also somewhat less volatile, without any sharp increases or decreases in CEO pay. In 2017, the Tax Cuts and Jobs Act lowered corporate tax rates from 35 to 21 percent which

[6] This rule concerns shareholder approval of executive pay and "golden parachute" compensation arrangements. Specifically, say-on-pay votes must occur at least once every three years. Besides, at least once every six years, shareholders will participate in a "frequency" vote to decide how often they would like to be presented with the say-on-pay vote.

[7] This rule requires a public company to disclose the ratio of its CEO's compensation to its employees' median compensation.

likely had a positive effect on CEO pay (Durrant, Gong and Howard, 2021). However, from Figure 2, we cannot observe any notable increase in average bank CEO pay in 2018.

Trends in bank CEO pay structure

Three primary features in CEO pay structure can be observed from Table 1. First, the base salary of bank CEOs has remained relatively constant over time. On average, the salary varies from $680,000 to $810,000 and comprises only about 14%-18% of the annual total pay of bank CEOs. The salary level remained virtually the same in the 1990s, and the 2000s and increased marginally in the 2010s. Second, equity-based compensation, i.e., option grants and stock awards, accounts for the largest share of bank CEO pay. On average, the share of equity-based compensation comprises about 50% of the total compensation during the whole sample period. However, the use of equity-based compensation has declined from roughly 54% in the 2000s to 47% in the 2010s. Murphy (2013) argues that the 1993 tax law capping a public company's corporate income tax deductibility for non-performance compensation for its top executives at $1 million per year leads to the expansion of equity-based pay and stagnation in base salary. The Tax Cuts and Jobs Act of 2017 changed this preferential treatment for performance-based compensation.

Third, after the financial crisis, there has been a clear shift from options grants to restricted stock awards. In the 1990s, option grants alone constitute 39% of the total compensation. The use of option grants declined to only about 6% in the 2010s. In the same decade, stock awards usage reached more than 41%, compared to 12% in the 1990s. These changes can be attributed to the modifications in SEC compensation disclosure requirements and accounting standards.

4. CEO compensation across different types of banks

Figure 2 plots the yearly average CEO pay level across four bank types. It shows that the CEOs of diversified banks are among the ones with the highest compensation level. Their compensation experienced the highest growth in the 1990s, was rather volatile in the 2000s, suffered the worst decline during the global financial crisis of 2008-2009, and recovered faster than in other types of banks in the 2010s. As can be noted from Panel A in Table 2, the average compensation of CEOs of diversified banks has increased nearly four-fold from the 1990s to 2000s, (from about $5 million to over $19 million) and has declined in the 2010s. Panel A of Figure 3 shows that an average CEO of a diversified bank received $5.1 million in 1996, whereas the average compensation doubled to $10.1 million in the next year. Diversified banks' CEO compensation reached its peak in the year 2000 with an average pay level of $29 million. The pay level reduced to more than half in just two years. A striking feature is the excessive use of bonuses during the years 2003−2005, unlike during any other period.

The composition of CEO pay is mostly dominated by option grants, which can be seen from Panel A of Table 2. The average option grants for the 1990s and the 2000s were 45% and 48%, respectively. However, we observe a rapid change in this pattern from 2008 onward: the use of option grants diminished to only about 6% in the 2010s. At the same time, stock awards became the central medium of CEO pay and alone constituted about 63% of annual total pay. In the 2010s, an average diversified bank CEO had received about $9 million in stock grants out of $14 million of his/her total compensation.

We observe mostly the opposite trends in the compensation of regional banks' CEOs. Figure 2 demonstrates that regional bank CEOs are the least paid executives among all bank CEOs. On average, they receive about $2.87 million over the entire sample period and have a gradual growth in their average pay over the three decades (see Panel B of Table 2). Interestingly, for the entire sample period, the base salary represents one-quarter of the total CEO pay. Salary became even more prominent in the 2010s, while the combined share of option grants and stock awards decreased.

Figure 3 also shows that in 1992 there was only a $200,000 difference in average CEO pay for regional and diversified banks. In 2000, this difference has increased to nearly $26 million. After the sharp decline during the financial crisis of 2008-2009, CEO compensation grew steadily from $2.2 million in 2010 to $3.7 million in 2018, which is the highest compensation level for the CEOs of regional banks. However, in 2018, regional bank CEOs' total compensation did not undergo as much growth as the pay of diversified bank CEOs. Regional bank CEOs' higher compensation than the pre-crisis level that is heavily dependent on non-equity-based compensation depicts the exact opposite trends of diversified bank CEOs' pay over recent years.

[Insert Figure 2 about here]

[Insert Table 2 about here]

[Insert Figure 3 about here]

Table 2 shows that the compensation of the CEOs of thrift and mortgage banks is more comparable to regional banks than diversified banks. In the 1990s, the average CEO pay for thrift and

mortgage, and regional banks are $2.88 and $2.47 million. Figure 2 shows that the thrift and mortgage bank CEOs' pay started to increase more than the pay of regional bank CEOs in the early 2000s. The trend continued until the global financial crisis. Since then, there has been nearly a decade-long parity in CEO pay for those two banks that only disappeared in 2018 due to a sharp increase in the compensation of thrift and mortgage bank CEOs. However, Panel D of Figure 3 shows that the CEO compensation of $6.2 million in 2018 is less than its peak of $6.9 million in 2001.

