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Jian Cai

Kent Cherny

Todd Milbourn

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09.14.10

Economic Commentary

Compensation and Risk Incentives in Banking and Finance

Jian Cai, Kent Cherny, and Todd Milbourn

We review why executive compensation contracts are often structured the way they are, analyze risk incentives stemming from various pay schemes, and examine the tendency of the banking and finance industry toward excessive risk-taking. Studying the typical executive pay structures in banking and finance before the financial crisis reveals some potentially problematic practices. These practices may have encouraged “short-termism” and excessive risk-taking, which are two behaviors bank regulators aim to prevent with their recently issued guidance on incentive compensation.

The compensation packages of executives and employees at financial institutions have drawn considerable attention—and in some cases, indignation—in the wake of the recent crisis and the extraordinary government interventions that followed. Prior to the crisis, the financial sector had accounted for 20 percent to 35 percent of domestic profits in the United States for nearly two decades, so perhaps unsurprisingly, workers in this industry were rewarded for such profitability with higher compensation. But following the near collapse of the financial system, bank regulators and the general public are anxious to know whether compensation practices were partially or even largely to blame for the aggressive risk-taking that many institutions engaged in leading up to the crisis.

There has been a debate on this question among regulators, practitioners, and academicians. Some studies find no evidence that compensation affected financial firms’ performance during the crisis. Others find various links between managerial compensation and financial firms’ risk-taking behavior. Recently, the four major federal bank regulatory agencies—the Federal Reserve, the Office of the Comptroller of the Currency (OCC), the Office of Thrift Supervision (OTS), and the Federal Deposit Insurance Corporation (FDIC)—[jointly issued final guidance](#) on incentive compensation. The goal of the guidance is to prevent two kinds of behavior by banks: pursuing short-term profits at the expense of the long-term financial health of the organization, and taking imprudent or excessive risks that could jeopardize the safety and soundness of the organization.

To help understand the principles laid out in the guidance and establish the link between compensation and risk-taking, this *Economic Commentary* explains some common practices for rewarding employees at financial institutions and considers how they encourage or discourage risk-taking. Specifically, we address five questions: What does compensation do? How does compensation affect risk-taking? Are risk incentives stronger in the banking and finance industry? And, finally, are the compensation schemes favored by financial institutions

different from those in other industries? If so, have such differences induced higher risk-taking?

Compensation and Incentive Alignment

All the recent attention on pay packages and risk-taking seems to have created the misperception that companies use compensation packages to control the risk incentives of their managers. This is in fact not what an optimal compensation contract is primarily intended to do.

The traditional rationale for designing deliberate compensation schemes is that doing so aligns managerial incentives with those of shareholders. A firm's executives are tasked with executing the policies of its board of directors—those who represent the owners of the firm. Although many executives hold large amounts of equity in the firms they manage, they still embody what economists and corporate governance scholars call the “principal-agent problem.”

Because an imperfect match exists between the interests of the owners (principals) and managers (agents), managers may at times run the company in a way that advances their own interests over those of shareholders. They may seek to maximize their own power, influence, indispensability, or perquisites instead of overall profitability.

Shareholders use compensation to align managers' incentives with the central interest of the shareholders, which is maximizing the value of equity holdings. That is, the right compensation structure ensures that managers will benefit when they act in ways that benefit shareholders. Often, the structure of the compensation package combines rewards for short-term profitability and for long-term growth potential and the stability of earnings. For example, short-term profitability is encouraged with the base salary and a bonus that is tied to the firm's recent performance, whereas long-term growth and stability are encouraged through restricted stocks, stock options, benefit packages, pension plans, and so forth.

With well-designed pay schemes, managers are incentivized to boost profits in the near term, and they are also made partial long-term owners in the firm through stock grants and stock options, which provides them with a direct way to benefit from incremental improvements in the value of the firm. Boosting short-term profits at the expense of long-term investments will reduce the value of stocks and stock options, which are potentially more lucrative than a salary plus a bonus. In a balanced executive compensation package, either investments with immediate payouts or payouts too far in the future will reduce the value of an executive's lifetime compensation.

