Topics in

Corporate Finance

Management Compensation in the Netherlands:
Theory, Evidence, and Best Practice

TODD T. MILBOURN

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PREFACE

Management compensation is the subject of intense debate both in academics and in the popular media. Many groups – including labor unions, shareholders and government officials – claim that top executives are paid excessively. But is this the case? And, even if so, is the Dutch practice not merely dictated by international developments?

This publication of the Amsterdam Center for Corporate Finance (ACCF) sheds light on the ongoing debate. Professor Todd Milbourn evaluates the Dutch practice and draws policy implications. Hereto he provides an overview of the theoretical underpinnings of management compensation as well as a discussion of the empirical evidence. Milbourn concludes that management compensation contracts should include a significant pay for performance element. However, many factors affect the optimal level and design of incentives given to management. Balancing the mix of fixed and variable pay is an extremely important yet delicate issue.

Milbourn shows that management pay in the Netherlands has converged to international practices over the last couple of years. However, design and implementation deserve further scrutiny. Several policy implications for the Netherlands conclude this report.

We hope that this publication further fuels the ongoing debate, and that you enjoy reading it.

A.W.A. Boot
J.E. Ligterink
June, 2001

MANAGEMENT COMPENSATION IN THE NETHERLANDS: THEORY, EVIDENCE, AND BEST PRACTICE

CONTENTS

Executive Summary

Recently there has been quite some debate about the way managers are being paid. Several groups – including labor unions, shareholders and government officials – claim that top management is paid excessively and many have argued for increased controls on executive pay.

The increase in the value of management compensation contracts over the last few years is primarily due to the granting of compensation packages that are linked to a company's stock market price. In particular, the pervasiveness of management stock option grants in the 1990's, in conjunction with a strong bull market, have led to explosive growth in management pay. In this paper, Professor Todd Milbourn (Washington University in St. Louis) provides an overview paper on "Management Compensation in the Netherlands: Theory, Evidence, and Best Practice".

The paper first provides a summary of the theoretical underpinnings of management pay. This literature provides recommendations for the best way to structure compensation contracts and offers guidelines about how the optimal amount of variable pay is affected by a firm's size, its choice of capital structure, the prevalence of future growth opportunities in the firm's business, the intensity of product market competition, and the diversity in its business functions. The primary message of the theory is that pay should be tied to firm performance in order to attract, retain, and motivate key management personnel. However, a critical lesson derived from the theory is that there is a significant disparity between the financial *cost* of awarding performance-sensitive compensation contracts to managers and the perceived *value* of these contracts to the manager.

The paper then turns to a summary and discussion of the existing empirical evidence on international pay packages. In general, the data are consistent with the vast majority of the theoretical predictions on how management pay should be structured. Based on the empirical evidence, and new data on management compensation in the Netherlands, three of the most prominent empirical results are:

_ Growth in top management pay packages has dwarfed the growth in the pay packages of rank-and-file workers.
_ The granting of stock options to top management has dramatically increased both in the Netherlands and internationally.
_ Management pay practices in the Netherlands are not that different from their American counterparts.

These three findings have important implications for the political climate surrounding discussions of management pay, and speak to the necessity of understanding the costs and benefits of stock option plans. In addition, these results beg the question of how might traditional stock option plans be improved upon.

Lessons for the Netherlands

Milbourn concludes the study with several lessons for the Netherlands.

1. Offering incentive-based pay to managers costs the employing firms significantly more than the perceived value to the managers. Moreover, as the likelihood that a performance-pay scheme pays off a positive amount to the manager diminishes, the incentive value decreases at a strictly faster rate than the cost to the firm diminishes. This economic reality suggests that more complex pay schemes such as indexed, conditional, or premium stock option plans might be misguided.

2. Stock option grants serve to dilute the ownership of shareholders in a firm. While this is not inherently suboptimal if the benefits in increased performance exceed its cost, empirical evidence suggests that firms that suffer the greatest dilution underperform the market. Therefore, repurchasing shares to diminish the effects of dilution is economically advisable.

3. An efficient capital market is an essential ingredient to a successful corporate governance program. Since the efficiency of a market critically depends on information, increased disclosure requirements of managerial pay is economically rational. However, a downside to mandating the increased disclosure of management pay is that a "ratchet effect" may result.

4. Firms should be wary of granting stock options to employees below the uppermost level of the firm. Pay-for-performance contracts only work if the performance measure can be affected by the employee. That is, the performance measure must be responsive to the employee's actions. Bonus plans based on measures such as EVA or Economic Profit could be more helpful and these can be offered to workers throughout the firm's hierarchy.

5. In conclusion, there is one overwhelmingly important caveat that an economist can offer to shareholders, politicians, laborers and all other stakeholders in the firm as the managerial compensation debate rages on. This message is to allow Adam Smith's invisible hand to operate. Allow the managerial labor market to converge to international standards if that is what the market dictates; be cautious in implementing any regulations that add frictions to the marketplace. While regulatory changes aimed at increasing the informational efficiency of the market are most often invaluable, regulatory changes meant to dictate allegedly optimal policies are nearly always onerous. Preliminary evidence from the United Kingdom, where statutory and non-statutory restrictions have recently been adopted, indicates that pay-for-performance has commensurately declined. Ultimately, a flight of managerial talent could result in economic losses that far exceed the perceived benefits of keeping managerial pay under control.

Management Compensation in the Netherlands: Theory, Evidence, and Best Practice*

1 Introduction

Having an effective corporate governance system should be one of every publicly-traded company's top goals. Its effectiveness certainly shapes the behavior of the firm and its ultimate performance for shareholders. In a broader sense, the efficiency of an individual company's corporate governance system is critical to the success of the whole country's financial system. While most agree with the statements above, the optimal *design* of corporate governance is heavily debated in both practitioner and academic circles. As is well known, there are two dominant systems that govern firms' actions and responsibilities, the Franco-German model and the Anglo-Saxon model. Beyond geographical boundaries, the biggest difference between these two models is the board structure and importantly, whose interests these boards are dedicated to serve. In the Anglo-Saxon model, there is a single board of directors, often comprised of several insiders to the firm and a handful of outsiders, where all of these directors are accountable to shareholders first and foremost. In contrast, in a Franco-German board structure – as is utilized in the Netherlands – a two-tier board structure prevails. First, the Management Board consists of only insiders. Overseeing this board is the Supervisory Board, which is ultimately responsible to all the *stakeholders* in the firm.

While board design may vary, management compensation is a common and critical feature of both corporate governance models. Management compensation has the primary goal of motivating, rewarding, and retaining key management. Although it is commonly believed that managerial pay packages can be a powerful tool for aligning the interests of executives with those of shareholders, it is this facet of corporate governance that sparks the most heated debates.

Theoretically, tying a manager's pay to his firm's stock price (or other measure of firm performance, such as earnings per share or EVA), either through bonus plans, direct shareholdings or stock options, implies that the executive will *only* profit if his shareholders do. Thus, the theory would predict that an executive with a highly-incentivized compensation contract (i.e., one heavily tied to performance) is more likely to take actions that maximize the wealth of his shareholders. Are these facts born out in the data? In general, the answer is yes. For example, Hamid Mehran (1995) empirically doc-

uments that in the US, firms whose executives were offered highly-incentivized remuneration packages – including both stock and stock option holdings – were more likely to have better performance than firms who offered lower-powered incentives.[1] Thus, if increased share price performance is the goal of the board, a stock-based incentive plan appears to work sufficiently well.

Outside of academic circles, a debate rages over whether popular compensation plans – especially those that heavily utilize the granting of stock options – are absolutely necessary to accomplish this goal. The most common criticism is that top management pay has simply risen out of control. In fact, growth in the average level of pay has grown significantly. According to the Towers Perrin Worldwide Total Remuneration Report, from the years 1993 through 1999, the average level of Dutch CEO pay in medium-sized firms has increased 73%, translating to a yearly growth rate of nearly 10% per year.[2] In the US, similar size companies saw their CEO pay packages rise 71% over the same time period, equating to a yearly growth rate of 9.3%.[3]

These pay gains have not often been enjoyed by members in the lower tiers of organizations, and criticisms of top management pay are heard most forcefully from manufacturing laborers.[4] According to Abowd and Kaplan (1999), the average wage level of a manufacturing worker rose just 3.3% from 1993 to 1996 in the Netherlands, and 4% over the same period in the US. It is in fact this enormous disparity in pay growth that has been sharply criticized in many countries. For example, historically in the Netherlands, there has been a pay "consensus system". However, Dutch labor unions who had previously agreed to relatively low pay increases have now promised to increase their demands in the future in light of the substantial increases in top management pay.

A highly vocal critic of management pay in the US is the American Federation of Labor-Congress of Industrial Organizations (AFL-CIO). This is a voluntary federation of America's unions, representing more than 13 million workers in the US, and they have recently developed a website, entitled "Executive PayWatch". The following quote gives the spirit of this site.[5]

"Most of us are working longer and harder just to get by. Not so for [the] corporate elite, whose exorbitant pay schemes have created unprecedented inequities in the … workplace."

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1   See also Murphy (1999) for a discussion of other evidence that is suggestive of the positive effects of performance-based compensation plans on firm performance.

2   See Abowd and Kaplan (1999) and Towers-Perrin website: http://www.towers.com/towers/. The US dollar-equivalent average level of total CEO compensation in these medium-sized companies rose from $359,224 in 1993 to $439,742 in 1996 to $621,153 in 1999. Medium-sized companies are defined as those with approximately the equivalent of $500 million in annual sales.

3   The average CEO pay package in US medium-sized companies rose from $819,428 in 1993 to $1,403,899 in 1999. Observe that while the US CEO packages grew at a slightly lower growth rate, the different bases from which these pay packages begin translate to an increase in the dollar value of pay of $261,929 in the Netherlands, and $582,471 in the US.

4   Other common critics include investment funds and government regulators. For example, in the US, CALPERS (California Public Employees Retirement System) has been very outspoken in corporate governance issues, especially on issues of management pay.

5   Their website can be found at the following address: http://www.aflcio.org/paywatch/index.htm.

In top management largess, the AFL-CIO claims that "[s]ince 1980, the average pay of regular working people increased just 74 percent, while CEO pay grew a whopping 1,884 percent."

An interesting set of statistics that this organization calculates is the ratio of average CEO pay to average worker pay. Using data on CEO pay from Business Week, the AFL-CIO calculates that the average level of CEO-to-worker pay in the US is **475 times**. Thus, if an average American worker received $30,000 in 1999, the CEO would be making $14.25 million! It is important to note that this calculation relates to the 500 highest-paid CEOs in the US. In contrast, the analogous calculation using the Towers Perrin data sample of executives and workers in medium-sized firms, the ratio of CEO pay to worker pay is only **31 times**.[6]

To put this ratio in perspective, the AFL-CIO calculates similar ratios for all the countries reported in Towers Perrin's database, summarized in the following figure.