The regional banks and thrift and mortgage banks also have similar pay structures with higher use of non-equity-based compensation. Table 2 reveals the combined share of option grants and stock awards for thrift and mortgage bank CEOs raised in the 2000s, but it reduced in the next decade to about 43%. In the 2010s, the average CEO received more than 5% of their total pay in option grants and about 38% in stock grants. Notably, the proportion of stock grants is close to that of regional banks, and the lower share of option grant usage is also a common feature for diversified and regional banks during this decade.

Among the four groups of CEOs, investment bank executives receive the second-highest payment. These banks' executive pay structure is closer to the diversified banks than the other two bank types. What stands out from Figure 2 is the higher average compensation of investment bank CEOs in the early 1990s than that of diversified bank CEOs. Even though investment bankers' pay almost tripled in 2000 from their level in 1992, it is not even close to the more than ten-fold increase in the compensation of the CEOs of diversified banks (see Figure 3). In the following two decades, the CEOs of diversified banks have been consistently paid higher than the investment bankers.

During the global financial crisis, the pay of investment bank CEOs declined significantly and started to rebound in the early 2010s. On average, CEO compensation remained at $8 million and an even split between the use of equity and non-equity-based compensation (see Panel D of Table 2). Surprisingly, Panel D of Figure 3 shows that in 2018, when the CEOs of the three other types of banks witnessed a boost in their compensation, the pay of investment bank CEOs declined after being stagnant for the prior couple of years.

While there is a significant difference in the level of CEO pay for different bank types, we find that some bank CEOs are paid more homogenously than others. In addition, we observe that the trend in the use of compensation components such as salary, stock awards, and options grants changes less frequently than the level of pay.

5. The effects of bank type, size, risk, and performance on CEO compensation

The previous section shows that the level of CEO compensation differs substantially across bank types. In the following, we conduct a more formal examination by examining the effect of bank type on CEO compensation after controlling for bank size, capital ratio, and financial performance. For this purpose, we estimate the following panel regression specification:

$$Compensation_{j,t} = \alpha + \beta_1 Diversified\ bank_{j,t} + \beta_2 Investment\ bank_{j,t} + \beta_3 Regional\ bank_{j,t}$$

$$+ \beta_4 Size_{j,t} + \beta_5 Capital\ ratio_{j,t} + \beta_6 Profitability_{j,t} + \sum_{y=2018}^{1993} \beta_y Year_t + \varepsilon_{j,t}$$

where $Compensation_{j,t}$ is one of the following six CEO compensation variables: (1) the natural logarithm of the annual total compensation of bank *j*'s CEO in year *t*, (2) the ratio of salary to annual total compensation, (3) the ratio of bonus to annual total compensation, (4) the ratio of option grants to annual total compensation, (5) the ratio of stock awards to annual total compensation, and (6) the ratio of other compensation to annual total compensation. With respect to bank types, we use three different dummy variables that identify diversified, investment, and regional banks, respectively, with the thrift and mortgage banks being the omitted category. We control for bank size, capital ratio, and financial performance in the regressions because these variables have been identified as the most important determinants of executive compensation in the prior literature (see e.g., Ang, Lauterbach and Schreiber, 2002). We measure *Size* as the natural logarithm of the total book value of assets, *Profitability* as the return on assets calculated as net income divided by the total assets, and *Capital ratio* as total equity capital divided by total asset. In addition to being one of the main variables of interest for bank supervisors, capital ratio is a useful indicator of risk and a proxy for the financial health of the bank. In all models, we include year fixed-effects to account for systematic variation in CEO compensation over time. The standard errors in the regressions are adjusted for heteroskedasticity and clustered by CEO.

[Insert Table 3 about here]

Panel A of Table 3 reports the regression results for the entire sample period 1992-2018. The estimates suggest that the CEOs of investment banks receive about 74% more in total pay. Their higher total pay is generated from statistically significantly higher percentages of bonuses and equity-based pay. These findings are consistent with the general characterization of investment

banks that their executive compensation structure involves higher bonuses and lower base salaries (Murphy and Jensen, 2018). Our estimates also show that the proportion of salary to total compensation is almost 16 percentage-points lower for investment bank CEOs, while the fractions of bonuses and stock awards are about 10 percentage-points higher relative to thrift and mortgage banks after controlling for differences in bank size, capital ratio, and financial performance.

The coefficient for the regional bank dummy illustrates that there is no significant difference in the level or the structure of CEO compensation between regional banks and thrift and mortgage banks. Even though in Figure 3 we find that diversified bank CEOs receive substantially higher compensation than other bank CEOs, the regression analysis finds no statistically significant premium in their total CEO pay after controlling for bank size, capital ratio, and financial performance. Nevertheless, the coefficient estimates indicate that the percentage of other compensation relative to total compensation is about 5 percentage-points lower in diversified banks.