Compensation and Risk Incentives

A compensation contract may align shareholder and manager interests, but that does not mean it is designed to prevent every counterproductive behavior that managers might be tempted to engage in. In fact, one byproduct of compensation schemes that are optimal from the viewpoint of shareholders is that they can create an incentive to undertake excessive risk—risk so high it can jeopardize the stability of the firm. While certain structures are good at aligning managers with owners, their emphasis on equity can have a negative impact on creditor protection and the firm's stability. In the end, what is good for shareholders may not be good for debtholders such as banks, bondholders, depositors, and deposit insurers.

This unfortunate byproduct comes about as a result of differences in who profits in certain scenarios. Shareholders are referred to as “residual claimants” in the sense that they get whatever money is left over after debtors and suppliers are paid. If a firm cannot pay back all of its debts, shareholders receive nothing. If a firm can pay its debts, any realized firm value that exceeds the debts goes into the shareholders' pockets. Thus, the most shareholders can lose is their initial investment, but they have a potentially unlimited upside if the firm performs well.

If a firm becomes more risky—borrowing to invest in projects that have a high pay-off and a high probability of failing—the downside is borne by debtholders, whereas the upside is reaped by shareholders. In fact, the riskier the firm becomes, the greater the potential upside

there is. Faced with such an incentive, managers might take on more risks in order to maximize shareholders' as well as their own expected payoffs (through both stocks and stock options), possibly at the expense of the debtholders. As a result, the firm's safety and soundness may be sacrificed as the probability of insolvency increases due to more risk-taking.

Meanwhile, compensation structures that heavily reward short-term performance (for example, through bonuses) may encourage managers to take opportunities that would boost immediate profitability but risk future financial health. After all, managers do not need to stay with one firm forever.

Risk Incentives in Banking and Finance

Financial institutions are susceptible to the same principal-agent problem and risk-stability trade-off as other types of firms are. However, financial institutions' problems with regard to risk are compounded. This is primarily the case because they employ a comparatively high debt-to-equity ratio (leverage) to execute their primary function—financial intermediation—efficiently. A majority of financial institutions' profits come from borrowing money from depositors or institutional creditors and then lending it out at a higher rate. Through this mechanism, savers' money flows to financial intermediaries, and then flows to those looking for capital. The trade-off is that the more debt a financial institution takes on, the more it can intermediate between savers and borrowers; yet more debt and less equity also makes the institution highly susceptible to the conflict between debtholders and shareholders. Therefore, the problem of compensation providing executives with incentives to take on higher risks in the interest of shareholders is worse in the financial world.

Government guarantees further complicate incentive structures for managers in the financial sector. For a variety of reasons (such as protecting small savers and eliminating destabilizing bank runs), governments guarantee bank deposits up to a particular dollar threshold. In the absence of deposit insurance, creditors would be more inclined to force banks to hold significantly higher levels of capital and engage in activities with reasonable amounts of risks. With deposit insurance, managers at insured financial institutions are less concerned about bank runs, and they may also have more opportunities to take excessive or imprudent risks since creditors are less incentivized to monitor them. The premiums paid by banks for deposit insurance are meant to counteract the problems that were introduced by the provision of government deposit guarantees, as are mandatory supervision and regulation of bank activities by government agencies—but these countermeasures may be only a partial antidote.

Access to emergency liquidity facilities such as the Federal Reserve's Discount Window may also encourage risk-takers at financial institutions to mismanage portfolio liquidity by relying on shorter-term liabilities (which typically carry lower interest rates) to boost profits. Along these same lines, financial institutions that are exceedingly large or engage in complex transactions (such as derivatives trading—see [“Reforming the Over-the-Counter Derivatives Market: What's to Be Gained?”](#)) may even avoid collapse by “virtue” of being “too-big-to-fail” (TBTF) or too interconnected to other institutions to fail.