Figure 1: CEO Total Remuneration As a Multiple of Manufacturing Employee Total Remuneration
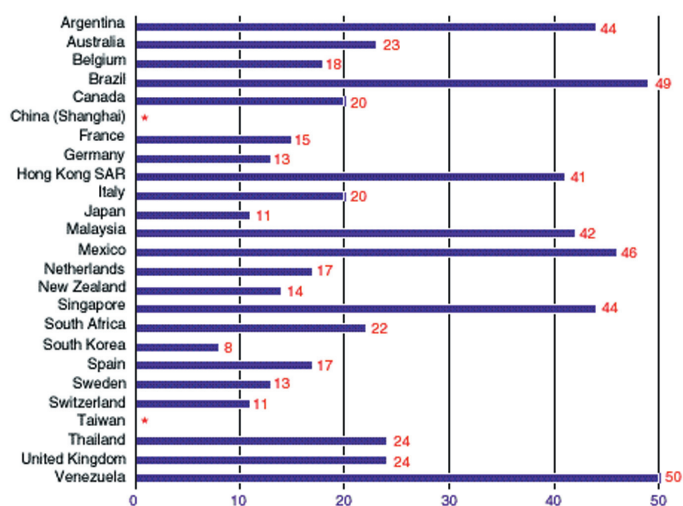
Source: AFL-CIO webpage

As can be seen in the table, the US ratio of 31 times is still a bit higher than other industrial leading countries, such as the Netherlands, United Kingdom and Germany, it does not even represent the highest ratio (especially as compared to Latin America, South America and Asia) and certainly is not as striking as the number provided by the AFL-CIO. Nonetheless, these ratio calculations are useful, and certainly increase in nearly all of these countries when one examines each country's largest publicly-held corporations, although not to the extent of the US disparity.

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6 This is calculated as the ratio of $1,403,899 for CEOs and $44,680 for manufacturing workers.

The long-run implications of the pay disparity is clearly an important issue. In this paper, I attempt to provide a summary of the theoretical underpinnings of management pay, as well as a discussion of the existing empirical evidence. To this end, the paper addresses the following questions:

1. Why do we need compensation?
2. What is pay-for-performance and what purpose does it serve?
3. How can pay-for-performance be incorporated into a compensation contract? Are management stock options the best vehicle for this purpose?
4. Why are most stock options granted at-the-money?
5. How does pay-for-performance empirically vary with firm and management characteristics?
6. What are the differences in pay-for-performance internationally?
7. What are the common pay practices in the Netherlands?
8. Based on theory and best practice, what are the main lessons for the Netherlands?

The organization of the remainder of the paper is as follows. Section II summarizes the theoretical foundations of optimal compensation. The overarching theme in this section is that theorists believe that incentive-based pay (that is, paying for performance) is necessary to motivate individuals to work hard. However, there are many determinants, and in fact partial substitutes, for incentive-based pay. For example, capital structure, product market competition, and firm size necessitate different levels of incentive pay. This section also explores the costs and benefits of using stock options as means of providing incentive pay.

Section III contains a discussion of the existing empirical evidence. Empirically, using primarily CEO data as it is most abundant in any country, management pay does vary significantly with performance of the firm as the theory would dictate. That is, pay-for-performance is highly prevalent and support for most of the comparative statics for optimal incentive pay (e.g., the effect of capital structure on pay-for-performance, etc.) has also been documented. In this section I will also define and discuss some common components of pay packages. This section concludes with a summary of the lessons to be drawn from the theoretical and empirical work.

Section IV summarizes the pay data for Dutch companies. In addition, I relate individual perceptions of common pay packages. These include the breakdown of pay components and what drives the decision to change an existing pay package. Augmenting this is a summary and analysis of pay and its disclosure among the largest Dutch companies using 1999 data disclosed in their annual reports.

Finally, a summary of the lessons for the Netherlands and some concluding remarks are given in Section V.

2 Theoretical Foundations of Management Compensation

The theoretical study of management compensation has spanned many disciplines, including economics, finance, and accounting. However, it is a simple economic rule that clarifies why we need compensation. Everyone should receive his marginal product, or value-added, in compensation for their efforts. That is, they should receive the value of what they produce. Economists argue that anyone that does not receive his marginal product will not work. Extending this to management remuneration, offering compensation commensurate with one's marginal product is necessary to attract individuals to the firm in every position. This runs from the Chairman of the Management Board down to an assembly-line worker. Arguably, the marginal products of these two individuals vary tremendously, and the theory states that compensation should vary along this dimension. This "value-added" calculation then determines the minimum value of a compensation package that should insure the retention of this worker.

An alternative way to think about the minimum compensation package that could be offered to a manager is one that pays him his "reservation wage". A manager's reservation wage is determined by the value of his next best opportunity. Thus, the compensation offered to a manager must be *at least as good* as his next best opportunity. A manager's reputation is naturally important in determining his reservation wage.

Thus, the reason why we need compensation is actually quite obvious. The more important, and subtle question is what kind of compensation do we need? Naturally, if the type of pay didn't matter, firms could pay management in straight cash and not worry about any other components. In practice, firms ultimately use a variety of instruments to award management. While the reliance on any one of these instruments does vary across countries, the set of possible instruments typically includes straight salary (otherwise known as base or fixed pay), short-term bonus schemes, stock options, and other long-term incentive plans (including restricted stock plans and multi-year accounting-based performance plans).

The inclusion of any of these three items besides straight salary, such as a bonus scheme based on earnings per share or management stock options, represents pay-for-performance. That is, ideally the manager only gets paid a bonus if his performance is good. In the case of the earning per share based bonus plan, the manager would only receive his bonus if earnings per share were above some pre-determined target. The next subsection explores the pioneering work on pay-for-performance contracts.

2.1 Pay-for-Performance Contracts

The issue of why economists think managers need "pay-for-performance" dates back to work carried out in the 1970's. Mirrlees (1976), Ross (1973), Harris and Raviv (1979) and Holmstrom (1979) provide the first models of managerial pay. These models are very similar to one another and surprisingly their methods have carried through to even the most recent studies of management compensation. The model proposed in these papers

is called a "hidden action" model and relates to a principal and an agent.[7] The principal is thought to be the shareholders, or a representative thereof (such as via the board of directors[8]), and the agent is the hired manager. The manager (agent) then takes an action that affects the value of the output owned by the principal. The strict interpretation of this action is "managerial effort". Thus, the harder the manager works, the greater will be the value of the output. In reality, this "effort choice" is really a metaphor for how top management runs the firm. That is, what types of projects does the firm then take, what strategic plan does management implement, which businesses are divested and which are acquired, and so on. If we are thinking about top management representing the agent, then the measure of output could be the firm's cash flow in a given year, or the firm's stock price, or even earnings per share.

There are two critical assumptions in these "hidden action" models. First, the manager's action choice is assumed *unobservable* by the shareholders (principal). Naturally, if the action choice is in fact the manager's effort, it is understandably difficult to know exactly how hard a manager is working. For instance, an individual may be in the office seventy hours a week, but how hard he is working and thinking about the best courses of action for the firm is certainly hard to quantify. Alternatively, if the "action" is not effort, but instead the strategy employed by the manager, some may question whether this is observable or not. While at first blush this may seem like an unreasonable assumption, in reality what is unobservable is the amount of thought and investigation of what the best course of action really was. Thus, these models, although stylized, are still quite useful for thinking about even the CEO's actions.

The second key assumption is that the manager finds it costly to provide an increase in the action. For example, if the action is effort, the idea is that the manager finds it personally costly to provide each additional hour of labor, as he would prefer to spend that time on leisure activities. This assumption might seem restrictive as well. However, this can be thought of as those hours on the weekends or late into the evening the manager finds costly in the sense that he can't be elsewhere. Alternatively, if the "action" is choosing the strategy, spending hours pouring over the analysis and recommendations of his subordinates to make the ultimate decision can be viewed as costly to the manager.

With these assumptions that managerial action is both unobservable to the shareholders and critical to the ultimate output that is generated, the search is for the optimal compensation contract that will motivate the manager to put forth the desired level of effort. Obviously, if the manager's effort choice were observable, the compensation contract would be a simple one. Pay the manager his reservation wage (i.e., the value of his next best opportunity) if he indeed undertook the desired effort level, and pay him nothing otherwise. In the case of the CEO, if it was obvious to the Supervisory Board *exactly* what the CEO should do to maximize firm value, they would just tell him what to do and pay him only when he did it. Another interpretation of these models is that shareholders (or the board) simply aren't in a position to know what the optimal managerial

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7   Hence, it is often referred to as a Principal-Agent model.
8   In the Netherlands, we would envision the Supervisory Board as the principal in this model since they must approve the compensation plan for management.

action is for the firm. Thus, they hire a manager to not only take a desirable action, but to also uncover what is indeed optimal.

In the more realistic case where the manager's effort choice is unobservable or unidentifiable, shareholders must try to infer his choice. One way to do this is to look at the ultimate output. Since output is positively affected by increases in managerial effort, observing a high output makes it more likely that the manager took a high effort level. Therefore, one way to motivate the manager is to share part of the output with him. Not surprisingly, this simple contract is called a "sharing rule". Having a sharing rule of *any* kind in the manager's compensation contract represents "pay-for-performance".

Ultimately, there are several ways to force the manager to "share" in the gains in an attempt to motivate them to take appropriate actions. Choosing the type and the degree of pay-for-performance they want to impose on the manager depends on what outcomes the board is trying to motivate. If they were interested in earnings per share, a bonus that pays for increasing earnings per share would make sense. If they were interested in an increased stock price over the long run, a long-term stock option plan seems the obvious candidate. However, there are several common features on how to design any of these plans. These relate to the manager's risk aversion (which is discussed in more detail in the next section), the variability of the observed output, the manager's reservation wage, and how much of the manager's wealth is tied up in the firm.