Regarding the control variables, the estimates indicate that bank size is the primary explanatory variable for CEOs' total compensation and its components. An increase in bank size increases CEO total compensation as well as the percentages of stock awards and option grants relative to total compensation but decreases the fraction of annual base salary. Interestingly, while bank profitability increases the share of bonuses and other compensation and decreases stock awards, its impact on the total compensation is insignificant. Bank risk, in turn, as measured by the equity to assets ratio, has a positive effect on the total compensation, which mainly comes from the higher proportion of equity-based compensation.

Given the structural regulatory changes throughout our sample period (e.g. SEC's new compensation disclosure requirements were introduced in 2006 that resulted in a new aggregation structure for total compensation), we also conduct a sub-sample analysis by splitting our 27 years of observations into two sub-periods. The first period spans from 1992 to 2005 and the second sub-sample includes the years 2006−2018. The second subperiod coincides with SEC's new compensation disclosure requirements in 2006 that resulted in a new aggregation structure for total compensation. This period also captures the impact of the new accounting standard (FAS 123R) that became effective in 2005, the financial crisis of 2007–08, the TARP-related restrictive CEO pay measures, and the Dodd-Frank Act.

The results of the first and second sub-samples are reported in Panels B and C of Table 3. The estimates based on the two subperiods are mostly in line with the prior results for the entire sample period. One striking difference is that the weight of option grants in the total compensation is significantly lower for investment bank CEOs during the pre-2006 period. Instead, their higher pay is mainly derived from bonuses and stock grants. For diversified banks, we observe a significantly higher percentage of option grants and a lower proportion of other compensation relative to total compensation during the years 2006-2018.

6. Conclusions

In this chapter, we have presented a descriptive analysis of executive compensation in the banking industry using detailed data on the compensation of the Chief Executive Officers of the S&P 1500 banks over the period 1992-2018. We examine the development trends in the level

and structure of CEO compensation over time. Moreover, we also assess differences in CEO compensation levels and structures across banking organizations with different types of business models.

The key findings documented in this chapter can be summarized as follows:

- Bank CEOs' average annual total compensation over the period 1992-2018 was $4.96 million.
- The level of bank CEO annual total compensation varies considerably over time.
- The total compensation of bank CEOs decreased substantially around the global financial crisis and has not yet exceeded the pre-crisis levels despite the systematic increase over the last decade.
- The base salary of bank CEOs has remained relatively constant over time. The average base salary over the period 1992-2018 was $720,000.
- Bonuses and other types of incentive compensation items comprise a vast proportion of bank CEO compensation.
- Both the level and the structure of CEO compensation differ across bank types with the CEOs of investment banks having the highest pay and the highest proportion of performance-based compensation items after controlling for bank size, capital ratio, and financial performance.
- The structure of bank CEOs' incentive compensation has largely shifted from options towards restricted stock in the aftermath of the financial crisis.

Given the observed heterogeneity in the level and structure of bank CEO pay, there are several important research directions for future studies. First, from a financial stability perspective, further work is required for a better understanding of the underlying reasons for observed trends in bank CEO compensation. Second, from a supervisory perspective, it would be important to understand the role and effectiveness of various recently imposed regulations and guidelines for executive compensation practices and their impact on bank-specific outcomes such as performance and risk-taking. Third, from a banking industry perspective, it would be interesting to investigate the determinants of CEO pay in a cross-section of banks with similar business models and within similar size classes. Finally, given the potentially wide-ranging societal effects of executive compensation and compensation-based incentives, an important avenue for future research is to examine how social and environmental responsibility will be integrated into executive compensation policies, and moreover, whether the adoption of sustainability-related compensation incentives actually leads to a shift in banks' business models and strategies towards sustainable development.

