

Executive Compensation

Raghavendra Rau

Sir Evelyn de Rothschild Professor of Finance

University of Cambridge

Cambridge, UK

r.rau@jbs.cam.ac.uk

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r.rau@jbs.cam.ac.uk

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Abstract

The optimal design of executive compensation is one of the primary issues in the area of corporate governance and has been investigated in considerable detail in the academic literature over the past three decades. The underlying assumption behind the design of optimal compensation schemes is that the executives of the firm have more information on the firm's projects and cash flows than the shareholders. In the presence of symmetric information, since the shareholders can completely distinguish the executive's effort from bad luck or other extraneous factors, there is little need to motivate the executive beyond a flat salary. In the presence of asymmetric information, the shareholder faces two problems: One, to select the right type of agent (the adverse selection problem) and two, to motivate the agent to work hard once selected (the moral hazard problem). All executive compensation schemes represent trade-offs between these two agency problems.

In this survey, in the first section, I start by discussing the theory of executive compensation. Why do firms pay executives? I distinguish two major approaches. The first arises from the theory of optimal compensation contracting and focuses on the *composition* of pay. It argues that the composition of pay is set to attract good executives (to solve the adverse selection problem) and motivate them to work hard (the moral hazard problem). The second approach focuses on the *level* of pay. It argues that managers have a considerable degree of power in setting their own wages, and in particular, use their power to extract excessive pay or rents from the shareholders. In the second section, I discuss the evidence on both the composition and level of pay and how it has changed over time, treating each component pay separately. I also discuss the composition of pay in countries around the world and in specific industries. In the third section, I describe who decides pay composition and levels. Finally, in the fourth section, I conclude by examining how the structure of pay has real consequences for firms.

1

Introduction

Over the last half century, the subject of executive compensation has received extensive academic attention. This attention has dramatically increased over the past two decades. From 1959 to 2015, a search on Scopus reveals the existence of over 1,300 published articles on executive compensation. From 1959 to 1991, there was relatively little attention paid to this topic, with just over 25 articles listed as published on Scopus over this period. In striking contrast, the growth has been nearly exponential since 1991 with 109, 544, and 657 articles on executive compensation published over the periods 1992–2000, 2001–2010, and 2011–2015 respectively. This trend is illustrated in Figure 1.1.

Though the magnitude of research on executive compensation appears daunting, the broad pattern is relatively easy to discern. Academic research on executive compensation can roughly be classified into two streams that examine either the composition of pay or the level of pay, respectively. Specifically, they either examine how a particular component of pay is able to solve economic issues of selection or motivation of executives, or examine why the level of pay is different from the optimal level suggested by economic models, respectively.

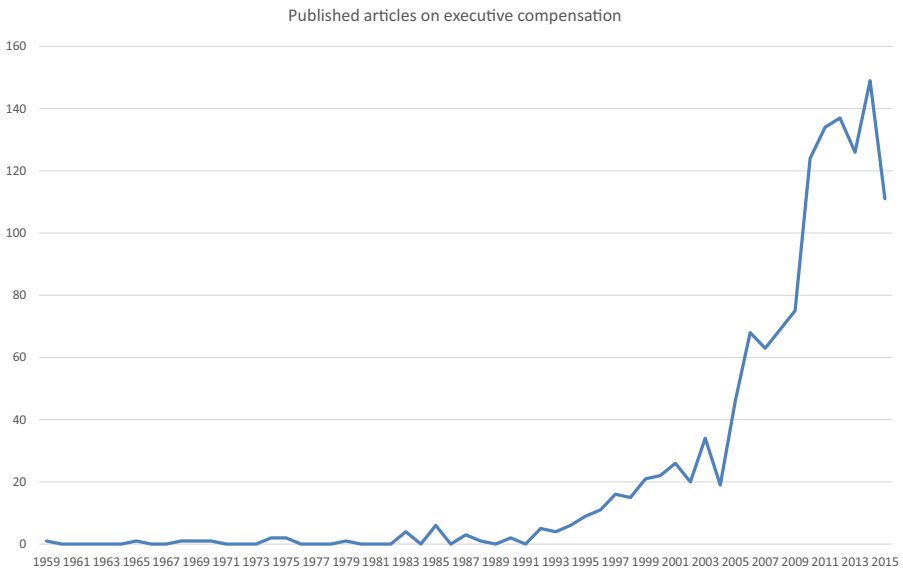


Figure 1.1: Number of published articles listed on Scopus as published and containing the term executive compensation in its list of keywords, title, or abstract.