To illustrate the effects of changes in these four parameters on how big the sharing rule can be, let's consider the following example. Suppose that a firm's cash flow at the end of the period was given by

$$Y = a + \varepsilon$$

where a is the manager's effort in this period and it can be 0 (zero) or 1 (one), and ε is a random error term that can take the values of −1, 0, or +1. The random error could be interpreted as market movements that are out of the control of the manager. As assumed in these hidden action models, the effort is not observable and the manager finds it more costly to provide effort of one instead of zero, which is equivalent to the manager shirking. How should shareholders design a wage contract to elicit the high level of managerial effort? According to the discussion above, they can look at the actual cash flow at the end of the period. Observe that there are only four possible outcomes: cash flow (Y) can be either −1, 0, +1, or +2. If cash flow is −1 or +2, shareholders know *for sure* what action the manager took. Only a combination of *no* effort and a random error of −1 could produce cash flow of −1. Similarly, only a combination of high effort (one) and a random error of +1 could produce a cash flow of +2. These cases are straightforward, and the manager could be penalized (in the case of Y = -1) or rewarded (in the case of Y = +2), accordingly. However, for cash flow observations of zero or one, there are two possible combinations for each. If cash flow is zero, the manager *may* have worked hard and simply had bad luck with the realization of the error term = −1. Alternatively, the manager may have shirked (provided no effort) and got an error term of zero. Two combinations also exist for the cash flow outcome of 1.

So what can shareholders do? If they just pay a fixed wage in all circumstances, under the assumption of managers finding the provision of effort personally costly, the manager will provide no effort and will claim that bad luck hurt the cash flow turns out to be zero. He obviously can't say this if cash flow is negative one, but since he is paid a fixed salary in this hypothetical contract no matter what the cash flow outcome, he loses nothing. Alternatively, the firm could promise to only pay for the good realization of 2, but this imposes a heavy risk on a risk-averse manager, who will only receive compensation in one of four states of the world.

The optimal solution to this problem is to pay the manager a fixed wage along with a bonus scheme that pays him more the higher is the observed cash flow. The fixed wage insures the manager against the bad state of nature when the random error term turns out to be – 1. The bonus schedule is then designed to motivate the manager to exert the high effort. How these two components are weighted in the wage package depends on how risk averse the manager is. As his risk aversion increases, either more weight must be placed on the fixed wage component or the bonus must be increased significantly to outweigh the risk he faces. Thus, a possible bonus scheme would pay the manager no bonus if cash flow was zero or negative one, and pay him a moderate bonus if cash flow was one and a bigger bonus if cash flow was two. Thus, the wage package looks like:

$$\text{Compensation} = \text{Fixed Wage} + b \times max\{Y, 0\},$$

where b represents how much of the output the manager gets and $max\{Y,0\}$ means that the manager gets a share of Y (cash flow) when it is positive and gets nothing when cash flow is negative. Naturally, the sharing rule should be between zero and one. The scheme would graphically look like the following.

Figure 2: Compensation as Function of Cash Flow (Y)
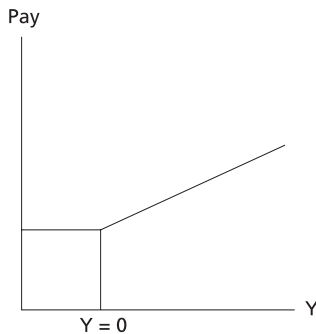
How steep this line is (i.e., the slope) determines the extent of the sharing rule, denoted "b". This sharing rule is decreasing in the manager's risk aversion, the amount of wealth this executive has tied up in the firm, and the amount of noise in the output.

The reasons for the first two are straightforward. If the manager is risk averse, being subjected to a risky pay scheme is less desirable than receiving straight salary. Similarly, the manager becomes even more undiversified as more of his wealth is tied to the value of the firm. This means that bonus schemes are viewed as "costly" to the executive and the firm will have to reduce this sharing rule.

Lastly, as the output becomes more variable, more risk is imposed on the manager, whereupon the theory dictates a flatter bonus scheme. Recall that the manager faces a risk of working hard and getting a negative shock from the market, resulting in cash flow of zero. Suppose that the error term could now take on any integer value between negative 10 and positive 10. Output can now range from negative 10 to positive 11. There are still only two (of the now twenty-two) outcomes that the shareholders know for sure what the manager did (outputs of −10 and +11). Each possible output value between negative nine and positive 10 can occur from two combinations. Thus, more volatility in the output puts a greater risk on the manager and the sharing rule (pay-for-performance) must be reduced.[9]

There are many other control variables that dictate the theoretically optimal amount of incentive-based pay, including the amount of firm leverage, the extent of growth opportunities in the firm's underlying value (rather than existing assets), the degree of product market competition, the diversity of the firm's operations, and firm size. Jensen (1989) argues that the amount of leverage used to finance a firm's assets partially dictates the decisions of managers. In fact, he claims that a high amount of debt in a firm's capital structure substitutes for highly-incentivized pay. The intuition is that if the firm is heavily geared, the manager must be managing the business in an efficient way or else bankruptcy becomes more likely. If the manager values being in control of this firm, incentives to maximize firm value may be quite strong.

Another control variable relates to the nature of the firm's assets. Research-intensive firms have a significant portion of their value today given by the value of growth opportunities. The effect of managerial decisions today on the value of these long-term projects is quite difficult to manage. In light of the efficient-markets theory, the stock price is the most reasonable guide to the market's perception of the ongoing value of these initiatives. Moreover, offering restricted stock or long-term stock options motivates the manager to remain with the firm to manage the project to fruition.

Similar to leverage, the extent of competition in the firm's product market is predicted by theory to be negatively related to the use of incentive pay (i.e., it partially substitutes for financial incentives). Intense competition often places another driving force on the manager to take wise decisions for firm value; otherwise, the firm will fail in its product market. Thus, if the firm operates in a highly-regulated industry (such as a public utility company), pay-for-performance will be lower. Naturally, pressures from competitors and creditors may lead to short-term behavior in many instances. However, a non-literal interpretation of the theory is that firms attempt to balance the effects over the short-term and long-term by choosing how much to augment *total* managerial incen-

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9   To the extent that the manager can manipulate the observed output (such as through accounting choices), pay-for-performance would have to be reduced as managerial manipulation adds noise to the inference process.

tives with monetary-based interests, which could be more long-term in nature if instruments like stock options are heavily used.

Another apparent driving force in the direct use of stock options for primarily CEOs relates to how many various businesses are within a firm. When a firm operates in very diverse business segments, inferring directly whether the CEO is managing one well at the expense of another is quite difficult. In these cases, using a market-derived number like the stock price that moves as various participants react to their own information might be desirable. Thus, if firm size is positively correlated with the number of business activities under one corporate umbrella, pay-for-performance could be increasing in firm size. However, there is a counter-veiling force at work as well. The size of the compensation plan that must be offered in a larger firm to generate an equivalent pay-for-performance sensitivity in a smaller firm is enormous. For example, offering pay-for-performance of 10% in a $10 million firm connotes a managerial share of $1 million, whereas it connotes a share of $100 million in a $1 billion firm.

2.2 Cost-Benefit Disparities in Pay-for-Performance Contracts

Having an incentivized pay scheme (i.e., including pay-for-performance components in the pay package) is arguably necessary to motivate the right kinds of decisions. But it should be noted that the cost of these variable-pay packages is certainly significant. As a company adds items like stock options or bonus schemes to the package, the cost of these to the firm increases at a significantly *faster* rate than the perceived benefit from the manager's perspective. The reason is that an individual manager is risk averse. That is, he would prefer a *certain* or riskless outcome to a *risky* one that on average pays out the same amount of money. For example, a risk-neutral individual strictly prefers to receive $1 million *for sure* instead of receiving a claim to a cash flow that pays off $2 million one half of the time and $0 the other half of the time. While the *expected value* of this claim is $1/2$ x $2 million + $1/2$ x $0 = $1 million, the individual attaches a greater "cost" to the zero payoff than the "benefit" of the $2 million payoff. Thus, he perceives that the value of the risky claim is *less than $1 million.* The more risk averse the individual is, the less value he will attach to risky payoffs. Shareholders in a company are also risk averse, but assuming that most of them are reasonably diversified in their wealth, the manager is naturally more risk averse than they are. In addition, he most likely has a majority of his financial wealth tied to firm value, and the value of his human capital is not particularly diversified either.

When managers are risk averse, the "expected value" of all the compensation pieces summed together must be equal to the manager's reservation wage as defined above. How the manager perceives this "expected value" depends on how risk averse he is. As an example, suppose that the manager's next best opportunity would pay him $500,000, the expected value of his package must at least be equal to this value. There are obviously many combinations of cash, bonus, etc. that give a total expected value of $500,000 from the firm's perspective. For instance, $500,000 in cash would obviously have the same value to the manager as the cost is to the firm. However, if he is offered $250,000 in cash

and given a bonus package that *on average* pays $250,000, he will value this plan at a value strictly less than $500,000. Suppose that he is awarded a simple bonus scheme that pays $500,000 half the time and $0 the other half of the time. The expected cost of this bonus scheme to the firm would be $1/2$ x $500,000 + $1/2$ x $0 = $250,000, however, the manager places a lower value on it.

If the manager were neutral to risk, the value would equal the cost. That is, a risk neutral individual is indifferent between having a guaranteed $250,000 in cash and a *gamble* that *on average* pays $250,000. Importantly, the "risk-neutral" valuation of the bonus schedule *is* the right calculation of the firm's cost of the bonus scheme. But one must recognize that the value of this bonus scheme is less to the executive than the cost to the firm. Naturally, this relates to the granting of stock options as well.

This argument is a standard one in economics. If you are going to offer a pay package that contains variable components, the expected value of that package from the firm's perspective must be *higher* than a package consisting of guaranteed cash. A simple way to think about how a risk-averse manager would value a risky pay package is the following. Economists argue that risk-averse individuals have mean-variance utility. That is, holding the risk of a pay package constant, a risk-averse manager strictly prefers an increase in the mean (i.e., the average) of the pay package. However, holding the mean of the pay package fixed, an increase in the risk (variability of the pay) strictly *reduces* the value of the pay package to the manager. This can be expressed algebraically as the manager having expected utility from a pay package with an expected value (mean) of $\$X$ and variance of $\$\sigma^2$ given by:

$$\text{Expected Utility} = \$X - \tfrac{1}{2} \times (\$\sigma^2).$$

To fix ideas, suppose that the bonus paid $275 half of the time, and $225 the other half of the time. The bonus scheme then has an *expected* value (or risk-neutral value) of $250 and the variance of the bonus is $300. The manager with mean-variance utility perceives the value of this pay package to be $250 − $1/2$ x 300 = $100. Consider another example where the bonus scheme pays off values that can be explained by a normal distribution (i.e., the possible payoffs lie along a bell curve). Suppose now that the expected value of the bonus is $250,000 and the variance is $100,000. Then, the expected value would be $250,000 − $1/2$ x (100,000) = $150,000. One can quickly see how an increase in the variability of the possible payoffs can reduce the value of the pay package to the manager. As the manager becomes more risk averse, the cost of the risk then increases and the value of the package to the manager falls.