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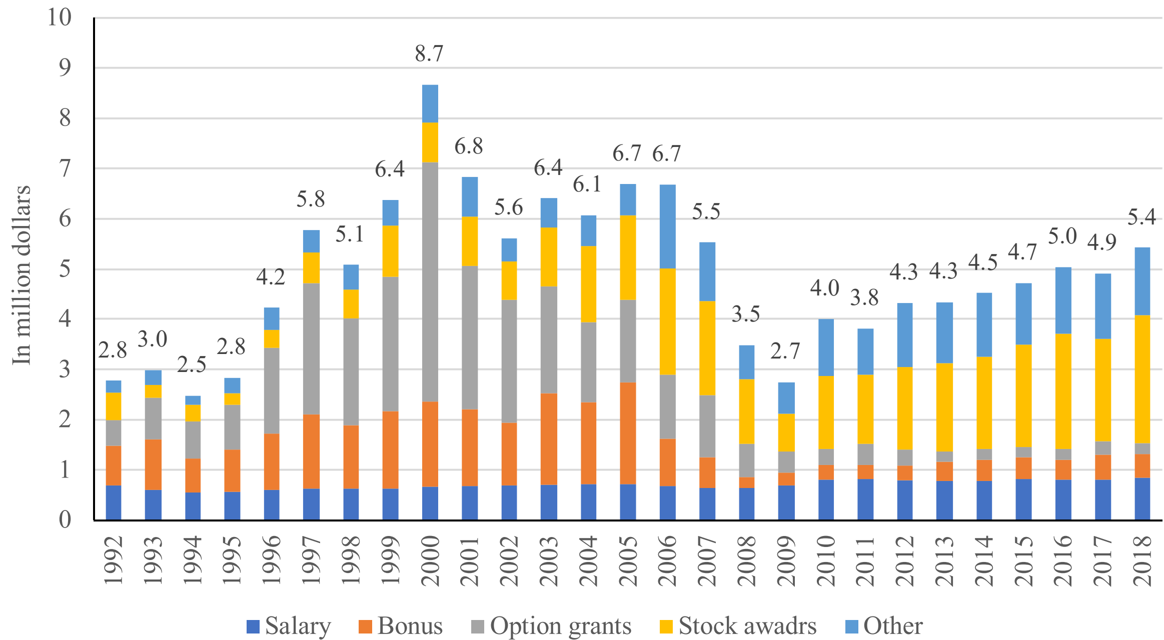
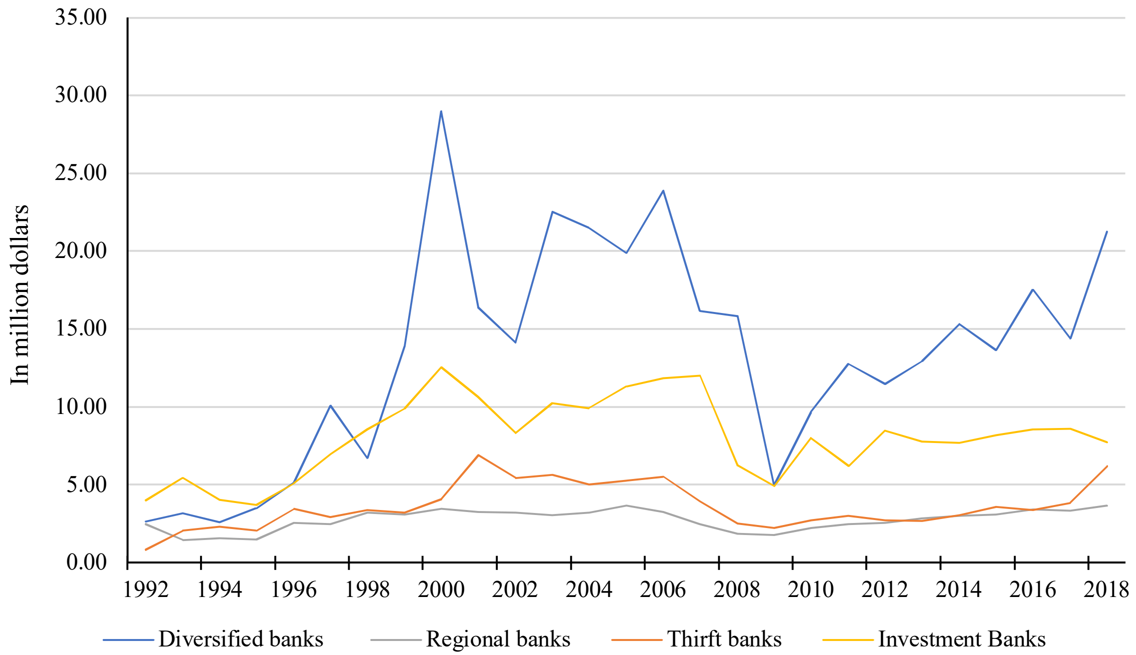
Figure 1: Bank CEO total compensation.



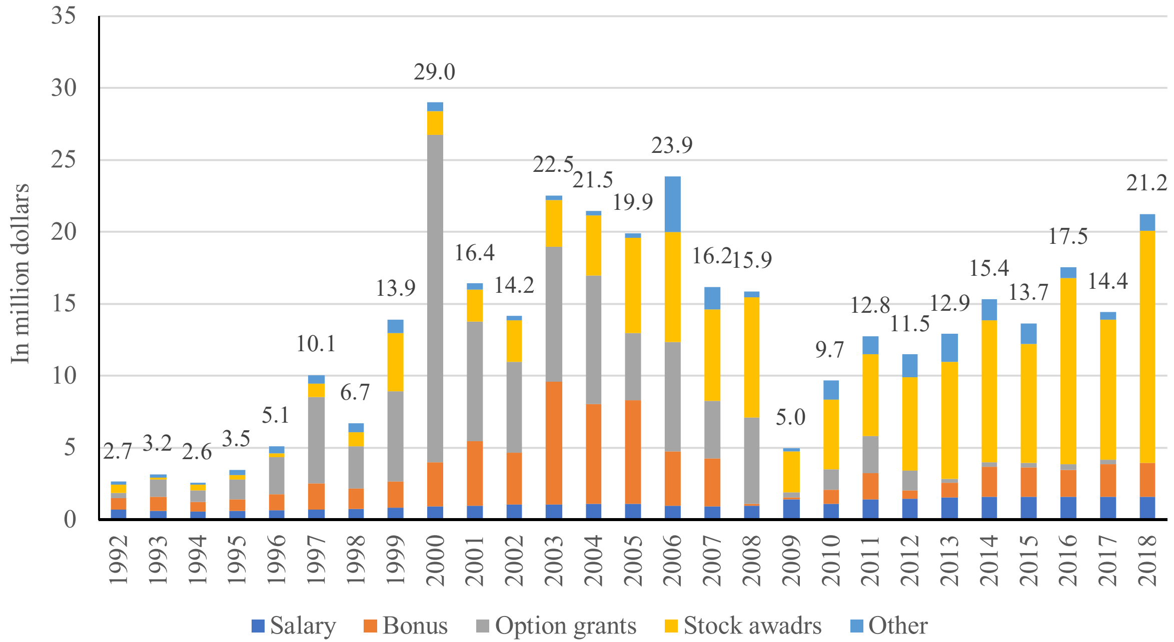
The figure depicts the level of bank CEO annual total compensation components by year. Total compensation is the grant-date annual total compensation (TDC1) as reported in ExecuComp. Salary and bonus are the Execucomp reported amounts earned by the CEO during the fiscal year as the annual base salary and bonuses. Option grants and stock awards are the grant-date fair value of option grants and stock awards to the CEOs. The other compensation is the excess of total compensation over salary, bonus, option grants, and stock awards.