The overall trend in academic research also shows a second pattern. It appears closely related to the evolution of top executive pay documented in Frydman and Saks [2010, Figure 1.1]. Frydman and Saks [2010] document that executive compensation was relatively flat from the end of World War II to the mid-1970s, even though firms grew considerably during that time. In addition, the magnitude and determinants of the correlation between wealth of executives and the performance of the firms they managed (pay-to performance sensitivity) did not change much over the 50-year period from 1930 to 1980. In contrast, both pay and the pay-to-performance sensitivity of top executive pay expanded dramatically over the subsequent couple of decades, accompanied by a simultaneous increase in academic articles on this topic. The explosion in pay in the 1990s was almost entirely driven by the payment of stock options and the growth rate over the past 15 years has been much lower, with pay only now approaching the levels of 2000 and with a changed composition to pay in prior decades.

What accounts for this striking coincidence between the increase in executive pay, Chief Executive Officer (CEO) pay in particular, and the simultaneous increase in academic research? While it is difficult to narrow down the explanation for executive compensation growth to any single factor, we can note that the explosion of academic interest occurred concurrently with two factors: the growth of economic models to analyze incentive mechanisms and the easy availability of data, specifically, the availability of the COMPUSTAT Executive Compensation Database (Execucomp) that provided information on executive compensation for all the S&P500, Mid-Cap 400, and the Small-Cap 600 companies. These firms (comprising the S&P1500) constitute more than 80% of market capitalization of US public firms. Prior to these two events, articles published on executive compensation were largely practitioner articles, published in journals such as *Business Research* with almost no influence on subsequent research. In the 1980s, the evolution of information economics and the development of screening and signaling models led to the first modern papers on executive compensation. Albeit still with relatively small samples. The essence of these papers lay in the development of principal–agent models in the mid-1970s.

The principal–agent issue is of importance for all firms where the ownership of the firm is separated from corporate control, an issue documented by [Berle and Means \[1932\]](#) in firms going back as far as the beginning of the twentieth century. If managers are self-interested and if shareholders cannot perfectly monitor them (or cannot even hire the right type of manager), executives are likely to pursue their own well-being at the expense of shareholder value. In particular, there are two types of principal–agent problems, adverse selection and moral hazard. The adverse selection problem arises because shareholders are seeking the perfect executive to manage the firm and attempt to choose the manager with the ideal blend of different attributes — risk-aversion, effort aversion, and innate skill. However, managers know significantly more than shareholders whether they possess these attributes in the proportions desired by the shareholders. Hence the adverse selection problem lies in attracting the right type of candidate. Assuming that this is possible, the shareholders then face the moral hazard problem.

Even though *ex ante* the manager may be the correct type of manager, *ex post* after being hired, the manager may choose to shirk, invest in undesired projects, or extract excess perquisites from the firm.

It is also important to realize that adverse selection can also arise in the presence of symmetric information where neither the manager nor the shareholder has the information on the potential quality of the firm–manager match. For example, while the manager may indeed work hard, the effectiveness of the effort may be linked to firm characteristics — some types of firms will not match well with the manager though the manager will not necessarily know this before she joins. Alternatively, changes in macroeconomic or industry conditions unanticipated by both parties may mean that any degree of managerial effort will not result in shareholder value. The optimal contract should therefore be able to distinguish an *ex post* moral hazard problem from an *ex ante symmetric* uncertain information problem.

