

CEO COMPENSATION – SOME THEORY AND EMPIRICAL EVIDENCE

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1. Stylized facts

- **There are few topics in management, accounting and economics that produce as emotional a reaction as that of executive compensation.**
- **Accounting and compensation scandals in the US and in Europe, where shareholders have lost millions of dollars.**
 - **For example, Enron, Arthur Andersen, AOL Time Warner, Dynegy, Merck, Qwest, Tyco, WorldCom and Xerox in the US, Parmalat in Italy, Dutch-based Royal Ahold, and Swedish Scandia.**

- **CEO compensation has risen dramatically beyond the rising levels of an average worker's compensation.**
- **For example, the average CEO pay at the largest companies in the US was 40 times that of the average worker a generation ago, but in 1999 it was 475 as much. A great majority of this compensation increase can be associated with stock option schemes.**
- **In 2002, the pay of top American CEOs was over 400 times average earnings, but in 2004, however, the figure is reckoned to have fallen close to 160 (The Economist, March 3rd, 2005).**

- **How much CEOs are paid in the US? What are the components of CEO pay?**
- **In the US, the typical salary in the top is \$1 million - \$3 million. The typical top cash bonus is \$10 million - \$15 million. The highest stock bonus is \$20 million. The highest option exercise has been in the range of \$100 million - \$200 million.**

- **In Europe, on the contrary, in 1999 executive total compensation was ranked from 11 in the Switzerland to 24 in the UK times that of average employees. (The Economist, September 28th, 2000).**
- **In Finland, Mäkinen (2008) estimates that the ratio was about 16 in 1999. There is some evidence that the ratio has increased in recent years.**
- **CEOs in Europe have traditionally earned about 50-70% of their US counterparts.**

2. Two views on CEO compensation

2.1. Principal-agent theory

- **Berle and Means (1932) suggested that the separation of ownership and control in a modern corporation may introduce the principal-agent problem due to asymmetric information between shareholders and executives.**

- **However, already Adam Smith (1776) pointed:**
 - **“What are the common wages of labour depends everywhere upon the contract usually made between those two parties, whose interests are not the same. The workmen desire to get as much, the masters to give as little as possible ... “**
 - **“... The directors of [joint stock] companies, however, being the managers of other people’s money than of their own, it cannot be expected that they should watch over it with the same anxious vigilance [as owners]... Negligence and profusion, therefore, must prevail, more or less, in the management of the affairs of such a company”.**

- **A modern public limited company is a great invention.**
- **It reduces substantially the uncertainty of sharing returns and risks between the stakeholders.**
 - **For example, corporate legislation determines how profits should be shared between stakeholders (e.g. creditors are preferred over shareholders, who get something if there is anything to share).**
- **But the principal-agent problem still exists between shareholders and executives due to asymmetric information.**

- **Due to this informational asymmetry, managers may use their discretion to benefit their private interests in a variety of ways.**
 - **For example, managers may engage in empire building (Jensen (1974); Williamson (1964)). Managers may fail to distribute excess cash when the firm does not have profitable investment opportunities (Jensen (1986)).**
- **What shareholders can you do to the problem?**
- **The first potential solution to mitigate the principal-agent problem is shareholders' direct monitoring of executives (more broadly corporate governance).**

- **However, if a firm's ownership is highly dispersed, the monitoring and governance done by each shareholder separately is not an economically effective solution.**
- **A highly dispersed ownership also exposes shareholders' individual monitoring to the free-rider problems.**
- **Therefore, in a modern firm, shareholders select in the general meeting the board of the directors to represent their interests. Among many important tasks the board of directors they prepare and decide the composition and the level of CEO compensation.**

- **The principal tasks of the board of the directors are illustrated in corporate law and regulations, and nowadays more often in corporate governance recommendations.**
 - **For example in Finland:**
 - **Corporate Governance Recommendation for Listed Companies 2003**
 - **Finnish Corporate Governance Code in October 2008**

- **The second potential solution to mitigate the principal-agent problem is executives' incentive-based remuneration, such as accounting based bonuses, restricted stocks and stock options.**

- **Basically, the issue is motivating CEO of the corporation (the agent) to act in the best interests of the principal (the shareholders).**
 - **For example, with stock options CEOs' attention should focus on selecting and implementing actions and strategies that increase, and do not decrease, firm total value in the long-run.**
 - **This should not be confused with the concept of maximizing shareholders profits in the short-run, since then a firm total value will not be maximized.**