Figure 2: Trends in bank CEO total compensation across bank types.

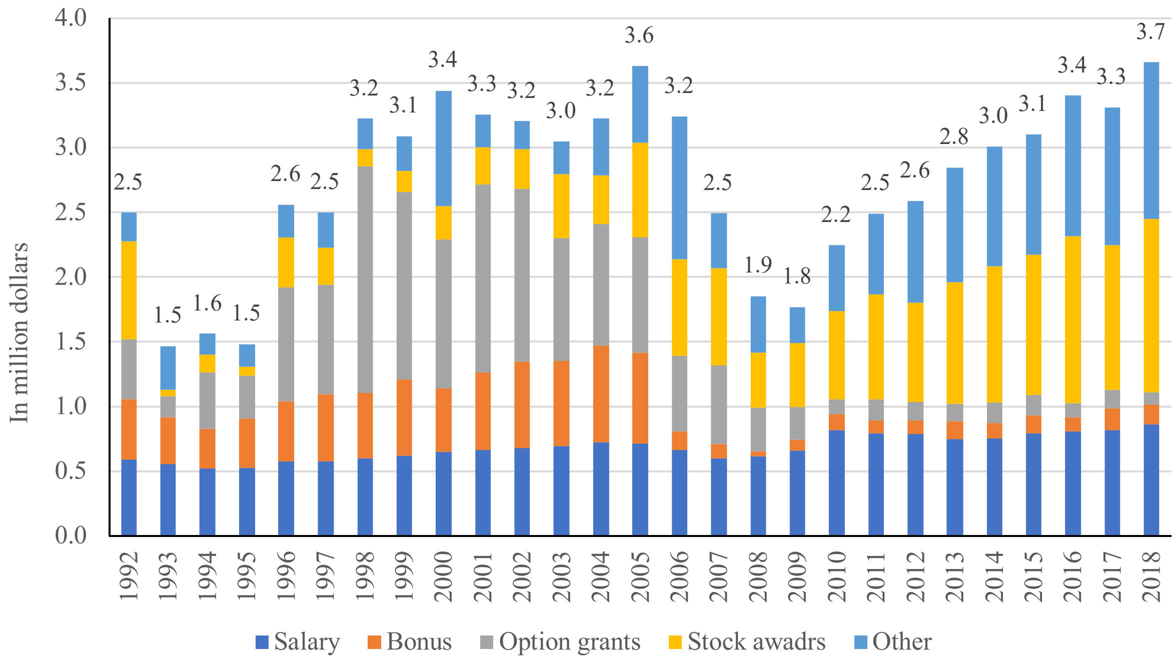


This graph depicts the average level of bank CEO annual total compensation by year across different types of banks. Total compensation is the grant-date annual total compensation (TDC1) as reported in ExecuComp.

