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Excessive financial services CEO pay and financial crisis: Evidence from calibration estimation ☆

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ABSTRACT

The questions of whether there ever existed *excessive* risk-taking incentives from executive compensation in the financial industry, and whether top executives of financial services firms actually responded to such *excessive* incentives that eventually led to the crisis remain unanswered. The prior research has attempted to answer the second question, however, with conflicting evidence and without a clear definition of *excessive*. To answer the first question, this paper uses a numerical calibration approach to estimate the optimal level of CEO pay and derive the excessive compensation which provides excessive risk-taking incentives. We then examine the extent of excessive compensation in the financial industry relative to the non-financial industries during the 2000s and whether there were changes in compensation practices between the post Sarbanes–Oxley period and the pre-crisis period. We find mixed evidence in favor of the presence of higher excessive pay in the financial industry, and the CEO compensation practices remained largely unchanged over time. In addition, the relation between excessive pay and excessive risk-taking in the financial industry is somewhat weak, suggesting that CEO compensation might not be a major cause for the crisis in 2008.

1. Introduction

> *Despite the vast outpouring of commentary and outrage over the financial crisis, one of its most fundamental causes has received surprisingly little attention. I refer to the perverse incentives built into the compensation plans of many financial firms, incentives that encourage excessive risk-taking with Other People's Money.*
>
> --- Alan S. Blinder, Princeton University
> Wall Street Journal, May 28, 2009

The executive compensation of financial service firms came under increased public scrutiny during the 2007–2009 financial crises. Major criticism to date is that the executive pay packages of many financial firms have incentivized excessive risk-taking and contributed to the financial turmoil. In response to these concerns, governments and regulators have taken steps to restrict executive pay arrangements in the financial services industries. For example, according to the economic stimulus bill, which

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passed in mid-February 2009, TARP recipients are forbidden from deducting senior executive compensation in excess of some fixed level for tax purposes. There is still an ongoing debate among policy-makers and in the financial literature on the contribution of executive pay to financial crises and on the optimal compensation structure. Both academics and policy-makers are concerned about the *appropriateness* of the level of pay as well as the structure of pay (see Murphy, 2012). Outstanding questions include determining (1) whether *excessive* risk-taking incentives from executive compensation ever existed in the financial services industry, and (2) if the top executives of financial service firms actually responded to these *excessive* risk-taking incentives contributing to the crisis.

Prior research has attempted to answer the second question with conflicting evidence and without a clear definition of "*excessive*" (DeYoung et al., 2013; Fahlenbrach and Stulz, 2011). The first question is difficult to answer due to the difficulty of defining "*excessive*." In a typical principal-agent model, to maximize its financial returns, the principal has to incentivize the agent to exert the *optimal* level of effort and in turn take the *appropriate* amount of risk (Holmstrom and Milgrom, 1987). The difficulty lies in the fact that we cannot quantify the optimal level of the agent's effort.

To answer the first question, this paper follows the numerical calibration approach of Holmstrom (1979), Dittmann and Maug (2007) and Armstrong et al. (2008). This approach estimates the optimal CEO compensation contract by assuming that the observed CEO compensation contract reflects the optimal level of the CEO's effort. It derives the excessive CEO pay by taking the difference between the observed pay and the optimal pay. The excessive CEO pay represents the excessive incentive that is above the optimal level (Holmstrom and Milgrom, 1987). We test the hypothesis that such excessive incentive induced excessive risk-taking behaviors that eventually led to the crisis.

1.1. Background

In the U.S., the average CEO pay (about $9.25 million in total compensation, estimated from the Compustat ExecuComp database) was approximately 200 times greater than the average worker pay in 2009 ($40,712 based on the National Average Wage Index from the Social Security Administration). An important question is whether CEO pay is based on the performance of his institution. If the CEO takes the risk to develop new products and enhances the institution's competitiveness, thereby improving its stock price, the pay to the CEO is fair. However, if the CEO compensation is not correlated with the institution's performance, it is inconsistent with the principle of shareholder value maximization. For instance, the CEO of a major mortgage lender received over $48 million in compensation, and subsequently the company's stock price dropped by more than 80%, suggesting that the CEO received excessive pay.

Defenders of high managerial compensation argue that the global war for financial talents (Chambers et al., 1998) and the rise of hedge funds (Kostovetsky, 2009) can explain much of the increase in financial services executive pay. For example, while in conservative Japan a senior bank executive has few alternatives to his current employer; in the U.S., it is acceptable and even admirable for a bank senior executive to jump to a competitor, an investment firm, or a hedge firm. Hence, the increase of CEO pay in financial services is a mere byproduct of supply and demand for financial executive talents. Kaplan (2008) suggests that while CEO pay practices are not perfect, evidence shows that most (if not all) of the rise in CEO pay is market driven. In fact, many CEOs may be underpaid in the current environment.

As the first paper to address the question if executive compensation contributed to the financial crisis, Fahlenbrach and Stulz (2011) find no evidence that banks with CEOs whose incentives were better aligned with the interests of their shareholders performed better during the crisis. Also evidence indicates that these banks actually performed worse. Banks whose CEOs had better incentives in terms of the dollar value of their stake in the company performed significantly worse than banks where CEOs had poorer incentives. This implies that incentive compensation had no adverse impact on bank performance during the crisis. While many of the bank CEOs made bad bets that cost themselves and their shareholders, the data suggests that CEOs took these bets because they believed they would be profitable for the shareholders. On the contrary, Bennett et al. (2012) show that banks with CEOs holding more inside-debt relative to equity in 2006, experienced higher default risk and lower stock returns in 2008. The authors argue that inside-debt is a better predictor of future performance and default risk than inside-equity.[1]

1.2. Contributions

Much of the prior empirical literature on executive compensation using reduced-form regressions[2] provides evidence of *relative* effects. However, the numerical calibration method as described in this paper can estimate the actual excessive pay in *absolute* magnitude.[3] To do that, we start with a simple principal–agent problem between a risk-averse and effort-averse manager and a representative risk-neutral shareholder. We then estimate the overpayment by finding the minimum compensation cost to the shareholder (or the principal) while matching the CEO's (or the agent's) expected utility and utility-adjusted pay-for-performance sensitivity to the observed compensation contract. The critical assumption behind this model's optimality condition is that the

[1] For literature on CEO inside-debt, see Anantharaman and Fang (2012), Edmans and Liu (2011), and Sundaram and Yermack (2007).

[2] For example, Stulz (1988), Morck et al. (1988), McConnell and Servaes (1990), Hermalin and Weisbach (1991), Hubbard and Palia (1995), and Holderness et al. (1999).

[3] An example of relative effects is that firm A has better CEO incentive alignment with its shareholders than firm B; as a result, firm A takes more or less risk than firm B. An example of absolute magnitude is that firm A pays more than the optimal level of compensation to its CEO; consequently, firm A takes more or less risk than what it is supposed to.