As noted earlier, the literature on executive compensation largely takes one of two approaches. The first and earlier stream examines the *composition* of pay. For example, an optimal compensation package for a CEO might consist of a combination of a cash salary and bonus, an option package (perhaps becoming exercisable over a number of years), a stock grant package (perhaps restricted in some manner), a severance package, a golden parachute package that comes into play if the firm is acquired, and a pension plan. Why should the optimal plan be so complicated? The optimal contracting approach draws on principal–agent theory to argue that pay should address both moral hazard and adverse selection. In the example discussed earlier, the cash salary and bonus have no incentive effects once paid (since they are in the form of cash, which is time invariant). Hence, to motivate the manager to continue to work hard for the shareholders, she is paid in options. The options become exercisable at some point in the future at an exercise price that is fixed today. If she shirks, her options drop in value. However, if the options are deep out of the money, they become largely useless for motivational purposes, so stock grants are used to provide motivation in these circumstances. If the manager takes risks, she is likely to be fired, so she takes less risk than the shareholders

(who have limited liability) would wish. Hence, an optimal package would also have severance pay to incentivize the manager to take more risks. However, taking too much risk would create wealth transfers from the bondholders to the shareholders. If the bondholders anticipate this transfer, the cost of debt of the firm would increase. Therefore, the manager is also compensated with a pension plan that acts like inside debt, persuading the manager to reduce the incidence of potential shareholder–bondholder conflicts. Finally, to persuade the manager not to resist (too hard) if the firm receives an acquisition offer, the package might also contain a golden parachute that is triggered if the firm is acquired.

The first category of theoretical models examines the role of pay in resolving information uncertainty on the level of unobserved effort, specifically how pay evolves over time. Shareholders, boards, and managers do not know the ability of the managers to manage a particular firm because managerial ability depends both on the manager’s intrinsic nature and on her match with the firm and extrinsic factors (such as macroeconomic factors). They learn about this ability by observing the manager over time and their changing beliefs affect the optimal structure of pay.

A second category of models in this stream examine the ability of compensation plans to either elicit managerial effort in general, or exert effort to achieve a particular outcome (increase risk or undertake a specific corporate event such as an acquisition). These models typically pick a particular component (such as the levels of incentive compensation, severance pay, or pensions) and test how the component addresses the moral hazard and the adverse selection problems, with significantly more attention being paid to the former than the latter.

The reason for this asymmetric degree of attention is straightforward. In either case, the counterfactual needs to be determined (who would have been hired and how much she would have been paid in the absence of moral hazard or adverse selection). The counterfactual for moral hazard involves identifying a group of firms that differed in the degree to which moral hazard played a potential role — firms that are different in the cross-section on one or two characteristics that are

believed to affect pay. Examples include firms with differing levels of corporate governance, firms that were affected differently by regulation, and so on. This is reasonably straightforward to do under a set of justifiable assumptions. Identifying the counterfactual for adverse selection is considerably more difficult since the econometrician has to construct a set of alternative executives who might have been hired in the place of the actually hired executive had circumstances been different. This is considerably harder.

The cross-sectional evidence is reasonably clear however. While the overall structure of pay (described earlier) has remained roughly constant over time, the importance of each type of component has waxed and waned over time — but in a manner consistent with economic theory. For example, while the decision to reward and the actual composition of the package each executive is ultimately made by the board, there is significant variation in stock option grant vesting periods and patterns. This suggests that boards actively choose vesting terms depending on firm and executive characteristics, rather than adopting boilerplate terms. Vesting schedules are longer in growth firms where lengthening the executive's investment horizon is more important. Similarly, severance pay is positively related to the distress risk of the firm and the risk aversion of the executive. Younger executives with little human capital of their own are more likely to receive explicit contracts and better terms. Firms with high distress risk, high takeover probability, and high return volatility are significantly more likely to revise their severance contracts. Importantly, there also appears to be a consistent increase in uniformity about how executives are paid that transcends national, political, and cultural differences. The cross-country evidence is consistent with executives being paid in the United Kingdom, Europe, China, Canada, and other countries for much the same economic rationales as studies on US executives.