In such cases, financial institutions' managers would be well-compensated in the event risky activities pay off, but they would not face the discipline of failure if the activities bankrupt the firm. In fact, the reality of TBTF seemingly gives these executives the incentive to expand the size and complexity of their institutions, as doing so increases the likelihood that downside risks will be externalized to the financial system and taxpayers.

Executive Compensation in Banking and Finance

Having established that managers generally—and those at financial institutions specifically—can face an incentive to compromise the stability of their firms for shareholders' and their own interests, we now look at executive compensation in the banking and finance industry before the financial crisis. We investigate whether typical compensation schemes might have contributed to risk-taking behavior in this industry.

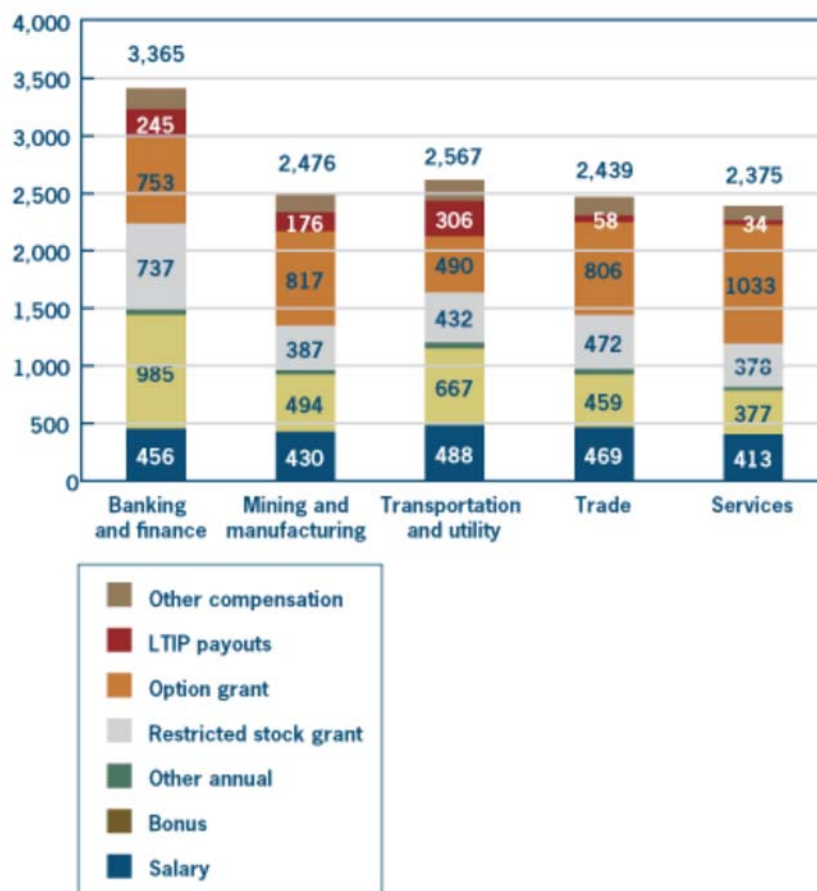
Note that we will focus on executive pay since this form of compensation is regularly disclosed in shareholder filings, and thus the relevant data are readily available. However, the

contracts of all other nonexecutive employees that put a firm's capital at risk—such as bankers, traders, and the risk management teams that oversee them—must also be considered when a financial institution's compensation scheme is examined. Executives may have blind spots in the oversight of those nonexecutives who make independent investment decisions. This is especially true for large institutions and institutions that engage in a broad range of complex activities. Even though we don't have nonexecutive compensation data, it is still reasonable to say that top executives are the most important agents in setting firm and investment policies and that their compensation really matters. Thus we are able to gain an overview of compensation and its underlying risk incentives in the banking and finance industry based on executive pay.