While any risky pay scheme suffers from this cost-benefit disparity, typically bonus schemes based on accounting measures of performance are significantly *less* variable than stock values. Thus, stock options impose much greater variability on the manager. Recent work by Hall and Murphy (2000) attempts to characterize this cost-benefit trade off for stock options. The primary determinants in the perceived value of a stock option to an executive are his risk aversion factor, the percentage of his wealth that is tied up in

the firm, and the exercise price that is set in the stock option. Stock values are assumed to have a standard deviation of 31% and the expected return on the stock is 13%. The following table calculates the Black-Scholes value of the option, which should be used as the estimate of the cost to the firm, and what value the manager places on the option.

Table 1: Options Value for the Firm and the Manager				
		Exercise Price equal to market price	Exercise price less than market price	Exercise price more than market price
	Stock Price	**$30**	$30	$30
	Exercise Price	**$30**	$15	$60
	Black-Scholes Value[10]	**$17.60**	$22.88	$11.12
Risk Aversion[11]	**% of Wealth in Firm**			
1.0	50%	**$17.60**	$22.88	$11.12
1.0	75%	**$13.43**	$17.46	$6.51
1.0	90%	**$7.88**	$13.38	$4.43
2.0	50%	**$7.80**	$12.76	$3.30
2.0	75%	**$3.57**	$7.42	$1.17
2.0	90%	**$1.62**	$4.33	$0.45
3.0	50%	**$4.28**	$8.63	$1.27
3.0	75%	**$1.36**	$4.31	$0.25
3.0	90%	**$0.39**	$2.04	$0.05

The results in this table are quite striking. Consider the highlighted column, where we observe that for every situation but one, the manager values the option grant at a value *strictly less* than the cost to the firm. Take the case where risk aversion is 2.0 and the manager has 75% of his wealth in the firm.[12] The firm bears a cost of $17.60 for *each* option granted, but the manager only values this stock option at $3.57. Thus, if the firm

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10 This is the "cost" of the management stock option to the firm.
11 Most economists estimate the average individual's risk aversion between 2.0 and 3.0. The value of 1.0 is put in only for comparison.
12 The numbers offered for the "percentage of wealth invested in the firm" may seem quite high. Individuals may have outside investments in capital and real estate markets. However, total individual wealth is the sum of his financial wealth and human capital wealth. An individual's employer affects both of these types of wealth in a highly significant way. If an employee stays with one firm for his entire career, his wealth is the present value of all future income from this firm. However, even if the employee is quite likely to switch positions, the value of his human capital - which will explicitly determine the value of any new opportunities - is still captured in this measure of "percentage of wealth invested in the firm". Thus, these estimates are actually quite reasonable.

granted 10,000 options at-the-money, it would cost the firm $176,000, but the manager values this package at only $35,700. This disparity is quite significant, to say the least! It is further increasing in the manager's risk aversion and the percentage of his wealth that is tied to firm value. In this, the message is clear, it costs firms a lot more to grant stock options than their perceived value to the managers who receive them.

2.2.1 Optimal Exercise Prices for Stock Options

The two far right columns of the above table speak to some recent variations on the design of stock option grants. The most commonly-used type of stock option grant is one in which the exercise price of the stock option is set equal to the market price of the firm's stock prevailing at the time of the award. However, firms can grant stock options with an exercise price below the market price (denoted a discount option) or above the market price (denoted a premium option). We see that if discount options were granted, the manager places a value on them that is closer to their Black-Scholes value. The reason is that there is a greater probability of these options ending up in the money, and thus the manager views them as less risky and more valuable. If instead options are granted with premium exercise prices, the manager places a much lower value on these than the Black-Scholes value. Analogously, the probability that a premium stock option will end up in the money before expiration is lower. To see the effect of the cost-benefit disparity of granting premium options, consider the example where a manager has a risk aversion coefficient of 2.0 and has 75% of his wealth invested in the firm. If the firm raises the exercise price from $30 to $60, the cost (or "fair value") of the option drops 36.8% to $6.48. However, the perceived value to the manager drops 67.2% to $1.17. Conversely, if the firm changed the exercise price from $30 to $15, the cost to the firm increases 30% to $22.88, but the value to the manager increases 107.8% to $7.42.

The overarching message from the theory is that when the market price of a firm's stock is sufficiently below the exercise price, the incentive value is incredibly small. Analogously, if the market price is significantly above the exercise price, the incentive value is commensurately large. This has important implications for the design of stock option contracts. If firms want to maximize the incentive value of stock options, and thereby minimize the cost-benefit disparity, offering *discount* options is the most desirable theoretically. In the limit, reducing the exercise price of the option to zero would be analogous to offering managers restricted stock, and the incentive value is consequently maximized. Thoughts on the political costs of such actions are given in Section 4.

2.2.2 Other Theoretical Costs of Stock Options

Another disadvantage of stock options that has been identified by theorists relates to the risk choices made by managers when they are offered stock options. A recent paper by Carpenter (2000) uses an intuition first developed in a banking context by Boot and Thakor (1993).[13] Carpenter identifies conditions under which the granting of an unbounded stock option contract to a manager leads him to increasing the risk profile

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13   See also the Nobel prize-winning work of Robert Merton related to federally-supported deposit insurance.

of the firm. As is well known, the value of an option is strictly increasing in the riskiness of the underlying asset. Thus, the manager can increase the option value by taking on more risky projects. The cost of this is when the risky project has a lower Net Present Value (NPV) than a safer project.

Along the lines of Boot and Thakor (1993), the manager is most inclined towards such firm value-destroying behavior when they are "gambling for resurrection". That is, when the option is out-of-the-money and time is running out. At that point, the safe project may not move the stock price much (although value is not further destroyed), and the manager's option expires worthless. However, the risky project choice implies that the stock price will either soar or decline significantly. Naturally, if the stock falls off, the manager can't exercise the option just as he couldn't if he took the safe project. But here, since the stock price has some probability of increasing dramatically, the option now has a much greater value.

2.3   Managerial Career Concerns: Is it Only the Money that Matters?

In this final subsection, I consider the impact of a manager's concern for his reputation on his decisions. In reality, managers not only care about their impending bonus check, but most likely care about softer issues, such as their reputation, power and future career path. Simply put, they care about how the firm they work for and the market and society as a whole perceive their abilities. This is commonly referred to as *managerial career concerns.* It is quite possible that many individuals, particularly early and late in their careers, care most about their reputation. As a young manager, reputation will dictate the course his life and income will follow. Perceived failure in the early days may preclude the manager from the chance to participate in certain jobs in the future. As a manager nearing retirement, reputation determines the legacy left behind. Thus, the first punchline is that career concerns may partially *substitute* for incentive-based pay schemes. The executive may work very hard in an attempt to increase his reputation. Early economists first thought of this as managers playing in a tournament, starting at the bottom of a firm and vying for promotions. However, this interpretation need not be taken literally. The important point of managerial career concerns is that while financial incentives offered to take a certain course of action might be quite strong, it is possible that a manager's concern for how he is perceived more globally might outweigh the financial ones. This has both costs and benefits that are summarized in this section. Since no empirical proxy for the degree of career concerns has ever been developed, it is difficult to look to the data for the effects career concerns have on behavior. However, it is quite clear that across any country and any firm, most individuals arguably would prefer a higher reputation to a lower one.

Managerial career concerns are defined as the value of increasing market perceptions of one's ability. That is, in addition to a manager preferring more money to less, all else equal, they attach a positive and increasing value to being considered as having a high reputation. Fama (1980) first identified career concerns as a *perfect* substitute to

incentive-based pay designed to make a manager work hard. He argued that since a manager's reputation would increase positively with firm performance, he would be naturally motivated to work hard even if his direct actions were not observable and he was paid a simple fixed wage. This interpretation is reasonable given that the observance of a higher output would make it more likely that the manager was talented. Recall that in a hidden-action model with effort-averse workers, managers would provide no efforts. Thus, this appeared as a solution to the whole problem of optimal compensation.

However, as delineated by Holmstrom (1982), a new inefficiency can be created by the presence of career concerns. Young managers may work excessively hard in an attempt to *distort* perceptions of their ability in an upward manner to garner better jobs and higher wages in the future. In a similar vein, older managers may work too little as they near the end of their career since the value of future opportunities is much less important. Therefore, career concerns may work too well or too poorly. In the end, incentive pay is still needed, but should be tailored to the severity of the career concerns problem.

Holmstrom's (1982) work spawned a number of papers that attempt to document the distortions that may obtain in organizations when managers are of unknown ability. An example includes choosing lower-valued, long-term projects that disguise any outcomes that might lead the market to assign a lower ability to the manager. Another example is the hoarding of information among team members in an attempt to display to the superior that only you were wise enough to find this information. In both of these examples, inefficiencies arise and firm value is lost.

These are the sophisticated games that individuals play with corporate resources. While the effort-aversion model (i.e., managers prefer not to work) remains prominent in the study of incentives, problems of career concerns, envy, etc. are probably the most important in organizations. Economists, including Lazear and Rosen (1981) and Green and Stokey (1983), among others, have argued that career concerns arise because the corporation is often designed like a "tournament". That is, the firm is set up as a series of levels and only the best at each level advance to the next one. The ultimate level is the CEO spot.

Now, it is clearly true that many firms are not set up explicitly as a tournament. A loss of continuity and cooperation is lost if top managers are constantly competing for either the top CEO spot or for the top spot in their division. For example, a top spot for a level in investment banking might be to head the European Sales & Trading division. This individual could earn several times that which the CEO earns, and has no desire to move. However, it would be naïve to assume that the individual just below this head isn't vying for this spot at some point in the future. Whether the apparent organization of a firm is explicitly a "tournament" for managerial talent or not, career concerns have always, and will always, play an incredibly important role in determining how managers work and to what they will respond.

Another important implication of career concerns is that they are often defined outside of the box that the firm dictates. While a firm can obviously dictate the internal finan-

cial awards, the gains to a more favorable reputation may in fact be dominated by the non-pecuniary benefits of control, which stem from increased power and prestige. For obvious reasons, estimating the value of these is quite difficult, but an appreciation of their potential implications is critical to the success of any management compensation program.

3 Empirical Evidence for Pay-for-Performance

With the discussion of the economic theory underlying management compensation in hand, I now turn to the existing empirical evidence. In this section, I summarize how well the data on compensation practices within firms fit this theory. I begin with summaries of the US pay practices, as these data are most abundant. This is followed by a summation of the existing evidence from international pay studies. This section concludes by drawing out what lessons can be derived from the empirical evidence to date.