The second stream of research, developed in the early 2000s, in contrast, focuses on the *level* of pay. The idea is that once in post, managers enjoy a considerable degree of autonomy and power and hence extract excess rents from shareholders beyond levels that compensate them for the degree of risk they are exposed to and the effort they put

in [Bebchuk et al., 2002, Bebchuk and Fried, 2003]. If the managers face losses, they extract rents ex post — by manipulating information, hiding losses, or manipulating contracts. These papers implicitly argue that the explosion of pay in the 1990s was largely due to an increase in the payment of option pay. Option pay has an attractive feature — it is difficult to understand for the average shareholder. Cash in contrast, is easy to value. Hence, the explosion of pay in difficult-to-value options not only had the (desirable) effect of incentivizing the manager to work hard on behalf of the shareholders (as the first stream of literature argues) but also (undesirably) increased the ability of the managers to award themselves high levels of pay, higher than that justified by their effort or ability.

The problem with this latter stream, is that while plausible, it is difficult to determine what the optimum level of pay *should* be if we do not measure what managers should be paid for particular tasks and how important the tasks are. A common approach is to compute pay relative to a benchmark, either a peer group of firms, a peer group of executives, or a model based on firm-characteristics. However, if a manager is paid well above her benchmark, does that mean that she is excessively paid? It is unclear. Computing the optimal level of pay involves evaluating the manager's responsibilities and what pay is appropriate for those responsibilities, a very difficult task. For example, a number of papers in the second half of the 2000s, argued that, if firms compete for scarce managerial talent, since larger firms are able to pay more, the rapid increase in compensation is correlated with the rapid increase in the size of the typical firm in the market, even though the dispersion in talent may not be very large [Gabaix and Landier, 2008]. Similarly, another group of papers argue that the market for executives has changed over time with different types of skill sets in demand (network connections or social factors, for example) and this has influenced executive pay [Murphy and Zabojnik, 2004]. Simply put, papers in the rent extraction stream of literature suffer from a joint-hypothesis problem akin to papers examining market efficiency.

This does not mean that all is lost for this stream, however. The papers in this stream also document significant managerial misbehavior

around compensation awards. For example, managers facing a shortfall in pay have been shown to manipulate earnings, misstate financial statements, or back-date their pay awards. You do not need a benchmark model to argue that pay incentives may also cause these managers to behave opportunistically.

Finally, there is also a complex interplay between the composition and the level of pay that is, to a large extent, affected by regulation. While a number of these regulations were aimed at the levels of pay, they affected the composition of pay. For example, stock options were almost never used until the 1950s when restricted stock options were introduced following a reform of tax legislation. Since income tax rates were extremely high at the time, this had an immediate impact on compensation structure. After 1992, the Clinton administration taxed fixed compensation in excess of \$1 million that was not performance related. The cash salary component of CEO pay packages were largely restricted to this amount following this rule but the amount paid in the form of performance related option pay increased strikingly. However, since plain vanilla call options on the firm's stock with the strike price set equal to the stock price on the grant date did not have to be expensed, options granted to the CEOs were largely vanilla options. The Statement of Financial Accounting Standards SFAS 123(R), changed the rules on the vesting terms of stock option grants, requiring firms to expense the fair value of option grants over their vesting periods, and causing a decline in stock options in favor of (first) restricted shares and (then) performance shares (restricted shares vesting on the achievement of performance hurdles and not simply the passage of time). In all these cases, the managers have significantly higher incentives to keep the level of their pay constant by changing the structure of pay, than the shareholders for whom the firm may form a small fraction of their portfolios.

As in numerous surveys on executive compensation over the past two decades, including [Gomez-Mejia and Wiseman \[1997\]](#), [Murphy \[1999\]](#), and [Abowd and Kaplan \[1999\]](#), I start with discussing the theoretical approaches on pay. As noted earlier, I distinguish between research that analyzes the composition of pay and research that analyzes the level of pay.

In the later sections, I will place a larger emphasis on what the *recent* literature has shown on the determinants of executive pay. In particular, since the largest part of the research on executive compensation is devoted to CEO pay, in this survey, I will also tend to emphasize research on CEO pay. However, I will draw parallels between compensation paid to CEOs and those to other top executives in the firm.

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