Figure 1 shows that in 2005, executives in banking and finance obviously earned the highest pay, totaling \$3.4 million per executive, or about 30 percent to 40 percent higher than executives in other industries. Three things stand out when we examine the main components of executive compensation (base salary, bonuses, restricted stocks, stock options, and long-term incentive plans). First, in the mid-\$400,000 range, the base salary in banking and finance was not much different from that in other industries.

Figure 1. Executive Compensation by Industry, 2005

U.S. dollars, thousands



Source: ExecuComp.

Second, the banking and finance industry paid significantly higher bonuses and awarded more restricted stock shares. At close to \$1 million per person, bonuses to executives in banking and finance amounted to more than twice their base salary and 1.5–2.5 times the bonuses paid to executives in other industries. In fact, 2005 was the highest bonus-paying year for banking and finance executives during the past two decades (see "[Bank Executive Pay](#)"). Bonuses are often tied to short-term financial performance, typically of the past one to three years. Thus, this compensation structure tends to reward short-term profits and may have encouraged

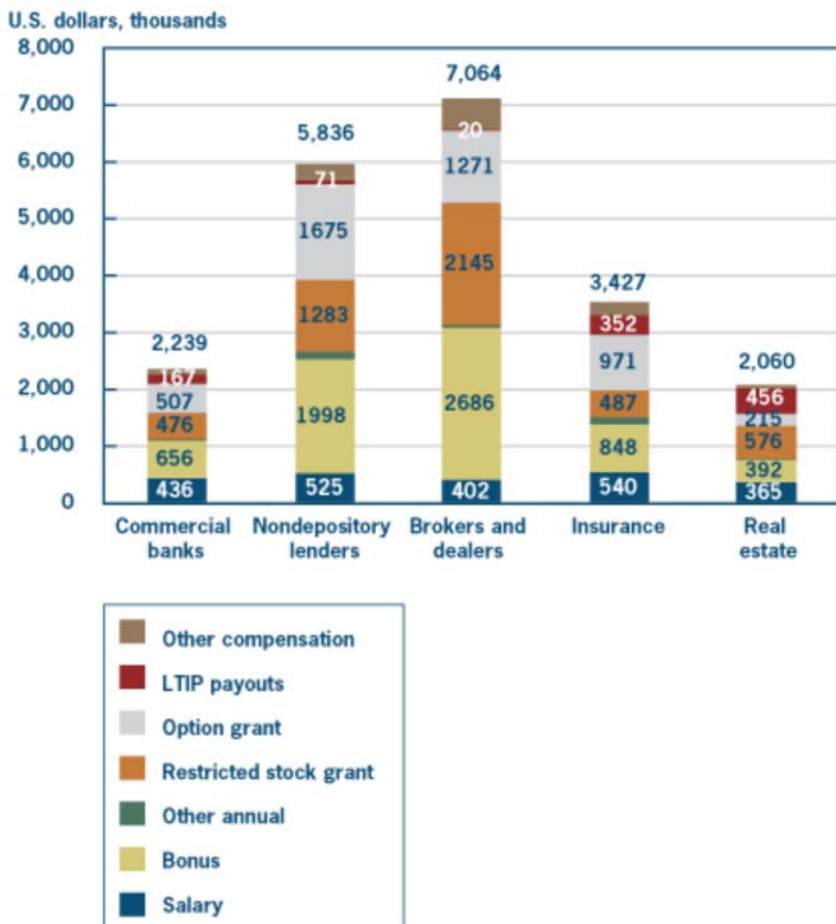
“short-termism” at financial institutions.

In the meantime, the value of restricted stock grants to executives in banking and finance was close to \$750,000, which was 1.6 times their base salary and 1.5–2 times the stock value to executives in other industries. More heavily share-compensated managers at financial institutions might have a stronger incentive to maximize shareholder wealth, that is, to take on excessive risks at the cost of the institution’s safety and soundness.