3.1 Empirical Estimates of Pay-for-Performance Sensitivities

Economic theory predicts that CEOs, as agents in their firms, should receive compensation that exhibits positive pay-for-performance. That is, CEO pay should vary as shareholder wealth changes. The seminal paper for estimating the pay-for-performance sensitivities is given by Jensen and Murphy (1990). They collect compensation data for the 800 American firms in the Forbes 500 over the years 1974 through 1987. To be included in the Forbes 500, a firm must be in the top 500 for either sales, market value, or total assets. For each CEO in these 800 firms, the data during this 1974-1987 time period include a CEO's salary and bonus, other cash compensation that includes long-term bonuses, and the realized gains from exercising stock options. Jensen and Murphy (1990) also collect a small sample of CEO stock holdings in their own firms and use the median percentage of shares owned as a proxy for what *all* CEOs hold.

Jensen and Murphy (1990) empirically estimate pay-for-performance sensitivity as the correlation between the change in a CEO's firm-related wealth and changes in shareholder wealth. They find that the average CEO enjoys a change in his firm-related wealth of $3.25 for each $1,000 change in shareholder wealth. This coefficient was statistically significant, and thus the conclusion is that there is pay-for-performance in practice, which is consistent with the theoretical prediction.

While this conclusion comes as little surprise today, in 1990 compensation disclosure was more moderate and the answer was unknown. Since 1990, CEO compensation data have become much richer, and it appears that the theory is more strongly supported than originally believed by Jensen and Murphy (1990).[14] More recent undertakings of this test by Milbourn (2001) and others show a significantly higher average pay-for-per-

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14 All of the large firm US data is drawn from Compustat's ExecuComp database. This database covers 1,500 of the largest, publicly-traded US companies and spans the years 1992-1998.

formance sensitivity for US CEOs in the 1990's. Milbourn (2001) estimates an average pay-for-performance sensitivity of approximately $20 per $1,000 change in shareholder value.[15] To put this number in perspective, suppose that a firm has a market value of $1 billion. A 10% total shareholder return over the year would lead to an increase in shareholder wealth of $100 million. If the Jensen-Murphy estimate of a $3.25 change in CEO wealth per $1,000 increase in shareholder wealth still held, then the CEO would see his wealth increase $325,000. Using the more recent estimate of $20 per $1,000 increase in shareholder wealth, the CEO would enjoy an increase in his wealth of $2 million. Thus, it is a commonly-held belief that the pay-for-performance sensitivities of US CEOs has increased dramatically over the 1990's, primarily due to the explosion of stock option grants.

3.2   Heterogeneity in Estimated Pay-for-Performance Sensitivities

While some may argue that the average pay-for-performance sensitivity observed in US CEOs' pay packages is either too high or too low, it is critical to note that there is quite a spread in the actual company-specific pay-for-performance sensitivities. These values range from approximately $0 to as high as $350 per $1,000 increase in shareholder value. In Section II, several firm and management characteristics were suggested as being related to the theoretically-optimal pay-for-performance sensitivity. One explanation for what determines the company-specific pay-for-performance sensitivities was the variability of firm output. A recent paper by Aggarwal and Samwick (1999) tests this hypothesis. First, they calculate the total volatility of each firm's stock returns, and then form one hundred portfolios that place firms according to their total risk. The first portfolio represents firms with the lowest stock return volatility and the hundredth portfolio contains firms with the highest stock return volatility. They then run the Jensen-Murphy regression to estimate how pay-for-performance sensitivities vary, if at all, across these "risk-based" portfolios. They document that pay-for-performance in the highest risk portfolio is approximately $20 lower than the portfolio with the lowest risk. Therefore, it appears that firms do adjust a CEO's pay-for-performance sensitivity to risk factors, relying more heavily on stock-based pay (which is implicit in these estimates of pay-for-performance) when stock prices are less noisy, and thereby more informative of the CEO's actions.

Utilizing a similar methodology, Milbourn (2001) examines the effect of firm size on pay-for-performance. He finds that the largest firm in the sample offers a CEO compensation package with a pay-for-performance sensitivity of $24 per $1,000 change in shareholder wealth *less* than the CEO pay package offered in the smallest firm. Again, the theory is well supported. The empirical findings for firm risk and firm size, as well as the remaining pay-for-performance control variables delineated in Section 2 are summarized in the following table.[16]

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15   If one instead calculates the median pay-for-performance sensitivity, the value halves to $10 per $1,000 change in shareholder value. A median regression minimizes errors to the median of the sample instead of the average as is carried out in an Ordinary Least Squares (OLS) regression.

16   See Murphy (1999) for an excellent review of the papers underlying these empirical results.

Table 2: Summary of Factors Determining Pay-for-Performance Sensitivities

Empirical Control Variable	Predicted Effect on Pay-for-Performance	Supported by the Data (Yes/No/Untested/Untestable)
Variability of Stock Returns	↓	Yes
Firm Size	↓	Yes
Firm Leverage	↓	Yes
Proportion of Value Contributed by Growth Opportunities	↑	Yes
Diversity of Firm Operations	↑	Untested
Degree of Product Market Competition	↓	Yes
Managerial Risk Aversion	↓	Untestable
Percentage of Managerial Wealth Invested in the Firm	↓	Untestable [17]

In summary, the empirical observations from the US are reasonably consistent with management compensation theory. Specifically, it appears that in practice firms adjust the management compensation contracts they offer in a theoretically-optimal manner. These findings are also consistent with the simpler hypothesis that compensation contracts are custom designed for each firm and each manager. In what follows, I turn to a discussion of international pay studies.

3.3 Observations from International Pay Studies

While the US CEO data fit the theory well, arguably geography and social norms impinge on the types of contracts that can be offered. Unfortunately, compensation data and, consequently, empirical studies outside of the US are relatively sparse. Conyon and Schwalbach (1998) utilize macro-level compensation data to explore the variation in the *levels* of managerial pay across Europe. Their data, although slightly constrained by their aggregate nature, are quite interesting as they span several managerial levels, including the CEO. One highly relevant finding is a positive relationship between managerial pay and both the particular job position and the company's size, across all countries. The significant relationship of managerial pay to job position (alternatively, rank in the corporate hierarchy) hints at a manifestation of the "managerial career concerns" discussed in Section 2.

Turning to cross-country comparisons of CEO pay-for-performance, limited, yet promising attempts have been carried out for countries like the United Kingdom,

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17 Given the absence of data on managerial private investment holdings, this prediction is not directly testable.

Germany and Japan. Kaplan (1994a, 1994b) provides a cross-country synthesis of CEO compensation across Germany, Japan and the United States. Both anecdotal evidence and corporate contracting theory would suggest that the capital-market dominated financial system of the U.S. would engender a significantly stronger relationship between CEO pay and firm performance. However, what Kaplan uncovers is that, on average, the sensitivity of CEO *cash* pay to firm performance is (statistically) equivalent across these three countries. While these data don't cover the Netherlands, the German corporate governance structure is arguably more similar to the Dutch system than the American system. Thus, if we are to believe that Kaplan's findings are fairly representative of these countries, there are some similarities in the financial forces that managers are faced with.

It is critical, however, to note that these findings relate primarily to cash-based pay-for-performance sensitivities. As Kaplan (1994a, 1994b) and Abowd and Kaplan (1999) independently uncover, the premium US CEOs enjoy in their compensation packages are significant and stem primarily from enormous differences in their stock-based pay-for-performance sensitivities. In addition, these differences can almost solely be traced to the preponderance of stock option grants offered to American CEOs. This US CEO premium even extends to the United Kingdom, which clearly has the most similar market structure to the US. Conyon and Murphy (2000) find that in the UK, average pay-for-performance sensitivities are roughly one-fifth of the average US company.

The overall conclusion from these cross-country comparisons is that the use of pay-for-performance compensation contracts is prominent and has strictly increased in recent years in non-US countries. And while the levels of pay-for-performance utilized in these countries still fall short of US levels, Murphy (1999) conjectures that this disparity may be relatively short-lived:

> "A final, but more speculative, result emerging from the existing data is that pay levels and structures are converging, reflecting an increasingly global market for managerial talent. Canadian and Mexican companies, for example, routinely now include US companies in peer groups used to determine competitive pay levels. US companies routinely export pay practices (including stock option grants) to executives of foreign subsidiaries, putting pressure on the pay policies of local competitors. And, foreign companies acquiring US subsidiaries face huge internal pay inequities, often resolved by increasing home-country executive pay. In addition, legal prohibitions on granting executive stock options in Japan were lifted in April, 1997, resulting in (or from) a swell of interest in US-style compensation; interest in stock options is exploding elsewhere in the Pacific Rim and in Europe and Latin America."

3.4   Lessons Derived from Economic Theory and the Empirical Evidence

Two of the most prominent empirical results are:

1. Growth in top management pay packages has dwarfed the growth in the pay packages of rank-and-file workers.
2. The granting of stock options to top management has dramatically increased both in the US and internationally.

Based on these facts, two important questions emerge: What are the (potentially long-term) effects of these findings and are there any resolutions?

The immediate implication of the finding on disparate pay growth between the top and bottom employees of a firm is that political pressure, both internal to the firm and external via the government, becomes much more likely. The biggest risk factor in exploding pay levels is that a government responds with potentially ill-advised regulatory changes. There is, in fact, evidence that suggests that internal firm politics play an important role in dictating the type and amount of management compensation. In a clinical study, Dial and Murphy (1995) document that internal political pressures at General Dynamics led to the company replacing a controversial bonus plan with more conventional stock options. DeAngelo and DeAngelo (1991) document that during the 1980's in the steel industry, CEOs were offered less cash compensation in years in which labor union renegotiations were taking place relative to years in which no such talks occurred. At the state level, Zenner and Perry (1997) find that the $1 million cap on the deductibility of fixed salary awards led firms to reduce cash (base) salaries and instead increase the dollar values of stock option grants.

While it is clear that political pressures can dictate pay practices in the private (non-State) sector, the unanswered question is whether the disparity in pay is costly. From a pure monetary perspective, could all workers be made sufficiently better off if the additions to CEO pay packages had instead been divided equally among all the employees in the firm. Using data from 1993-1998 for 492 large US companies for which the total number of employees in the firm was available in the ExecuComp database, I find that *on average*, each employee would receive an additional $90 for the *whole year* (the median estimate is $22 per employee for the year). Naturally, there is an enormous spread of potential "wealth increases" per employee. For the company who gave their CEO the biggest pay increase, each employee in that firm could have received an additional $9,004 for the year. While this represents a substantial amount of money for the rank-and-file worker, there are *only* thirty-four observations where the firms would have been able to give each employee an additional $1000 or more in that year.[18] Moreover, in only 131 of these firms could each employee be awarded an additional $300 or more.