- **The objective for firm total value maximizing says that, for example, customers and employees satisfaction and product quality should be increased to a point where a future increase in each reduces firm value (Jensen, Murphy and Wruck (2004)).**

- **By accepting the Principal-Agent view, CEO compensation can be seen as a mechanism to align the interests between risk neutral shareholders and risk-averse executives.**

- **Theoretically, this approach utilizes contract theory and moral hazard (or hidden action) models that highlight the trade-off between insurance (a fixed wage) and incentives (a variable component in a wage contract): compensation is established to trade off an agent's incentives and insurance.**
- **The typical assumption in these models is that a principal does not observe an agent's effort.**

- **For example, Holmström and Milgrom (1987) demonstrate that the optimal managerial contract is linear under the assumptions of absence of income effects in exponential utility function, and independent and identical distributed error.**
- **According to their model the optimal contract is linear in output. The power of incentives, i.e. an incentive coefficient β , is decreasing in uncertainty, risk aversion and effort. An agent's total compensation \tilde{W} includes a constant salary α and the share β of stochastic output \tilde{X} , i.e. $\tilde{W} = \alpha + \beta\tilde{X}$.**

- **Under some restrictive assumptions, it is possible to derive the optimal sharing rule**

$$\beta^* = \frac{1}{1 + r\sigma^2 c''(e)}, \text{ where}$$

- **r is the executive's absolute risk aversion, σ^2 is normally distributed uncertainty in output and $c(e)$ is the agent's convex disutility of effort, i.e. $c' > 0, c'' \geq 0$.**
The optimal sharing rule β^* is one, when output is certain ($\sigma^2 = 0$) or executive is risk-neutral ($r = 0$).

- **According to Conyon and Leech (1994), the Principal-Agent theory gives at least a partial justification for the linear empirical models that has been employed in all empirical studies of the relation between CEO pay and company performance.**

2.2. Managerial power view

- **Bebchuk and Fried (2003) introduced a managerial power view. It is more a critique than a theory; the approach cannot numerically estimate how much executives are overpaid. However, they strongly argue that CEOs are paid excessively and pursue the goal of maximizing pay rather than shareholder value.**
- **Under this approach, the design of CEO compensation is viewed not only as an instrument for addressing the agency problem between CEOs and shareholders but also as part of the agency problem itself.**

- **In a modern firm with dispersed ownership shareholders select the board of the directors to represent their interests, but does the board represent the shareholders' interests? This is the key question.**
- **Since each board member's financial stake in the firm typically makes up a negligible share of the firm's total value, the board members may also have an incentive to pursue private interests other than profit maximization in the long run.**

- **In addition, the board and CEO do not work at arm's length, but there might be a close interaction.**
- **As a result, CEOs may have substantial influence over their own pay arrangements.**
- **How CEO compensation is set? Basically, CEO wage setting process has two players; the board of the directors (or compensation committee) and compensation consultants.**

- **The board prepares and decides the composition and the level of CEO compensation, but they often hire outside pay experts known as compensation consultants to help. Central to the advice that they provide to the firms is a survey of compensation levels and practices at so-called comparison group of firms.**
- **How relevant comparison firms are defined? By using data mining and choosing firms suitably, consultants have a lot of degrees of freedom to build a comparison group.**

- **Can consultants bias CEO compensation upwards?**
 - **It is possible, because the consultants are eager for more doing more business with the firm (not only executive compensation). According to the view, they tell the executives what they want to hear.**
- **Perhaps, at least exceptionally large CEO pay packages may be seen as a sign of weak boards that are too cozy with management status and not looking out carefully for shareholders interests.**

4. CEO pay-for-performance

- Jensen and Murphy (1990a) provide careful estimation of an important component of CEO compensation: the sensitivity of executive pay to corporate performance. This corresponds to the coefficient β , discussed in the principal-agent theory.**
- For a sample of large corporations, they find that the typical CEO's wealth rises by \$3.25 for each \$1,000 increase in the value of the corporation. In other words, $\beta = .00325$ for the typical corporation in their sample.**

- **Full alignment of principal and agent incentives implies that $\beta^* = 1$; empirical values are usually well below one.**
- **Jensen and Murphy (1990a) argue that the pay-performance sensitivities generally observed are too low to be consistent with the principal-agent theory.**
- **Hall and Liebman (1998) use 15-year panel data on the large US firms that contain detailed information on CEO compensation, holdings of stock and stock options.**