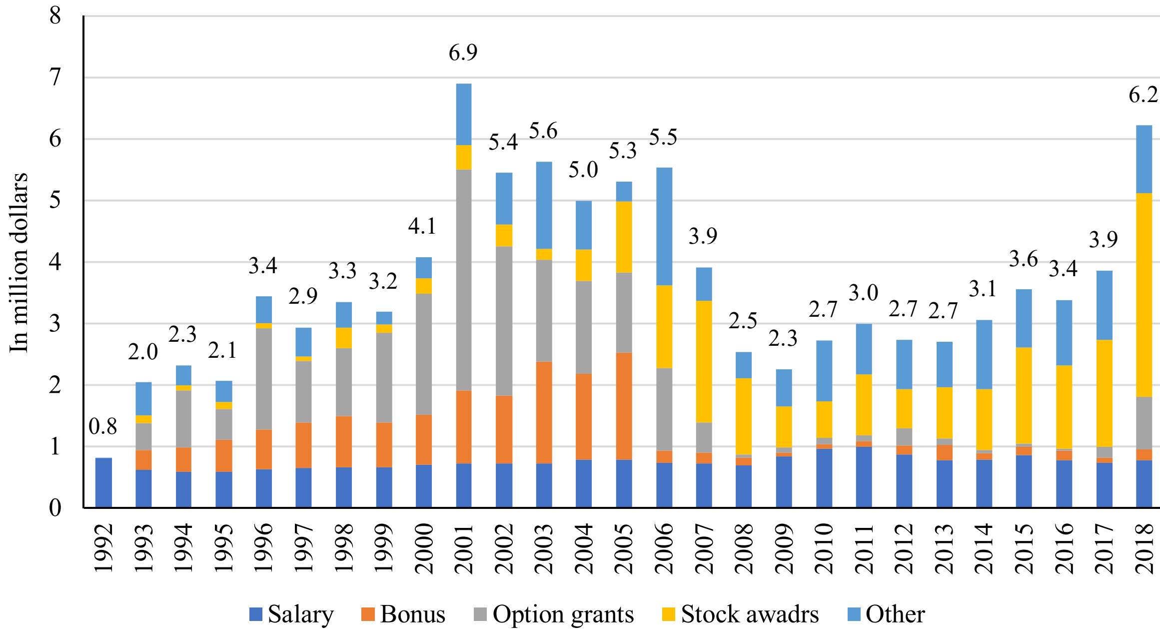
Figure 3: The structure of CEO compensation over time and across bank types.



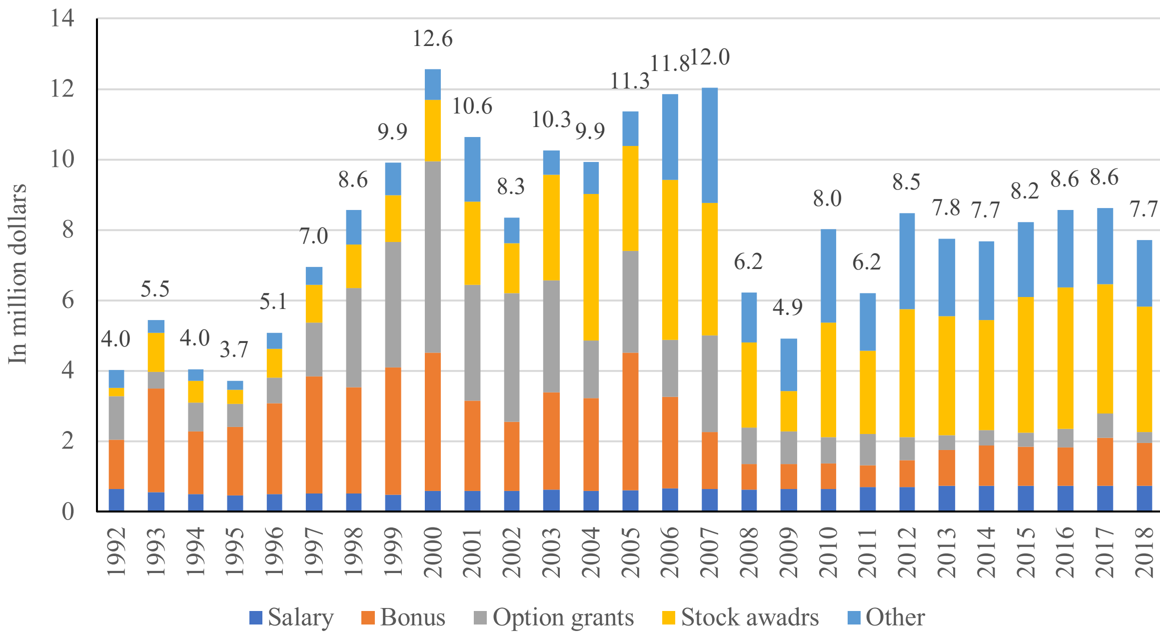
Panel A: Composition of average CEO pay for Diversified banks



Panel B: Composition of average CEO pay for Regional banks



Panel C: Composition of average CEO pay for Thrift and Mortgage banks



Panel D: Composition of average CEO pay for Investment Banks

The figure depicts the structure of CEO annual total compensation components by year for different types of banks. Total compensation is the grant-date annual total compensation (TDC1) as reported in ExecuComp. Salary and bonus are the Execucomp reported amounts earned by the CEO during the fiscal year as the annual base salary and bonuses. Option grants and stock awards are the grant-date fair value of option grants and stock awards to the CEOs. The other compensation is the excess of total compensation over salary, bonus, option grants, and stock awards.

Table 1: The level and structure of bank CEO compensation.