Turning to the bottom end of this "wealth increases" per employee spectrum, suppose that employees were forced to share in the CEO pay *decreases* as well in exchange for receiving their share of the pay increases. Ultimately, the biggest decline in CEO pay over a year would translate to taking away $11,158 from each employee in that firm. In fact,

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18   There are more observations than there are firms because many firms show up multiple times across 1993-1998.

in 408 of these 1,469 observations, nearly a third of the 1993-1998 sample, the yearly pay-checks of each employee would have to be reduced to spread the CEO-loss across all workers.

Of course, this type of calculation rarely crops up in political discussions of exorbitant pay. Nonetheless, it hints at the fact that the financial costs of rising pay at the top would not dramatically affect the welfare of the individual employees. Are there other costs of this disparity? Organizational behaviorists have attempted to study this. Their conclusion is that from a "sociological and psychological perspective, perceived pay inequities lead to lower productivity and product quality, decreased employee morale, and increased [employee] turnover."[19] Thus, there may in fact be real costs. However, until economists can find a reasonable measure of this psychological cost and contrast it with the benefits of existing compensation plans, the theory is less than useful for managing these tensions.

3.4.1 Other Empirically-Estimated Costs of Stock Options

The second main finding from the empirical section is that the use of stock options have increased dramatically. In this subsection, I briefly discuss two empirical results related to stock option grants. This is then followed by a discussion of a recent innovation in stock option plans that may prove useful in practice.

Empirically, DeFusco, Johnson and Zorn (1990) examine the risk profiles of firms before and after the introduction of managerial stock option plans. In line with the Carpenter (2000) theory, they find that firm risk, as measured by stock return volatility, increases significantly after the stock option grant. While this could be costly for firms, it does provide further evidence that compensation design can have an impact on real managerial decisions.

Recently, "stock option overhang" has been identified as a cost of granting stock options. Stock option overhang is the potential dilution from previously granted options (combined with options available for future grants) expressed as a percentage of total shares outstanding. In the Netherlands, dilution was 2.8% on average in the 114 largest companies. According to Watson Wyatt consultants, average dilution grew in US companies from 5% in 1988 to 13% in 1997. Garvey and Milbourn (2001) find similar levels of dilution, where estimates average 5.75% for US companies from 1992-1997.

Employee stock options represent a significant potential source of dilution for many shareholders. It is well known that reported earnings tend to understate the associated costs, but an efficient stock market will show no such bias. If by contrast stock prices underestimate the future costs implied by stock option grants, option exercises will produce negative abnormal returns. Garvey and Milbourn (2001) design and implement a stock-picking rule based on predictions of stock-option exercise using widely available data. The rule identifies stocks that subsequently suffer significant negative abnormal returns using either a CAPM or the three-factor Fama-French benchmarks. According to their point estimates, if the cost of employee stock options as a fraction of market capi-

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19   See O'Reilly, Wade, and Pollock (1998).

talization is 10%, the stock will subsequently exhibit a negative abnormal return of between 3% and 5%. Therefore, it appears that dilution caused by the granting of management stock options is a serious matter and should be considered by the board and its shareholders.

3.4.2 Recent Innovations in Management Stock Options

In recent years, some practitioners have argued that stock options should be "indexed" to the performance of the stock market or an industry portfolio. An indexed stock option is such that the exercise price moves up or down as the stock market or industry group's price level does. The intuition behind such a scheme is to avoid rewarding an individual manager for simply holding stock options when there is a bull market. Another stock option variant with a similar theme is one that involves a fixed exercise price, but only vests if the firm (or individual manager) has satisfied some prearranged hurdle of performance. These are sometimes referred to as *conditional stock options*.[20]

Conditional stock option plans received a lot of publicity in the United Kingdom on the heels of the famous 1995 Greenbury report which called for the replacement of "plain vanilla" stock options with conditional stock options. In response to this report, the government tightened existing restrictions on the amount of stock options that could be awarded. Moreover, institutional investors *suggested* that the value of management options should not exceed an amount of four times the manager's salary.

Based on some compensation data that I collected for a proprietary project, I found that in 1997 nearly one-third of the FTSE-100 companies had already implemented conditional stock option plans. Interestingly, the overwhelming majority of these plans set one singular performance hurdle as the criteria for vesting. This hurdle was that "EPS growth must exceed inflation plus 2% annually over three consecutive years" for the options to vest.

A cynical interpretation of these data would be that since EPS-based hurdles were offered by Greenbury as one *candidate* example of how performance might be additionally measured, many firms might have adopted them without hesitation in an attempt to avoid further criticism. In all fairness, it is still early yet to fully appreciate the impact these plans might have. One message, however, is clear. At a minimum, setting custom-designed performance measures as the performance hurdle is economically rational. It is highly unlikely that maximizing EPS for every firm is the optimal measure. For capital-intensive firms, a measure like EVA that accounts for the actual cost of capital employed by the business might be a more efficient hurdle. For research-intensive firms, non-financial measures like the number of new initiatives (products) might be appropriate. If firms were to identify explicitly what drives firm-value maximization and tie these measures to conditional stock option plans, efficiency gains might be earned.

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20 These options should be distinguished from plain vanilla stock options that simply don't vest for three years, as are often issued in the US and recently in the Netherlands. The term "conditional" here implies that vesting requirements are twofold. First, a certain amount of time from the grant date must pass, typically a period of time of three years. Second, the performance hurdle must be satisfied sometime between the vesting date and the expiration date.

Forming hard conclusions on the economic viability of conditional stock option plans in the UK is at best tenuous in light of the limited time period over which these plans have been used in practice. However, Conyon and Murphy (2000) in their study of the contrasting pay practices in the UK and US argue that government and institutional pressures in the UK are "lessening the pay-performance link and leading to a relatively compressed wage structure". This finding is not surprising in light of the theory. As discussed in Section 2, as the likelihood of receiving the payoff from an incentive scheme is reduced, the incentive value of the award diminishes drastically. Exacerbating this problem is the fact that the disparity in the cost to the firm and the value to the manager continues to exist.

In the US, indexed and conditional stock option plans are virtually nonexistent. In addition to the theoretical reason given above, prevailing accounting and tax standards may also play a key role in explaining this fact. Stock options receive favorable treatment in the US on both of these dimensions. In terms of tax treatment, stock options are not considered a taxable event at the time of grant. Thus, they are truly a form of deferred compensation for tax purposes. They are only taxable to the individual manager at the time they are exercised, and it is at this time that the company "incurs" a tax-deductible expense. In terms of accounting treatment, the details of stock option grants are fully disclosed in the financial statements. However, this detail is relegated solely to the footnotes. Stock options that are issued at-the-money or out-of-the-money are "free" from an accounting standpoint. While this explains why discount stock options might be discouraged, it does not explain why premium stock option plans are not used more regularly. In terms of international comparisons, to the extent that tax and accounting treatments may vary, so too might the firm's incentives to grant variants of the plain vanilla stock options to management.

4 OBSERVED MANAGEMENT PAY PRACTICES IN THE NETHERLANDS

In this section, I summarize and contrast Dutch pay practices with the practices in other countries. First, based on extensive interviews with several Dutch practitioners, I provide an anonymous summary of their experiences in order to describe the pay packages commonly used in Dutch firms. This is augmented by a comparison of compensation practices in medium-sized Dutch companies with their similarly-sized international counterparts using the Towers-Perrin Worldwide Remuneration report. Lastly, I summarize current pay practices for a sample of the largest listed Dutch companies using a recently collected sample drawn from the 1999 annual reports.

4.1   Common Pay Practices in the Netherlands

A typical yearly managerial pay package includes a salary, a bonus, and a long-term incentive plan (LTIP). The usual breakdown is as follows. Fixed salary represents between 35% and 50% of the total wage package for a CEO in a public firm. Bonus schemes are short term in nature and are most often tied to either earnings per share (EPS), earnings before interest and tax (EBIT), or more recently, measures like Economic Value Added (EVA). Bonus schemes comprise between 18% and 25% (half of fixed salary) of total compensation. Long-term incentives are nearly wholly comprised of traditional stock options. The proportion of stock options granted varies widely, and is dependent on the size of the firm. For smaller public companies, the value of stock option grants are roughly half of the manager's salary, or 25% of the total wage package. However, in some of the largest firms, the value of stock option grants can be as high as 125% of fixed salary, comprising over 45% of the total wage package.

While short-term bonuses are explicitly tied to the (accounting) performance of the firm, the overwhelming majority of stock option grants in the Netherlands do not have their vesting criteria conditioned on other performance measures. However, as in most US firms, the decision of how *many* stock options to grant is directly tied to the recent performance of the firm. The Supervisory Board, based on firm performance relative to explicit and/or implicit standards, decides on both the total number of stock options that will be granted and how they will be distributed. How far down in the organization to award stock options is an important question.

As discussed in Section 3, a significant portion of top management pay packages in the US is comprised of stock options. Interestingly, stock options have become increasingly important for the rest of American workers. According to Hall and Murphy (1999), 45% of salaried employees in 1998 received stock options, and 10% of hourly employees also received them. To date, this practice is in stark contrast to the Netherlands. According to data obtained in Duffhues, Kabir, and Mertens (1999) covering the 114 largest companies in 1997, 73% of the total stock options granted went to management. The median percentage was 100%, and the percentage of stock options that were granted to management ranged from 3.7% to 100% for all these companies. Thus, as of 1997, most companies awarded the lion's share of available stock options to upper management.

This is not a particularly surprising finding as the companies in the Netherlands have only recently begun issuing a substantial number of stock options. According to Duffhues, Kabir, and Mertens (1999), new stock option grants in 1997 accounted for an average of 52% of total managerial options outstanding. Thus, stock option grants appear to be on the rise. While the denominator in this calculation ignores previous option grants that were either exercised or expired out-of-the-money, it certainly is indicative of the relatively recent emergence of stock option grants for large Dutch companies. In fact, of the 114 companies in this sample, there are 66 firms for which the data are available for the year they initiated option plans for the management board and the whole company. One company began a plan in 1967, while the next earliest date is 1982.

Only 24 of these companies began a plan before 1990 and the average option-start year is 1991. Turning to the Towers-Perrin compensation data, this is consistent with observed practices in medium-sized Dutch firms.