Third, the value of stock options granted to executives in banking and finance was the second lowest among all industries in spite of a significant amount around \$750,000 per executive in total option value. The services industry ranked number 1 and paid over \$1 million in stock options per executive in 2005, followed by mining, manufacturing, trade, then banking and finance at some distance.

Figure 2 shows that in 2005 there were wide differences in executive compensation across five different groups of financial institutions—commercial banks, nondepository credit institutions (lenders), securities and commodities brokers and dealers, insurance, and real estate. The two highest executive-paying groups were securities and commodities brokers and dealers and nondepository lenders, which paid \$7.1 million and \$5.8 million per executive, respectively. Insurance companies ranked third with \$3.4 million per executive. In fact, these three groups drove the average executive pay in banking and finance higher than that in other industries. Executives at commercial banks and real estate companies, on the contrary, earned compensation no higher than those outside banking and finance.

Figure 2. Executive Compensation in Banking and Finance, 2005



Source: ExecuComp.

The higher pay to executives working for brokers, dealers, and nondepository lenders mainly came from three channels: bonuses, restricted stocks, and stock options. The amounts were

enormous, well exceeding \$1 million to \$2 million per executive in each channel. This was not the case at insured commercial banks, which appeared much more conservative and similar to nonfinancial firms. Thus, the compensation and risk incentive issues seem to point to securities and commodities brokers and dealers as well as nondepository (and hence uninsured) lenders, as opposed to the entire banking and finance industry.

Next, we examine the relationship between executive compensation and financial firms' profitability. Based on correlations between a few compensation items and profit measures (shown in figure 3), we find that the pay of banking and finance executives was associated more with the size of a financial institution than its operating efficiency. On the one hand, total compensation in 2005, and four of its main components—salary, bonuses, restricted stocks, and stock options—all had fairly strong, positive correlations (0.3–0.5) with net income and market value, which are driven by the size of a firm. On the other hand, correlations were very low (less than 0.1) between compensation and return on assets and return on equity, which are often used to measure a firm's operating efficiency. This kind of pay structure might have encouraged managers to grow the sizes of the financial institutions they work for at the expense of the returns on the capital invested.

Figure 3. Correlation between Executive Compensation and Firm Profitability in Banking and Finance, 2005

	Net income	Market value	Return on assets	Return on equity
Total compensation	0.44	0.51	0.08	0.09
Salary	0.31	0.46	0.07	0.08
Bonus	0.36	0.39	0.06	0.09
Restricted stocks	0.39	0.35	0.03	0.03
Stock options	0.17	0.27	0.07	0.06

Source: ExecuComp.

Conclusion

In this *Economic Commentary*, we review the purpose of designing managerial compensation contracts, analyze the risk incentives stemming from such compensation schemes, and examine the uniqueness of the banking and finance industry in risk-taking. Studying the pay structures of banking and finance executives before the financial crisis reveals some potentially problematic practices (such as too much bonus- and stock-related compensation). These practices might have encouraged “short-termism” and excessive risk-taking, two behaviors federal bank regulators aim to prevent with their recently issued joint guidance on incentive compensation.

Recommended Reading

“[Bank Executive Pay](#),” by Jian Cai and Todd Milbourn. Federal Reserve Bank of Cleveland, *Economic Trends*, July 30, 2010.

“[Reforming the Over-the-Counter Derivatives Market: What’s to Be Gained?](#)” by Kent Cherny and Ben Craig. Federal Reserve Bank of Cleveland, *Economic Commentary*, no. 2010-6.

“[Federal Reserve, OCC, OTS, FDIC Issue Final Guidance on Incentive Compensation](#),” Joint Press Release, issued by the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, the Office of the Comptroller of the Currency, and the Office of Thrift Supervision. June 21, 2010.