- **With the data from 1980 to 1994 they find that CEO compensation is highly responsive to firm performance, if the value changes of CEO stock and option holdings are accounted for in empirical analysis.**
- **They argue that CEO mean (median) compensation increased by 207% (146%) in real terms from 1980 to 1994.**
- **When using an analogous measure to Jensen and Murphy (1990), in 1994 the total change in CEO wealth is \$5.25 per \$1,000 change in shareholder wealth.**

- **Although this degree of sensitivity may appear modest, Hall and Liebman show that CEO wealth may change millions of dollars for typical changes in firm value.**
- **Murphy (1999) provides empirical support for the key role of stock options:**
 - **“... our analysis shows that pay-performance sensitivity has nearly doubled to \$6.0 per \$1,000 change in shareholder value by 1996. The increase in pay-performance sensitivities has been driven almost exclusively by stock option grants.”**

- **Kato and Kubo (2005) examine the link between CEO compensation and firm performance in Japan. They utilize panel data on individual CEO's salary and bonus of Japanese firms from 1986 to 1995.**
- **They find that CEO's cash compensation is sensitive to firm performance, especially on accounting measures.**
- **However, stock market performance seems to be less important in the determination of compensation.**

- **In Finland, e.g. Mäkinen (2008) has studied CEO compensation.**
 - **Mäkinen, M. (2008): CEO compensation, firm size and firm performance: Evidence from Finland. In: Markets and Compensation for Executives in Europe, L. Oxelheim and C. Wihlborg, (eds.), UK: Emerald Group Publishing (Elsevier), Bingley.**
- **Some key findings. The level of CEO average compensation increased considerably between 1996 and 2002. CEO mean total compensation increased from €180,190 to €356,863 (98%), whereas median total compensation increased from €155,142 to €232,750 (50%).**

- **CEO compensation, and especially in total compensation, is significantly associated with the contemporaneous and lagged measures of firm stock market performance in the publicly listed firms.**
- **The shareholder wealth measure, close to that of Jensen and Murphy (1990), suggests that salary and bonus change in CEO wealth is €6.84 per €1,000 change in shareholder wealth. Respectively, total compensation change is €21.85 per €1,000 change in shareholder wealth.**

- **CEO pay level is significantly related to firm size.**
- **In most models pay-for-firm size elasticity does not deviate substantially from 0.3 after controlling for CEO age, industry of the firm, ROA and corporate governance indicators, such as the size of the board, the voting share of a largest shareholder, and the share of foreign ownership.**

- **Corporate governance findings. First, the share of firm foreign ownership is positively and significantly associated with CEO pay level. In addition, in the most specifications foreign ownership parameter estimate is about three times larger for total compensation than for salary and bonus.**
 - **Being the case, this supports for the view that foreign owners may have been e.g. more “experienced” than Finnish owners in CEO monetary incentives, such as stock option schemes.**

- **Second, firm ownership concentration is negatively related to CEO pay levels.**
 - **This supports the view that a dominant shareholder can have an active role in monitoring CEOs' activities.**
- **Third, the size of the board is positively related to CEO pay levels.**
 - **This is consistent with potential inefficiency, free-rider, and manager power views that may associate with a sizable board.**

- **Traditionally, Finland has been seen as a highly egalitarian society, which is characterized from an industrial relations perspective by high labor taxes, an extensive public sector, and small wage dispersions.**
- **The widespread use of performance-related pay, as well as the popularity of stock options, represents a change in industrial relations.**
- **However, despite the increase of performance and equity related compensation within companies, there has been only a moderate rise in the level of wage dispersion in Finland, especially by the international standards.**

5. SUMMARY

- **CEO compensation has increased substantially, especially in the US. Stock option returns are typically the largest part of CEO compensation.**
- **Two opposite views on CEO compensation: the principal-agent theory and the managerial power view.**
- **Usually people react on monetary incentives (principal-agent theory), but perhaps also the detailed terms of CEO compensation package, poor compensation scheme implementation and inefficient the boards of the**

**directors account for firm/CEO performance
(managerial power view).**

- **CEO compensation contract consists of different components; typically a contract includes base salary, cash bonus, restricted stocks, stock options and other items (pension plans, severance pay, company perks etc.).**
- **There are a wide variety of ways to design the details of CEO compensation contracts.**
- **But tying CEO compensation to a specific performance metric can have counterproductive effects. This is true for all monetary incentives.**