The following figure provides a comparison of the average CEO compensation practices in twenty-six countries, summarized by Towers Perrin.

Figure 3: Comparison of the Average CEO Compensation Practices in 26 Countries
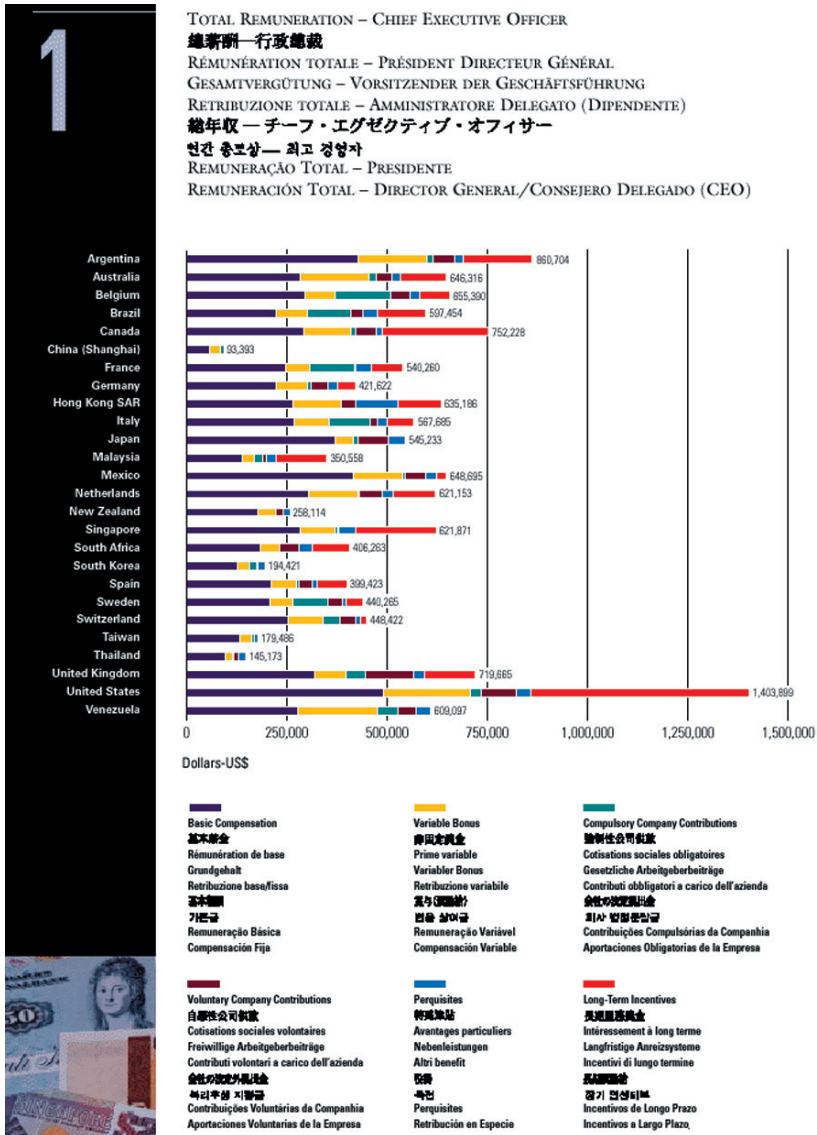
Source: Towers Perrin

From the above picture, we see of the average 1999 Dutch CEO pay package, approximately $100,000 of the $621,153 total package came from long-term incentives, which is comprised primarily of stock options. Looking at the same data for similar companies in 1993 or 1996 (as used in the study of Abowd and Kaplan (1999)), *no* part of the $358,224 and $439,742 pay packages for the CEO in 1993 and 1996, respectively, came from any long-term incentives.

This is in stark contrast to the US where we can document the use of stock option plans dating back to the 1970's. Moreover, the percentage of total compensation represented by stock option grants in the average CEO compensation plan is much higher in the US than in the Netherlands or nearly any other country. Of the $819,428 total package in 1993, $274,760 (or 33%) comes from long-term incentives. In 1999, approximately $554,000 (or 39%) of the $1,403,899 total pay package comes from long-term incentives. This is certainly a substantial proportion of pay, and is in fact quite similar to the largest 500 US companies. Here, the average level of pay in 1998 was $9,476,000, and of this, $4,764,000 came from stock option grants alone, or 39% of total pay awarded to CEOs.

These Towers-Perrin data on medium-sized firms further allow for comparisons of growth in CEO pay to that of other senior managers. For example, the average Human Resources Director in these same Dutch companies have seen their pay grow a total of 37% from 1993 to 1999, or 5.3% per year. This is roughly half of the growth in Dutch CEO pay. In the US, HR pay rose 73% from 1993 to 1999. However, US pay was actually quite similar to Dutch pay in both 1993 and 1996. An HR Director received $177,186 and $200,551 in 1993 and 1996, respectively, whereas a Dutch HR Director received $158,736 and $192,375 in the same years. However, a more significant difference is observed in 1999, where the US Director received $306,181 as compared to the $217,142 of his Dutch counterpart. This difference primarily stems from the addition of long-term incentives, comprising 25% of the American HR Director's compensation in 1999, as compared to only 14% in 1996. The Dutch HR Director received less than 10% of his total pay in the form of long-term incentives in 1999.[21] Thus, the big growth in pay for the American Director comes solely from the changes in HR pay between 1996 and 1999.[22]

4.2 Top Management Pay in Largest Dutch Firms

In closing this section, I summarize the compensation data of the largest, publicly-quoted Dutch companies using the information disclosed in the firm's 1999 annual reports. This sample includes the available compensation data for 139 listed Dutch firms.[23] Summary statistics for all 139 firms are contained in the following table. All values have been converted to Euros using the prevailing exchange ratios on 31 December 1999.

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21 For the average Dutch HR Director, approximately $20,000 of the total $217,142 total pay package was received in the form of long-term incentives.

22 In fact, HR pay in the US grew over 50% between 1996 and 1999, whereas the growth between 1993 and 1996 is only 13%.

23 The list of these 139 firms is in the Appendix.

Table 3: Pay in a Sample of Dutch Firms

Full Sample	Average	Minimum	Median	Maximum	Standard Deviation
Total Supervisory Board Pay	146,938	12,642	94,350	2,900,000	284,899
Total Management Board Pay	1,801,342	85,608	994,500	11,000,000	2,042,298
Growth in Supervisory Board Pay from 1998	17%	-67%	0%	319%	52%
Growth in Management Board Pay from 1998	25%	-60%	10%	282%	50%

Interestingly, of these 139 firms, only 21 firms (15.1% of the sample) voluntarily disclosed some details of individual pay, including either salary & bonus and/or stock option awards for each manager.[24] The summary statistics for these 21 firms are provided below.

Table 4: Subsample of Firms that Voluntarily Disclose Individual Pay Details

Subsample	Average	Minimum	Median	Maximum	Standard Deviation
Total Supervisory Board Pay	402,044	25,867	238,000	2,900,000	599,792
Total Management Board Pay	4,397,543	190,596	4,389,720	11,000,000	2,934,544
Growth in Supervisory Board Pay from 1998	2%	-29%	0%	104%	30%
Growth in Management Board Pay from 1998	27%	-19%	5%	282%	67%

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24 Of these 21 firms, only 12 of them disclosed the salary & bonus earned by each manager.

As can be seen in comparing this subsample of disclosing firms to the full sample of 139 firms, average total pay for the Supervisory and Management boards are significantly greater in those firms that voluntarily disclose pay details, and average growth in management board pay is greater.

Turning to estimates of pay-for-performance sensitivities, we are interested in two items: managerial shareholdings and stock options. Here, pay-for-performance sensitivity is defined as "shares held as percentage of total firm shares" plus "options held as a percentage of total firm shares time option delta". A stock option's delta (alternatively known as its hedge ratio) is the equivalent number of shares one would have to purchase to replicate the payoff on a call option. Unfortunately, given the limitations of the data, individual managerial holdings of stock and stock options are difficult to discern for a reasonable sample of firms. Nonetheless, for 42 of the largest listed Dutch firms, a sufficient amount of detail can be gleaned from the annual reports. For each of these firms, data on percentage of stock held *and* the parameters of new and old stock option grants to the management boards in total are given. Based on these, I can estimate stock-based, pay-for-performance sensitivities for total management boards at each of these firms. These estimates are given in percentage form and are contained in the following table for each of the 42 firms. To compare these figures to the US estimates of Jensen and Murphy (1990), simply multiply the pay-for-performance sensitivity percentage by 10 to generate what the total management board earns for a 1,000 Euro increase in shareholder wealth.

As can be seen in Table 5, there is an enormous amount of heterogeneity in the pay-for-performance sensitivities awarded to the management boards of these companies. To put these data into perspective, summary statistics for these firms are contrasted to the findings of Conyon and Murphy (2000) for the CEOs of large UK and US firms.

Table 5: Pay for performance Sensitivity for Dutch listed Firms

Company Name	Pay-performance Sensitivity (%)
ABN Amro	0.030
Aegon	0.170
Ahold	0.214
Akzo Nobel	0.075
Antonov plc	15.073
Athlon Groep	1.141
Ballast Nedam	0.104
Beter Bed	0.146
Blydenstein-Willink	0.192
Boskalis Westminster	0.144
CSM	0.039
DSM	0.148
Fortis	0.021
Free Record Shop	56.480
Fugro NV	0.161
Getronics	0.135
ICT Automatisering	5.353
IHC Caland	0.344
ING	0.043
InnoConcepts	0.225
Kempen & Co.	0.184
KLM	0.364
KPN	0.023
Laurus	0.082
NBM Amstelland	0.059
Nedap	0.308
Oce	0.058
Pharming	1.797
Philips	0.056
PinkRoccade	1.669
Samas	0.110
Shell	0.015
Twentsche Kabelholding	0.174
UCC Groep	61.891
Unilever	0.103
Vendex KBB	0.271
VNU	0.106
Volker Wessels Stevin	8.331
Vopak	0.305
Wegener	1.266
Wessanen	0.167
Wolters Kluwer	0.185

Table 6: Pay-for-Performance in the Netherlands, United Kingdom and the United States		
	Average	**Median**
Dutch Companies (full sample)	4.05%	0.17%
Dutch Companies (sales < £200m)	15.72%	1.80%
Dutch Companies (£200m < sales < £500m)	1.03%	1.27%
Dutch Companies (£500m < sales < £1,500m)	0.31%	0.14%
Dutch Companies (£1,500m < sales)	0.61%	0.11%
UK Companies (full sample)	2.33%	0.25%
UK Companies (sales < £200m)	4.72%	1.09%
UK Companies (£200m < sales < £500m)	2.75%	0.42%
UK Companies (£500m < sales < £1,500m)	0.91%	0.16%
UK Companies (£1,500m < sales)	0.31%	0.05%
US Companies (full sample)	4.18%	1.48%
US Companies (sales < £200m)	6.98%	3.65%
US Companies (£200m < sales < £500m)	5.2%	2.05%
US Companies (£500m < sales < £1,500m)	3.43%	1.26%
US Companies (£1,500m < sales)	2.17%	0.56%

Although the comparisons made in the table above are less than perfect given that the Conyon and Murphy (2000) estimates are for just the CEOs and not the total management board, the table is nonetheless quite informative of pay practices in Netherlands. In fact, the stock-based incentives offered to top management in Dutch firms are arguably quite similar to those offered to the CEOs in the largest British and American companies.