	1992-2018		1990s		2000s		2010s	
	USD millions	% of total compensation	USD millions	% of total compensation	USD millions	% of total compensation	USD millions	% of total compensation
Total compensation	4.96		4.27		5.69		4.55	
Salary	0.72	14.56	0.61	14.27	0.68	12.02	0.81	17.74
Bonus	0.81	16.30	1.12	26.35	1.11	19.43	0.38	8.44
Option grants	1.11	22.40	1.65	38.73	1.76	31.02	0.27	5.84
Stock awards	1.42	28.52	0.50	11.75	1.32	23.18	1.87	41.14
Other compensation	0.90	18.22	0.38	8.90	0.82	14.36	1.22	26.84

Total compensation is the grant-date annual total compensation (TDC1) as reported in ExecuComp. Salary and bonus are the ExecuComp reported amounts earned by the CEO during the fiscal year as the annual base salary and bonuses. Option grants and stock awards are the grant-date fair value of option grants and stock awards to the CEOs. The other compensation is the excess of total compensation over salary, bonus, option grants, and stock awards.

Table 2: The structure of CEO compensation across bank types.

Panel A: Diversified banks

	1992-2018		1990s		2000s		2010s	
	USD millions	% of total compensation	USD millions	% of total compensation	USD millions	% of total compensation	USD millions	% of total compensation
Total compensation	8.83		5.06		19.41		14.14	
Salary	0.84	9.49	0.67	13.20	1.04	5.34	1.49	10.55
Bonus	1.68	19.02	1.05	20.80	4.10	21.10	1.65	11.65
Option grants	3.34	37.80	2.29	45.27	9.28	47.79	0.81	5.76
Stock awards	2.39	27.08	0.65	12.87	4.18	21.52	8.89	62.87
Other compensation	0.58	6.61	0.40	7.86	0.82	4.24	1.30	9.16

Panel B: Regional banks

	1992-2018		1990s		2000s		2010s	
	USD millions	% of total compensation	USD millions	% of total compensation	USD millions	% of total compensation	USD millions	% of total compensation
Total compensation	2.87		2.47		2.79		2.95	
Salary	0.72	25.11	0.58	23.35	0.66	23.65	0.80	27.03
Bonus	0.26	9.11	0.47	19.03	0.37	13.08	0.13	4.34
Option grants	0.49	17.00	0.99	40.08	0.77	27.49	0.13	4.54
Stock awards	0.74	25.65	0.19	7.76	0.51	18.30	1.00	34.04
Other compensation	0.66	23.13	0.24	9.77	0.49	17.47	0.89	30.04

Panel C: Thrift and mortgage banks

	1992-2018		1990s		2000s		2010s	
	USD millions	% of total compensation	USD millions	% of total compensation	USD millions	% of total compensation	USD millions	% of total compensation
Total compensation	3.86		2.88		4.65		3.41	
Salary	0.76	19.74	0.64	22.36	0.74	15.99	0.84	24.60
Bonus	0.54	13.91	0.64	22.30	0.84	18.10	0.14	4.05
Option grants	0.89	22.93	1.08	37.59	1.42	30.47	0.18	5.21
Stock awards	0.87	22.61	0.15	5.06	0.84	18.01	1.29	37.77
Other compensation	0.80	20.82	0.37	12.69	0.81	17.42	0.97	28.37

Panel D: Investment banks

	1992-2018		1990s		2000s		2010s	
	USD millions	% of total compensation	USD millions	% of total compensation	USD millions	% of total compensation	USD millions	% of total compensation
Total compensation	8.53		6.71		9.66		7.91	
Salary	0.65	7.56	0.51	7.58	0.62	6.41	0.71	9.04
Bonus	1.80	21.15	2.82	42.05	2.23	23.10	0.99	12.56
Option grants	1.57	18.36	1.81	26.91	2.51	26.01	0.57	7.26
Stock awards	2.83	33.13	0.97	14.44	2.76	28.57	3.41	43.13
Other compensation	1.69	19.80	0.60	9.01	1.54	15.91	2.21	28.01

Total compensation is the grant-date annual total compensation (TDC1) as reported in ExecuComp. Salary and bonus are the ExecuComp reported amounts earned by the CEO during the fiscal year as the annual base salary and bonuses. Option grants and stock awards are the grant-date fair value of option grants and stock awards to the CEOs. The other compensation is the excess of total compensation over salary, bonus, option grants, and stock awards.

Table 3: Regression results.

Panel A: 1992 – 2018

	Total compensation	Salary	Bonus	Option grants	Stock awards	Other compensation
Main variables of interest:						
Diversified bank	0.147	-0.040	0.023	0.034	0.030	-0.048**
	(1.11)	(-1.23)	(1.06)	(1.35)	(1.09)	(-2.06)
Regional bank	-0.048	-0.019	-0.002	0.016	0.011	-0.006
	(-0.46)	(-0.70)	(-0.15)	(1.10)	(0.47)	(-0.33)
Investment bank	0.737***	-0.159***	0.109***	-0.008	0.063**	-0.011
	(6.17)	(-4.94)	(4.14)	(-0.40)	(2.39)	(-0.45)
Control variables:						
Size	0.406***	-0.057***	-0.002	0.016***	0.041***	0.002
	(18.46)	(-10.32)	(-0.66)	(4.64)	(8.55)	(0.37)
Profitability	0.006	-0.002	0.004**	-0.002	-0.003**	0.003**
	(0.60)	(-0.97)	(2.23)	(-1.30)	(-2.16)	(2.08)
Capital ratio	0.013***	-0.003***	-0.001	0.002***	0.002***	-0.000
	(4.90)	(-3.93)	(-0.94)	(2.83)	(3.45)	(-0.17)
Constant	3.692***	0.968***	0.151***	-0.028	-0.265***	0.178***
	(18.16)	(18.14)	(3.63)	(-0.73)	(-5.11)	(3.78)
Year fixed-effect	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	3660	3660	3660	3660	3660	3660
Adj. R^2	0.55	0.31	0.31	0.29	0.27	0.20
F-stat	140.09***	52.72***	51.26***	47.21***	43.07***	29.36***

Table 3: *Continued*.