5   LESSONS FOR THE NETHERLANDS

Management compensation has the objective of attracting, retaining, and motivating managers. However, the dynamics of the market for managerial talent have changed dramatically in the last ten years, including the Netherlands. Managers are now highly unlikely to spend their careers in one firm, whereas historically this was quite common. In fact, it is easily defensible that managerial career concerns have become more prominent owing to this increased mobility of managerial talent. Firms no longer restrict themselves to insiders when looking to fill their top management spots. Many of the recent CEO appointments have been across industries. In discussing just such a change, The Wall Street Journal Europe (WSJE, 1991), noted that a "banker-turned-utility executive

runs Delta Air Lines [and] a former finance professor and cereal executive runs Times Mirror Co". Simply put, firms are now seeking out the best in managerial talent, and not necessarily searching for the "best man in the industry". Why does this matter? These top executives carry with them a very high reservation wage owing to their reputations. These higher reservation wages then map into spectacular compensation packages designed to lure them to any given firm.

Apparently, this phenomenon of the "winners" receiving a larger prize in recent years reaches far beyond corporate America. Frank and Cook (1995) claim:

> "These high stakes have created a new class of unknown celebrities: those pivotal players who spell the difference between corporate success and failure. Because their performance is crucial, and because modern information technology has helped build consensus about who they are, rival organizations must compete furiously to hire and retain them.
>
> The widening gap is apparently not new…Alfred Marshal wrote over a century ago, '… the relative fall in the incomes to be earned by those of moderate ability, however carefully trained, is accentuated by the rise in those that are obtained by many men of extraordinary ability'."

What does this imply about the future of cross-country variations in managerial incentives? It suggests that if European and Japanese corporations continue hiring more managerial "superstars" to run their firms, an explosion of international CEO pay will most likely unfold for the "best of the best". Support for this phenomenon comes from the same WSJE report, which claims that "[CEOs now] hopscotch around the corporate world, over national borders, and across all industry boundaries. [For example,] in France, an elite cadre of leaders with the right educational and social pedigrees often skip from industry to industry." Analogous examples of small groups of top executives rising to the top in terms of reputation were offered for Germany, the Netherlands and Sweden. A reasonable prediction is that if the trend in executive mobility continues, then all international superstars will soon command compensation packages that rival the existing plans of their American counterparts. If the marketplace is allowed to work with few additional frictions, the boundaries of compensation will have to evolve.

In this paper, I have offered several empirical observations that this type of corporate response has already taken place in a relatively explosive fashion in the Netherlands. Offering pay-for-performance compensation contracts is now the norm for the Chairman of the Management Board, as well as other senior managers. In particular, stock option grants are commonplace and it is increasingly difficult to discern between typical pay packages in the Netherlands and the rest of the industrialized world, including the United States.

Going forward, this paper has summarized the existing theoretical and empirical literature on the optimal manner in which compensation contracts should be designed, and in practice how they are designed. There is no reasonable economic argument that compensation contracts can be offered without a significant pay-for-performance ele-

ment. However, it is critically important to keep in mind that there are many factors affecting the optimal level of incentives given to management, including a firm's risk level, its size, the nature of competition in its product market, its asset structure, the degree of leverage in its capital structure, as well as the management's own risk aversion, their level of diversification in their own financial wealth and career concerns. Balancing the mix of fixed and variable pay is an extremely important, yet delicate, issue. That said, there are several discernable lessons for the Netherlands going forward.

1. Offering incentive-based pay to risk averse managers costs the employing firms significantly more than the perceived value to the managers. Moreover, as the likelihood that a performance-pay scheme pays off a positive amount to the manager diminishes, the incentive value decreases at a strictly faster rate than the cost to the firm diminishes. This economic reality has important implications for more complex pay schemes such as indexed, conditional, or premium stock option plans. To the extent that there are tax advantages to managers who receive such schemes, firms must be cognizant of the tradeoff between tax benefits and incentive value. For example, if a Dutch manager is awarded a stock option with an exercise price set at 125% of the prevailing market price at that time, the manager's tax liability is only 4%. However, as shown explicitly in Section 2, the option's value to the manager is prohibitively diminished. It is entirely feasible that the tax benefits outweigh the incentive costs, but this is not obvious. And while it is possible that in re-establishing some political and social goodwill, the more immediate and obvious costs outlined above might be outweighed, firms should not blindly herd to such schemes without a full cost-benefit analysis.

2. In the "VNO-NCW and NCD 1999" report, several recommendations for the "optimal" granting of stock options were made. The fifth point of eight states that new option grants should not increase dilution by more than 1% per year. Moreover, it recommends that companies should try to repurchase shares around the time that it expects many option exercises to occur to avoid this dilution. In the Garvey and Milbourn (2001) study, a majority of the firms that were in the "lowest dilution" portfolio – which consequently did *not* suffer stock price declines – had repurchased shares around the exercises. Based on this current research, repurchasing shares to diminish the effects of dilution is economically advisable.

3. An efficient capital market is an essential ingredient to a successful corporate governance program. Since the efficiency of a market critically depends on information, increased disclosure requirements of managerial pay is economically rational. Theoretically, there is only one readily identifiable downside to mandating increased disclosure of pay, namely that a "ratchet effect" may result. The intuition is that if one manager observes that the compensation of his counterpart at a competing firm is higher, he will rationally demand an equivalent or dominating pay package. If he is successful in renegotiating the terms of his deal, his counterpart will rationally demand the same, and so on, creating an upwards ratcheting pay scheme. Even in the absence of increased disclosure, ratchet effects may perpetuate. Murphy (1999)

argues that pay surveys also induce a ratchet effect in that only pay in the upper 25% to 50% of all managers are considered "competitive". This notwithstanding, any disciple of "efficient markets" theory would be hard-pressed to claim that the benefits of increased information wouldn't dominate the costs of a potential ratchet effect.

4. Firms should be wary of granting stock options to employees below the uppermost level of the firm. Pay-for-performance contracts only work if the performance measure can be affected by the employee. That is, the performance measure must be responsive to the employee's actions. Bonus plans based on measures such as EVA or Economic Profit could be more helpful and these can be offered to workers throughout the firm's hierarchy.

5. In conclusion, there is always one overwhelmingly important caveat that an economist can offer to shareholders, politicians, laborers and all other stakeholders in the firm as the managerial compensation debate rages on. This message is to allow Adam Smith's invisible hand to operate. That is, allow the managerial labor market to converge to international standards if that is what the market dictates. Be cautious in implementing any regulations that add frictions to the marketplace. While regulatory changes aimed at increasing the informational efficiency of the market are most often invaluable, regulatory changes meant to dictate allegedly optimal policies are nearly always onerous. Preliminary evidence (Conyon and Murphy (2000)) from the UK, where statutory and non-statutory restrictions have recently been adopted, indicates that pay-for-performance has commensurately declined. Ultimately, a flight of managerial talent could result in economic losses that far exceed the perceived benefits of keeping managerial pay under control.

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Appendix: 139 Listed Dutch Firms Used in Section 4

Aalberts Industries	DOC data	KSI International
ABN Amro	DPA Holding	Kuhne + Heitz
Achmea	Draka Holding	Landis
AEGON	DSM	Laurus
AHOLD	Econosto	Libertel
Ahrend	EMBA	Nagron
Airspray	EmiS	NBM Amstelland
Akzo Nobel	Endemol Entertainment	Nedap
Alpinvest	Eriks	Nedcon
Antonov plc	EVC Holding	NedGraphics
AOT	Fornix	Nedlloyd
ARCADIS	Fortis	Nedschroef
ARTU Biologicals	Frans Maas	Neways
ASMI	Free Record Shop	NIB Capital
ASML	Fugro NV	Norit
ASR	Gamma Holding	NPM Capital
ATAG	Gelderse Papiergroep	Numico
Athlon Groep	Getronics	Nutreco
AXA	Geveke	Oce
Ballast Nedam	Grolsch	OPG
BAM Groep	Grontmij	Ordina
Beers	Hagemeyer	Petroplus
Begemann	HBG	Pharming
Beter Bed	HCI	Philips
Blydenstein-Willink	Heijmans	PinkRoccade
Boskalis Westminster	Heineken	Polynorm
Buhrmann	HITT	Prolion
Cap Gemini	Hoek Loos	Reed Elsevier
CMG	Holland Colours	RingRosa
COPACO	Hunter Douglas	Roto Smeets de Boer
Crown van Gelder	ICT Automatisering	Samas
CSM	IHC Caland	Schuitema
CSS	ING	Schuttersveld
Ctac	InnoConcepts	Shell
De Drie Electronics	Internatio Muller	Simac
Beheer N.V.	Kas-Associatie	Sligro Beheer
De Telegraaf	Kempen & Co	Smit Internationale
Delft Instruments	KLM	Smit Transformers
Detron	KPN	Stork
Dico	Krasnapolsky	TAS

Appendix continued

Ten Cate	UPC	Volker Wessels Stevin
Toolex	Van der Hoop	Vopak
TPG	Van Dorp Espec groep	Wegener
Tulip	Van Heek Tweka Vastned	Wessanen
Twentsche Kabelholding	Vedior	Wolters Kluwer
UCC Groep	VendexKBB	
Unilever	VNU	

NOTE ON THE CONTRIBUTOR

Todd T. Milbourn is affiliated with the John M. Olin School of Business at Washington University in St. Louis. Before this he held appointments at London Business School and the University of Chicago's Graduate School of Business. Todd Milbourn has consulted and lectured on advanced corporate finance issues in a variety of organizations, including several Fortune 500 and London-FTSE 100 companies, as well as several global investment banks and consultancy firms. His research focuses primarily on the design of managerial compensation, performance measurement and capital budgeting. He has over ten publications in various academic and managerial journals that span these topics.

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