Panel B: 1992 2005

	Total compensation	Salary	Bonus	Option grants	Stock awards	Other compensation
Main variables of interest:						
Diversified bank	0.119	-0.025	0.028	0.003	0.026	-0.035
	(0.91)	(-0.75)	(1.05)	(0.10)	(1.11)	(-1.48)
Regional bank	-0.044	-0.015	0.004	0.003	0.014	-0.008
	(-0.34)	(-0.48)	(0.18)	(0.10)	(0.73)	(-0.44)
Investment bank	0.744***	-0.140***	0.158***	-0.067**	0.062**	-0.022
	(5.19)	(-4.05)	(4.37)	(-2.00)	(2.41)	(-1.08)
Control variables:						
Size	0.471***	-0.063***	0.002	0.028***	0.025***	0.008*
	(19.21)	(-11.16)	(0.31)	(4.00)	(4.99)	(1.74)
Profitability	0.020	-0.007	0.012***	-0.002	-0.002	-0.000
	(1.12)	(-1.52)	(4.34)	(-0.42)	(-1.37)	(-0.56)
Capital ratio	0.006	-0.000	-0.001	0.002	0.000	-0.001
	(1.20)	(-0.34)	(-1.26)	(1.44)	(0.77)	(-1.51)
Constant	3.135***	0.957***	0.195***	-0.006	-0.186***	0.041
	(10.92)	(14.77)	(2.75)	(-0.07)	(-3.85)	(0.98)
Year fixed-effect	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	1550	1550	1550	1550	1550	1550
Adj. R^2	0.59	0.29	0.17	0.11	0.12	0.03
F-stat	116.95***	34.91***	17.96***	11.13***	11.69 ***	3.24***

Table 3: *Continued.*

Panel C: 2006 - 2018

	Total compensation	Salary	Bonus	Option grants	Stock awards	Other compensation
Main variable of interest:						
Diversified bank	0.058	-0.037	0.065	0.061	0.062	-0.154***
	(0.20)	(-0.50)	(1.33)	(1.29)	(0.93)	(-3.08)
Regional bank	-0.053	-0.022	-0.002	0.029***	0.006	-0.010
	(-0.38)	(-0.57)	(-0.20)	(2.71)	(0.16)	(-0.35)
Investment bank	0.691***	-0.163***	0.076**	0.038**	0.058	-0.013
	(4.13)	(-3.20)	(2.36)	(2.04)	(1.33)	(-0.34)
Control variables:						
Size	0.373***	-0.053***	-0.005	0.008**	0.048***	0.001
	(11.18)	(-6.08)	(-0.90)	(2.37)	(6.25)	(0.19)
Profitability	0.003	-0.001	-0.000	-0.002	-0.004*	0.006***
	(0.35)	(-0.34)	(-0.04)	(-1.21)	(-1.72)	(2.60)
Capital ratio	0.017***	-0.004***	-0.000	0.001**	0.003***	0.000
	(5.52)	(-4.48)	(-0.25)	(2.46)	(3.18)	(0.42)
Constant	3.952***	0.985***	0.097*	-0.053	-0.269***	0.244***
	(14.36)	(12.32)	(1.85)	(-1.47)	(-3.32)	(3.41)
Year fixed-effect	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	2110	2110	2110	2110	2110	2110
Adj. R^2	0.55	0.33	0.05	0.11	0.19	0.06
F-stat	142.20***	58.19***	7.22***	15.81***	28.00 ***	8.05 ***

The table reports the estimates of six alternative regression specifications. The six different CEO compensation variables are the following: (1) the natural logarithm of the annual total compensation, (2) the ratio of salary to annual total compensation, (3) the ratio of bonus to annual total compensation, (4) the ratio of option grants to annual total compensation, (5) the ratio of stock awards to annual total compensation, and (6) the ratio of other compensation to annual total compensation. Diversified bank, investment bank, and regional bank are dummy variables that identify different bank types with the thrift and mortgage banks being the omitted category. *Size* is the natural logarithm of total assets, *Profitability* is the return on assets calculated as net income divided by total assets, *Capital ratio* is the ratio of total equity to total assets. All the variables except the bank type dummy variables are winsorized at the 1st and 99th percentiles. The *t*-statistics (in parentheses) are based on robust standard errors adjusted for heteroskedasticity and are clustered by CEO. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively.