

**Executive Compensation, Corporate  
Governance, and Say on Pay**

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ABSTRACT. This monograph explores the relation between corporate governance and executive compensation and evaluates the conditions under which shareholders can benefit from the right to interfere with the pay setting process by voting on the compensation proposed by the board of directors (Say on Pay). The first part of the monograph lays out the theoretical framework. The second part provides an overview of the origins and country-specific differences in Say on Pay regulation and a detailed summary and evaluation of the empirical literature on the subject.

## CHAPTER 1

### **Introduction**

The continuous growth of executive pay since the early nineties has triggered an intensive academic and public debate about the possible reasons of growing executive pay levels. On the one hand, the shareholder value (or efficient contracting) approach views executive pay in public firms as a means to mitigate an agency problem between shareholders and managers, with pay levels driven by labor market forces. On the other hand, the so called managerial power approach views the pay-setting process as an agency problem on its own and suggests that weak boards tend to shift rents to the CEO at the cost of shareholders by implementing inefficient compensation arrangements.

In a response to the public concerns about executive pay, regulators have adopted a number of measures to improve the governance and transparency of the pay-setting process, and shareholder rights to influence such process. A key development in this context was the introduction of shareholder votes on the compensation of executives, also referred to as “Say on Pay”. Since its first introduction in the United Kingdom (UK) in 2002, many other countries have adopted different forms of mandatory Say on Pay rules for shareholders of public firms that differ in many details such as their enforceability, the timing and the subject of the vote.

In this monograph, we provide a comprehensive summary and survey of the theoretical and empirical literature on Say on Pay. In the first part of the monograph, we study theoretically how a poor governance structure affects the level and structure of executive pay and identify conditions under which Say and Pay could help shareholders to improve it. In the second part of this monograph, we explain the origins and the cross-country differences in Say on Pay regulation and provide a detailed summary and evaluation

of the empirical evidence on the subject. Finally, we also discuss potential improvements and point out some fruitful avenues for future empirical and theoretical research.

The core issue among the proponents of the shareholder value view and the managerial power approach is the question of whether executive pay in public firms represents arm's-length bargaining between managers and shareholders or rent seeking by powerful CEOs. Yet, formal models of executive pay are typically based on the shareholder value view and only a few of them explicitly study the consequences of the firm's governance structure on its compensation decisions. In Chapter 2, we propose a framework that allows us to formalize the consequences of a poor governance structure on the board's compensation decisions and to compare the properties of the contract proposed by a weak board to the optimal contract designed in the best interest of shareholders. This framework serves as a benchmark for studying the economic consequences of Say on Pay in Chapter 3.

We portray the agency problem between shareholders and managers as a problem of moral hazard. Different from the standard model, we assume that the firm's compensation decisions are taken by the board of directors and not by the firm's shareholders. We consider two different approaches to represent the preferences of a board with imperfectly aligned preferences. In our model, either the board maximizes a weighted average of the firm's expected profit and the agent's expected utility or the agent's compensation is determined by Nash bargaining.

We study the optimal compensation contract for both approaches under various restrictions faced by the board when setting the agent's compensation and compare the solutions with the contract that maximizes shareholder value. In Section 2, we first show that a weak governance structure does not affect the performance-based part of the agent's pay (and thereby his equilibrium effort) if wealth transfers between the principal and the agent are unrestricted. However, we find that a more management-friendly board optimally transfers a non-decreasing part of the total surplus to the agent by adjusting the lump-sum transfer. Since the agent is risk neutral, the

optimal contract is a lease contract so that a weak governance translates into a non-decreasing lease payment. In Section 3, we study the optimal contract structure for the case where the agent is protected by limited liability. Here, the fixed contractual payment takes its lowest possible value, whereas the bonus is non-decreasing in the management-friendliness of the board and/or the CEO's bargaining power whenever the limited liability constraint is binding.

In Section 4, we study the consequences of two possible forms of an “outrage constraint” in the spirit of Bebchuk and Fried (2004). These authors consider this constraint as a natural limit to excessive compensation arrangements without specifying its details. If the outrage constraint takes the form of a self-restraint in setting the agent's total pay, the board does not adjust the fixed pay component but limits the agent's bonus to meet the constraint. If the outrage cost takes the form of a disutility if the agent's pay exceeds a certain limit, its consequences for the individual pay components also depend on their perceived marginal cost. Particularly, if performance-based pay triggers less outrage than raising the salary, the board offers the agent a contract with a lower salary and a higher bonus in response to the outrage constraint.

A legal reason for a differential treatment of individual pay components is the “million dollar tax cap” of the Internal Revenue Code, Section 162(m). This tax cap limits the tax-deductibility of non-performance-based compensation components to \$1 million per year. Drawing on an earlier result in Göx (2008), we demonstrate that this rule could induce a management-friendly board to reward the agent for luck. Interestingly, this outcome would not be optimal in the absence of the tax cap even if the board maximizes the CEO's utility and completely ignores the interests of shareholders.

Even though a management-friendly board always inflates the CEO's compensation level in our model, shareholders must not necessarily suffer from this policy. In Section 5, we present two formal arguments that challenge this overly simplistic view. First, we show that shareholders strictly

benefit from a moderately management-friendly board if it has superior information about the agent's marginal contribution to firm value. In such a case, delegating the compensation decision to an informed incumbent board that favors the CEO can yield a higher shareholder value than an uninformed replacement with perfectly aligned interests. Second, drawing on Laux and Mittendorf (2011), we also demonstrate that the need to provide the CEO with incentives for the search of profitable investment projects can render a management-friendly board beneficial to shareholders.

The analysis of Chapter 2 shows that the pay-setting process is a complex problem that depends on a large number of observable and unobservable factors. A sound understanding of these factors and their interplay with the board's compensation decisions is important for shareholders and other outside parties seeking to evaluate the efficiency and desirability of real world compensation arrangements.

In Chapter 3, we extend the core model from Chapter 2 to study the economic consequences of Say on Pay. In Section 1, we begin the analysis with the advisory Say on Pay model as it is used in the Anglo-Saxon countries. We show that an advisory Say on Pay can be a powerful instrument for shareholders to interfere with the compensation policy of the board. Its effectiveness critically depends on the consequences of a negative shareholder vote faced by the board of directors. The stricter the regulatory environment, the higher the willingness of the board to limit the agent's compensation to avoid a negative voting outcome. However, this mechanism is only unambiguously desirable from a shareholder perspective if they possess the relevant information to determine the efficient compensation level. Otherwise, shareholders run the risk to distort erroneously the compensation policy of a board acting in their own best interest.

In sections 2 and 3, we study the consequences of two forms of the binding Say on Pay model as used in some European countries. We first study the case where the binding Say on Pay vote is retroactive and show that it creates a hold-up problem on the part of shareholders that could destroy

shareholder value if the contractual obligations from the compensation contract are subject to shareholder approval. The reason is that short-term oriented shareholders have a strict incentive to disapprove all bonus payments once the CEO has supplied his effort level. If the CEO anticipates this outcome, he will have insufficient effort incentives in the first place.

Next, we study the case where the binding Say on Pay vote is prospective and show that the hold-up problem can be avoided if the shareholders must approve the agent's compensation contract before he chooses his effort level. However, we also find that the threat of disapproving the agent's compensation ex ante is only effective if the shareholders do not have full control over the pay level proposed by the board. Otherwise, the threat to disapprove the compensation contract proposed by a management-friendly board is empty because there is always a contract that yields the same shareholder value without destroying the agent's effort incentives.

In sum, the analysis of Chapter 3 suggests that Say on Pay is a complex and powerful instrument in the hands of shareholders to influence the board's compensation decisions. Its effectiveness and desirability from a shareholder perspective critically depend on the incentives and the information of the parties involved in the pay-setting process as well as on the organization and the legal and economic consequences of the vote.

In Chapter 4, we provide an overview of the empirical research on the subject. Section 1 provides a brief history of Say on Pay, placing it in the broader context of the trend toward greater shareholder democracy. Sections 2 and 3 review the empirical evidence on the effect of advisory Say on Pay votes, respectively, on executive pay and firm value, both in the US and in other countries. Section 4 reviews the corresponding evidence regarding binding Say on Pay regimes and Section 5 discusses other issues related to Say on Pay votes. Overall, across various countries adopting Say on Pay, a few common findings emerge.

First, failed Say on Pay votes are rare, though cases of significant voting dissent are not uncommon (and are generally more frequent than on other items voted upon at annual meetings). This may indicate that executive pay

problems may not be as widespread or that a large fraction of investors are reluctant to interfere with and micromanage the pay-setting process. Voting dissent appears to be higher at firms with excess CEO pay (i.e. high pay and poor performance) and firms with compensation provisions viewed as reducing pay-for-performance. In many countries, proxy advisors play an important role in shaping shareholders' votes.

Second, with respect to its effect on executive pay, the adoption of Say on Pay and adverse Say on Pay votes are followed by an increase in pay-for-performance sensitivity, while pay levels do not seem to be much affected (though there is some evidence of a decline in the growth rate of pay levels). Firms often directly respond to adverse votes by engaging with institutional investors and changing compensation contracts to remove those controversial provisions that caused the adverse vote (the specific provisions vary across countries, but the common trait is that they are viewed as weakening the pay-for-performance link).

Third, with respect to the effect on firm value, most studies document a positive stock price reaction to events suggesting the future adoption of Say on Pay (at the country- or firm-level), though the stock price reaction to Say on Pay-induced actual compensation changes is either negative or insignificant. One possibility for these apparently conflicting findings is that investors' (positive) expectations of the effects of the Say on Pay regime have not materialized. Another potential explanation is that those expectations were not driven by anticipated improvements to compensation contracts but other anticipated side benefits of Say on Pay (e.g. greater pressure on management to perform well to avoid an adverse vote; better communication between boards and management).

In Chapter 5, we close this monograph with some conclusions and suggestions for future research. Finally, we need to add a few caveats: first, the research on Say on Pay continues to grow as more data become available over time and across countries. Thus, some of the studies cited here are in the form of working papers and their findings should be viewed as preliminary. Second, while we tried to perform a comprehensive review, it is

possible we missed some studies. Finally, we apologize if we do not discuss in equal depth all the studies and tend to focus instead on the work (and journals) we are more familiar with, including our own.



## CHAPTER 2

### **Executive Pay and Corporate Governance**

*“Properly designed performance measures and executive incentive compensation schemes are central to the value creation process. Their purpose is straightforward – to motivate managers to create value by rewarding them for the value created.”*(Alfred Rappaport 1986)

The shareholder value theory views executive compensation in public firms as a means to mitigate an agency problem between shareholders and managers. In this agency relationship, shareholders take the role of the principal and managers take the role of the agent. The agency problem arises from the separation of ownership and control (Berle and Means 1932). Managers have the right and the responsibility to take important actions and decisions on behalf of shareholders without bearing the full financial consequences of their decisions. Jensen and Meckling (1976) describe the resulting conflict of interest between managers and shareholders as follows: *“If both parties to the relationship are utility maximizers there is good reason to believe that the agent will not always act in the best interests of the principal.”* The introductory quote of Rappaport (1986) suggests that executive compensation is at least a part of the solution to the agency problem because it helps to align the interests of managers with the interests of shareholders and thereby motivates managers to internalize the wealth effects of their decisions.

In an influential book and a number of closely related articles, Bebchuk et al. (2002) and Bebchuk and Fried (2003, 2004, and 2005) challenge the idea that executive compensation solves the agency problem between managers and shareholders in public firms. According to the so called “managerial power approach” or the “rent extraction view” of executive pay, weak

governance structures allow powerful CEOs to influence the decisions of the board of directors and thereby to control the level and structure of their own pay. According to Bebchuk and Fried (2004), weak boards tend to shift rents to the CEO at the cost of shareholders by implementing inefficient compensation arrangements. These contracts typically exhibit a poor link between pay and firm performance and lack other desirable features of optimal compensation contracts such as the control for common risk factors in measuring the CEO's performance (Bertrand and Mullainathan 2001).

The controversy between the shareholder value view and the managerial power approach has initiated an intensive debate among empirical compensation researchers who seek to answer the question of whether executive pay in public firms represents rent seeking by powerful CEOs or arm's-length bargaining between managers and shareholders.<sup>1</sup> Despite the importance of this fundamental controversy, most formal models of executive pay are based on the shareholder value view and assume that the shareholders or a board with perfectly aligned preferences determine the CEO's compensation contract.<sup>2</sup>

In this chapter, we aim to contribute to the debate by providing a unified framework that allows us to formalize the consequences of a poor governance structure for the board's compensation decisions and to compare the properties of the optimal contract proposed by a weak board to the contract designed in the best interest of shareholders. In Section 1, we introduce the key assumptions of our model in which we portray executive pay as a moral hazard problem. The key difference between our framework and the standard moral hazard model is the assumption that the firm's compensation decisions are taken by the board of directors and not by the firm's shareholders. We consider two different approaches to represent the preferences

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<sup>1</sup>See e.g. Bertrand and Mullainathan (2001), Bebchuk and Grinstein (2005), Frydman and Jenter (2010), or Core and Guay (2010) for evidence on the subject and overviews of the empirical literature.

<sup>2</sup>In a recent survey, Edmans and Gabaix (2016) provide a detailed overview of traditional and "modern" theories of executive pay. All models presented in the survey assume that the agent's compensation is set in the best interest of shareholders.

of a board with imperfectly aligned preferences. In the first approach, we assume that the board maximizes a weighted average of the firm's expected profit and the agent's expected utility. In the second approach, we assume that the agent's compensation is determined as the outcome of a generalized Nash bargaining model. The moral hazard model combines elements from Bolton and Dewatripont (2005, Chapter 4) and Göx (2016).

In Section 2, we analyze the optimal compensation contract proposed by both board types assuming that the wealth transfers between the principal and the agent are unrestricted. In Section 3, we study the optimal contract if the agent is protected by limited liability. The analysis of both sections draws primarily on Göx (2016). In Section 4, we study the consequences of other constraints faced by the board in setting the agent's compensation. The first of these constraints is the "outrage constraint" put forward by Bebchuk and Fried (2003, 2004) as a natural barrier to excessive compensation arrangements. The second constraint considered in Section 4 is the "million dollar tax cap" found in Section 162(m) of the Internal Revenue Code that limits the tax-deductibility of non-performance-based compensation components to \$1 million per year. The analysis of this section draws on Göx (2004) and Göx (2008).

One implicit presumption of the managerial power approach is that shareholders always suffer from the compensation policy of a management-friendly board. In Section 5, we present two formal arguments that challenge this overly simple view. The first argument is based on the trade-off between an informational advantage of the board in setting the agent's compensation and the degree of its preference alignment with shareholders. Based on Laux and Mittendorf (2011), the second argument exploits a trade-off between providing the CEO with incentives for the search of investment projects and limiting the rent extraction at the cost of shareholders. In both cases, the shareholders can benefit from a board that partly considers the CEO's utility in its compensation decisions. Finally, in Section 6, we provide a discussion of our key findings, the limitations and possible extensions of our model, and its implications for empirical research.

### 1. Executive pay as a moral hazard problem

In line with a large part of the theoretical executive compensation literature, we portray the agency relation between shareholders and managers as a moral hazard problem and ignore other complications such as adverse selection problems or career concerns. In our model, the manager must be motivated to exert a real valued effort  $a \in [0, \bar{a}]$  in order to increase the fundamental value of the firm. The firm value takes the form

$$(2.1) \quad \tilde{x}(a) = x(a) + \tilde{\epsilon},$$

where  $x(a) \geq 0$  is an increasing and concave function of the agent's effort and  $\tilde{\epsilon}$  is a noise term with mean zero. The agent's effort is unobservable and personally costly. The cost function  $c(a)$  is monotonically increasing and strictly convex in  $a$ , and satisfies the conditions  $c(0) = c'(0) = 0$ . Let

$$(2.2) \quad W(a) = x(a) - c(a)$$

denote the expected surplus of the agency, we assume that  $W'(0) > 0$  and  $W'(\bar{a}) < 0$  to ensure the existence of an interior solution to the firm's agency problem.

Throughout the analysis, we consider a scenario where neither the agent's effort choice nor the firm's fundamental value are verifiable by third parties such as a court, and thus not contractible. To motivate the agent's effort choice, the firm offers him a compensation contract on the basis of a contractible performance measure  $\tilde{y}$ . For the main part of the analysis, we assume that the performance measure is a binary signal that can take the values  $\tilde{y} \in \{0, 1\}$ . It seems natural to interpret this performance measure as an indicator of implementing an investment project or a merger activity, where  $\tilde{y} = 1$  signals a successful implementation and  $\tilde{y} = 0$  indicates a failure. The likelihood of success depends on the agent's effort so that  $\text{prob}(\tilde{y} = 1) = a$  and  $\text{prob}(\tilde{y} = 0) = 1 - a$ . Clearly, it must be that  $\bar{a} = 1$  for this model version because the agent's effort is equivalent to the probability of success.<sup>3</sup> The main advantage of this structure is the fact that the optimal contract

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<sup>3</sup>For the purpose of the analysis in Sections 2 and 3, we could have equivalently assumed that  $\tilde{x}$  is a binary random variable and contractible. The main advantage of our

takes a particular simple form: The agent receives a base salary  $w$  and a supplementary bonus  $b$  in case of a successful project implementation. With these assumptions, the agent's expected compensation becomes

$$(2.3) \quad s(a) = w + b \cdot a.$$

Let the principal be risk neutral and let  $u(a) := E[u(s(a))]$  denote the agent's expected utility derived from monetary compensation. With these assumptions, the objective functions of the principal and the agent can be expressed as:

$$(2.4) \quad \Pi(a) = x(a) - s(a),$$

$$(2.5) \quad U(a) = u(a) - c(a).$$

In this setting, an agency problem can arise for two reasons. The agent is risk averse or he is protected by limited liability. In both cases, the compensation contract that maximizes the expected shareholder value fails to implement the first-best effort level that maximizes the joint surplus in equation (2.2) because such a contract is too costly for the firm's shareholders. Since the source of the agency problem is a second order concern for the purpose of our study, we will focus on the case of a risk neutral agent where  $u(a) = s(a)$  for the main part of the analysis. Moreover, as we will see in Section 2, the firm's governance structure generally affects the optimal compensation policy even in a setting where implementing the first-best effort level is in the best interest of shareholders.

In the remaining sections of this chapter, we will use various versions of our basic agency model to study the potential differences among the theoretically optimal compensation contracts written in the best interest of shareholders and the contracts that are, at least to a limited extent, designed to cater the interests of the CEO. This comparison serves as a framework for studying the economic consequences of Say on Pay in Chapter 3 and as a benchmark for our summary and evaluation of the empirical literature in Chapter 4.

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model structure is the fact that the key assumptions are general enough to hold for agency models with a continuous output such as the linear agency model in Section 4.

More specifically, we assume that the firm's compensation decisions are taken by the board of directors and not by the firm's shareholders. To study the relation between the firm's governance structure and its compensation policy, we consider two different approaches to represent the preferences of a board whose interests are imperfectly aligned with the interests of shareholders. The first approach has been widely used in previous literature<sup>4</sup>, it assumes that the board maximizes a weighted average of the principal's and the agent's utilities:

$$(2.6) \quad V(a) = (1 - \lambda) \cdot \Pi(a) + \lambda \cdot U(a).$$

The parameter  $\lambda \in [0, 1]$  can be interpreted as a measure of the board's dependence from the CEO, its management-friendliness, or the CEO's power over the board's decisions. Thus, only if  $\lambda = 0$ , the board's objectives are perfectly aligned with shareholder interests. Otherwise, the board factors the CEO's utility at least partly into its compensation decisions. To distinguish the objective function in (2.6) from other modeling approaches, we subsequently refer to it as the weighted utility approach. For most applications, it will be convenient to assume that the board maximizes the expression

$$(2.7) \quad V(a) = \Pi(a) + \delta \cdot U(a).$$

This objective function yields the same compensation decisions as the weighted utility approach if  $\delta = \lambda/(1 - \lambda)$  and the range of the parameter  $\lambda$  is appropriately considered in studying the solution of the board's decision problem.

The second approach considered in this monograph assumes that the board's compensation decision can be characterized as the outcome of a Nash bargaining procedure.<sup>5</sup> Here, the players maximize the generalized

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<sup>4</sup>Among others, this structure has been used by Drymiotes (2007), Kumar and Sivaramakrishnan (2008), Laux and Mittendorf (2011), and Göx (2016).

<sup>5</sup>While Nash bargaining has found a wide range of economic applications, it is rarely studied in the context of CEO compensation or formal agency models where the principal typically has all bargaining power. An exception is Hermalin and Weisbach (1998) who consider simultaneous Nash bargaining over the CEO's wage and the composition

Nash product

$$(2.8) \quad N(a) = (\Pi(a) - \underline{\Pi})^{1-\lambda} \cdot (U(a) - \underline{U})^\lambda,$$

where  $\lambda$  can be interpreted as the bargaining power of the CEO and/or the board members representing his interests, and  $1 - \lambda$  can be interpreted as the bargaining power of shareholders and/or their representatives at the board of directors.  $\underline{\Pi}$  and  $\underline{U}$  are the reservation utilities of shareholders and the CEO, respectively. Unless stated otherwise, we subsequently normalize both reservation utilities to zero.

## 2. Contracting with unconstrained wealth transfers

The basic version of the moral hazard model imposes no restrictions on the magnitude of the payments between the principal and the agent. The shareholder value maximizing compensation scheme is found by maximizing  $\Pi(a)$  subject to the constraints

$$(2.9) \quad U(a) \geq 0$$

$$(2.10) \quad a = \arg \max_{\hat{a}} U(\hat{a}).$$

The participation constraint in (2.9) ensures that the agent weakly prefers the employment relationship over his outside options and the incentive constraint in (2.10) forces the principal to anticipate the agent's unobservable effort choice in designing the optimal contract. With unrestricted payments, both constraints are binding. The participation constraint holds with equality because the principal has all bargaining power and designs the contract so that the desired effort level is implemented at the lowest possible cost. The incentive constraint uniquely defines the agent's equilibrium effort choice for a given incentive scheme.

With a risk neutral agent, the optimal compensation scheme from the shareholders' perspective takes the form of a lease contract where

$$(2.11) \quad b = x'(a), \quad w = c(a) - a \cdot x'(a) < 0,$$

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of the board. Likewise, Balkenborg (2001) and Demougin and Helm (2006) study Nash bargaining between principal and agent in the context of a moral hazard model.

where  $a = a^F$  and  $a^F$  denotes the first-best effort level. Thus, since the agent's incentive constraint requires that  $b = c'(a)$ , the optimal contract implements  $a^F$  and transfers the full surplus of the agency to the principal. Taking this well known result as a benchmark case, we study next how the properties of the optimal contract vary with the firm's governance structure if a management-friendly board decides on the CEO's compensation.

**Proposition 1:** With unrestricted transfer payments between the principal and the agent, a management-friendly board implements the first-best effort level  $a = a^F$ . If the board maximizes the weighted utility function in (2.7), and  $\delta \leq 1$ , it implements the lease contract in (2.11), otherwise, if  $\delta > 1$ , it sets the salary so that

$$(2.12) \quad w = x(a) - a \cdot x'(a) \geq 0.$$

If the compensation is determined by generalized Nash bargaining, the optimal salary equals

$$(2.13) \quad w = \lambda \cdot x(a) + (1 - \lambda) \cdot c(a) - a \cdot x'(a).$$

*Proof:* see appendix.

According to *Proposition 1*, the preference structure of the board has no consequences for the agent's optimal bonus and his equilibrium effort choice. Regardless of whether or not and to what extent the board factors the CEO's utility into its compensation decision, it always determines the performance-based part of the agent's pay so that the bonus equals the agent's marginal contribution to the firm's expected fundamental value. This compensation scheme induces the agent to fully internalize his personal impact on the firm value and to maximize the total surplus of the agency.

However, different from the standard solution in (2.11), where  $w$  is essentially an up-front lease payment that allocates the entire surplus of the agency to the principal, a management-friendly board can equally use the salary to allocate a significant part of the total surplus to the agent. Clearly,

any wealth transfer to the agent must satisfy the shareholders' participation constraint

$$(2.14) \quad \Pi(a) \geq \underline{\Pi} = 0.$$

This constraint assures that the shareholders weakly prefer their investment in the firm over alternative investment opportunities.<sup>6</sup> The size of the transfer depends on the board's objective function. If the board maximizes the weighted average of the players' utilities, it makes no transfer to the agent as long as it weakly favors the interests of shareholders over the interests of the CEO ( $\delta \leq 1$ ). However, as soon as  $\delta > 1$ , the board allocates the entire surplus to the agent and the shareholders receive only their reservation value of zero. The reason for this fundamental change of the optimal compensation contract is the fact that the board's objective function is monotonically increasing in the agent's compensation if it puts a higher weight on the CEO's utility than on the net shareholder value.<sup>7</sup>

In contrast, if the agent's compensation is determined by Nash bargaining, the surplus is split according to the relative bargaining powers of shareholders and the CEO. A comparison of the expressions for  $w$  in (2.11), (2.12), and (2.13) shows that the optimal salary under Nash bargaining is gradually increasing in  $\lambda$  and coincides with the extreme solutions of the weighted utilities approach only if one party has all bargaining power. Taking into account that CEO compensation typically does not take the form of a lease contract and even the most successful CEOs hardly attain a total compensation equal to the firm's market value, the Nash bargaining approach to model the board's preferences appears to be more consistent with real world compensation practices than the weighted utilities approach.

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<sup>6</sup>The existence of a break-even condition for capital providers of entrepreneurial firms is a standard assumption in the corporate finance literature (e.g. Bolton and Dewatripoint 2004, Tirole 2006). Moreover, as Tirole (2006) points out, the contracts used in the standard entrepreneurial finance model can equally be interpreted as debt or equity contracts.

<sup>7</sup>One way to avoid this result is to assume that  $\delta < 1$  or, equivalently, that  $\lambda \leq 1/2$ , e.g. Laux and Mittendorf (2011). However, with this assumption, a poor governance structure has no consequences for the agent's compensation if wealth transfers are unrestricted.

### 3. Contracting with limited liability

As recognized by Sappington (1983) and Innes (1990), lump sum monetary transfers from the agent to the principal may not be feasible if the agent is wealth constrained. This restriction generally rules out the implementation of the simple lease contract in (2.11) and the use of other contracts with negative lump sum payments and/or penalties for poor performance that exceed the agent's wealth. Likewise, labor market forces might prevent firms from enforcing a negative compensation regardless of the firm's performance. In the real world, the flow compensation of executives is hardly ever negative even in the worst economic circumstances. While this fact does not exclude that executives incur losses from previous stock or option grants, a contract structure that rules out a negative flow compensation appears to be more consistent with company practice than the unrestricted contract considered in Section 2.

To study how the limited liability of the agent affects the optimal compensation policy of a management-friendly board, we subsequently assume that the agent's compensation cannot fall below  $\underline{w}$ . Since the constant  $\underline{w} \geq 0$  is the lowest possible payment that the firm can implement in the agent's compensation contract, it must be that  $s(\tilde{y}) \geq \underline{w}$  regardless of the board's preferences. Since  $b$  must be positive if the principal wants to induce a positive effort level, the agent's limited liability constraint reduces to

$$(2.15) \quad w \geq \underline{w}.$$

To avoid unnecessary case distinctions, we further assume that for the agent's equilibrium effort it holds that  $x(a) - a \cdot x'(a) \geq \underline{w}$ . This condition rules out that the lower bound on the agent's salary is larger than the lump sum payment in (2.12) that a CEO-friendly board uses to transfer the total surplus to the agent.<sup>8</sup> As in Section 2, we first derive and discuss the properties of the optimal compensation contract from the shareholders'

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<sup>8</sup>Since  $x(a) = a \cdot x'(a)$  if  $x(a)$  is linear, it must be that  $\underline{w} = 0$  in this case. Otherwise, if  $\underline{w} > 0$ , the optimal contract in Proposition 1 violates the limited liability constraint even if  $\delta > 1$ .

perspective. The key difference between the firm's contracting problem in Section 2 and the limited liability contract in this section is the fact that the agent's participation constraint in (2.9) has slack because it can only bind if  $w < 0$  and this solution violates the limited liability constraint. As a consequence, the optimal contract allocates a rent to the CEO even if the preferences of the board are perfectly aligned with the interests of shareholders.

The optimal compensation contract from the shareholders' perspective is found by maximizing  $\Pi(a)$  subject to the agent's incentive constraint in (2.10) and the limited liability constraint in (2.15). The value maximizing contract takes the form

$$(2.16) \quad b = x'(a) - a \cdot c''(a), \quad w = \underline{w}.$$

The optimal contract is a profit sharing contract. In the absence of lump sum transfers, the bonus not only provides effort incentives but also splits the surplus between the principal and the agent. The higher the bonus, the higher the agent's effort and the higher his surplus share. The optimal bonus solves the trade-off between rent sharing and incentive provision so that  $\Pi(a)$  is maximized. It can be seen from the first expression in (2.16) that the optimal bonus is lower than the bonus of the lease contract in (2.11). As a consequence, the agent's equilibrium effort under the profit sharing contract,  $a^*$ , is lower than the first-best effort level  $a^F$ .

Implementing the first-best effort is still feasible but too costly for shareholders because it requires that they allocate an excessive profit share to the agent. To illustrate the problem, suppose that  $x(a)$  is linear in  $a$ . In this case, paying a bonus of  $b = x'(a)$  induces an efficient effort choice but the firm incurs an expected loss of  $\underline{w}$ . The reason is that the linearity of the expected firm value implies that  $b \cdot a = x(a)$  so that the agent receives the entire surplus of the agency. While this solution is efficient, it clearly fails to maximize shareholder value. It is interesting to compare this result to the properties of the optimal contract offered by a management-friendly board.

**Proposition 2:** With a binding limited liability constraint the salary equals  $w = \underline{w}$ , whereas the size of the bonus depends on the objective function of the board. If the board maximizes the weighted utility function in (2.7), the optimal bonus equals

$$(2.17) \quad b(\delta) = x'(a) - (1 - \delta) \cdot a \cdot c''(a).$$

If the compensation is determined by Nash bargaining, the optimal bonus takes the form

$$(2.18) \quad b(\delta) = x'(a) - \left(1 - \delta \cdot \frac{\Pi(a)}{U(a)}\right) \cdot a \cdot c''(a).$$

In both cases, the agent's bonus and thereby the agent's equilibrium effort are increasing in  $\delta$  if the limited liability constraint is binding. In the former case, the limited liability constraint (2.15) is binding if  $\delta \leq 1$ . In the latter case, (2.15) is binding if  $\lambda < (\underline{w} + a \cdot x'(a) - c(a)) \cdot W(a)^{-1}$ .

*Proof:* see appendix.

*Proposition 2* suggests that the preference structure of the board has no consequences for the size of the agent's salary but it affects the size of the bonus whenever the limited liability constraint is binding. These predictions are exactly the opposite of the results stated in *Proposition 1* where the board structure affects the salary but not the bonus. Evidently, the question of whether or not unlimited monetary transfers between the principal and the agent are feasible is critical for predicting the consequences of a weak governance structure on the compensation of executives.

Moreover, the solutions in (2.17) and (2.18) both indicate that a more management-friendly board grants a higher bonus  $b$  to the CEO. In both cases,  $b(\delta)$  is increasing in  $\delta$  albeit with different slopes because the Nash bargaining solution weighs the governance parameter by the ratio of the players' utilities. Intuitively, a management-friendly board pays a higher bonus to the CEO because it is less concerned than shareholders about leaving the manager with a rent and solves the trade-off between inducing effort and sharing rents with the CEO in favor of the former. A management friendly board therefore provides stronger effort incentives in the form of a

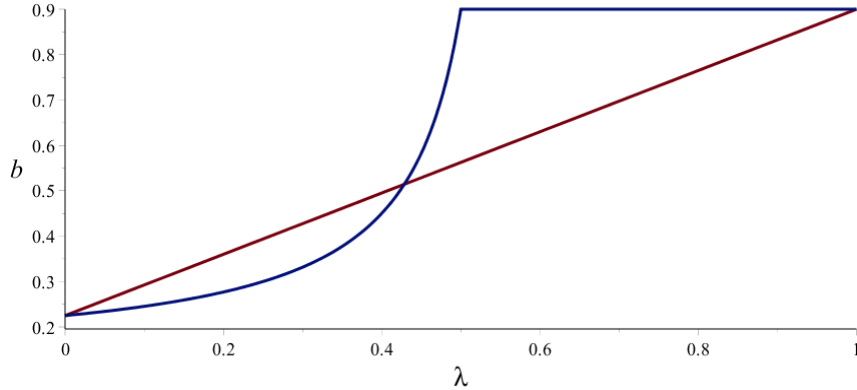


FIGURE 1. Optimal bonus rates. The figure shows the optimal bonus rates in *Proposition 2* as a function of  $\lambda$  for an example firm where  $x(a) = 0.9a$ ,  $c(a) = a^4/4$ , and  $\underline{w} = 0$ . The blue curve represents the bonus in (2.17), and the red curve represents the bonus in (2.18).

higher bonus and implements a higher equilibrium effort than the second-best effort level  $a^*$  implicitly defined in equation (2.16).

Even though the size of the bonus depends on the board's objective function, the solutions in (2.17) and (2.18) coincide in three different cases. If  $\delta = \lambda = 0$ , if  $\lambda = 1$ , or if  $\delta > 0$  and the surplus is split equally between the agent and the principal, i.e. if  $\Pi(a) = U(a)$ . In the first case, the board maximizes the expected firm value by implementing the second-best effort level  $a^*$  via the optimal profit sharing contract in (2.16). In the second case, both contracts implement the first best effort level  $a^F$  but allocate the total surplus of the agency to the CEO. In the last case, both contracts induce an effort level  $a \in (a^*, a^F)$  by allocating more than the second-best profit share but less than the total surplus to the agent.

As illustrated in figure 1, the optimal bonus under Nash bargaining can be higher or lower than the bonus implemented under the weighted utilities approach. It can also be seen that the optimal bonus levels under both approaches either coincide if the board essentially maximizes the objective function of one player or at an intermediate intersection point where  $\Pi(a) = U(a)$ . Since  $\Pi(a)$  is monotonically decreasing in  $\lambda$  and  $U(a)$  is

monotonically increasing in  $\lambda$ , the intersection point always exists if it holds that  $\Pi(a) > U(a)$  for  $\lambda = 0$ . Finally, the example also illustrates another important difference between the two approaches. While the CEO's surplus share gradually increases with  $\lambda$  under the Nash bargaining solution until it reaches its maximum at  $\lambda = 1$ , the weighted utilities approach suddenly allocates the full surplus share to the CEO as soon as  $\lambda > 1/2$ .<sup>9</sup>

#### 4. Contracting with other constraints

In this section, we examine how the compensation policy of a management-friendly board is affected by other constraints frequently discussed in the executive compensation literature. First, we study the consequences of two possible forms of an “outrage constraint” in the spirit of Bebchuk and Fried (2004) and examine how these constraints affect the structure of the optimal compensation contract. Second, we study the consequences of the so called “million dollar tax cap” of the Internal Revenue Code, Section 162(m). This tax cap limits the tax-deductibility of non-performance-based compensation components to \$1 million per year. Drawing on the analysis of Göx (2008), we first show that this rule could induce a sufficiently management-friendly board to reward the agent for luck. Second, we identify conditions under which this policy is not optimal in the absence of the tax cap even if the board completely ignores the interests of shareholders.

**4.1. The outrage constraint.** According to Bebchuk and Fried (2004) the “outrage constraint” is an “important building block of the managerial power approach”. Without such a constraint, there are no limits to the rent seeking activities of powerful CEOs. Unfortunately, Bebchuk and Fried (2004) do not provide a clear definition of this constraint but simply state that it represents the “economic and social costs” faced by the board of directors if it approves compensation arrangements that are perceived by

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<sup>9</sup>The example in figure 1 assumes that  $x(a)$  is linear. If  $x(a)$  is strictly concave and  $w = 0$ , there is a critical value of  $\lambda < 1$  for which the unconstrained salary under Nash bargaining in (2.13) is positive. Since the limited liability constraint is no longer binding in this case, the board implements the first best solution using the contract in *Proposition 1*.

outside parties as being against the best interests of shareholders. The costs associated with a violation of the outrage constraint can stem from various forms of shareholder pressure, reputational concerns or the fear of losing the board seat.

There are several ways to study the consequences of an outrage constraint in the context of our model. We propose two different approaches and compare their consequences for the board's compensation decisions. The first alternative considers the outrage constraint as an upper limit on the agent's expected total compensation. We assume that the board respects this limit when it decides on the CEO's compensation contract to avoid the costs associated with a violation of the outrage constraint. The second alternative does not require that the board respects an absolute compensation limit but that it incurs a cost or disutility whenever the total compensation or certain components of the compensation contract exceed a given value. To keep the analysis clear, we study these extensions in the context of the limited liability model of Section 3 and focus on the weighted utility approach.<sup>10</sup>

**Proposition 3:** Suppose that the board respects an upper limit for the agent's expected compensation so that  $s(a) \leq \bar{s}$ . The constraint can only become binding if it holds that  $s(a) > \bar{s}$  for  $a = a^F$ . If the constraint is binding, the optimal contract takes the form

$$(2.19) \quad b = \frac{\bar{s} - \underline{w}}{a}, \quad w = \underline{w}.$$

*Proof:* Follows from Propositions 1 and 2 considering the agent's limited liability constraint and the shareholders' participation constraint.

According to Proposition 3, an upper limit on the agent's expected compensation can only affect the board's optimal compensation policy if  $\bar{s}$  is lower than the highest possible compensation satisfying the shareholders' participation constraint. Otherwise the constraint cannot affect the board's

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<sup>10</sup>It is easy to verify that the Nash bargaining approach yields either the same or at least qualitatively similar results.

compensation policy because the shareholders' participation constraint is stricter than the compensation limit. The constrained contract comprises the minimum salary indicated by the agent's limited liability constraint and a bonus that satisfies the total compensation limit. Clearly, the bonus must be lower than the unconstrained bonus in (2.17) if the constraint should have impact on the agent's compensation. As a consequence, the optimal effort level is lower than with the unconstrained solution in *Proposition 2*.

We study next the case where the outrage constraint takes the form of an additional cost faced by the board if the expected compensation exceeds the total amount of  $\bar{s}$ . For the sake of simplicity, we consider a cost function that imposes a penalty on the board if the adjusted value of the agent's compensation is higher than  $\bar{s}$ .<sup>11</sup> Let the cost function take the form

$$(2.20) \quad O(a) = i \cdot (w + \kappa \cdot a \cdot b - \bar{s}),$$

where  $i \in \{0, k\}$  is an indicator variable that takes the value of zero if  $s(a) \leq \bar{s}$  and the value of  $k > 0$  if  $s(a) > \bar{s}$ . The parameter  $\kappa \in [0, 1]$  allows for the fact that the board might face different costs if it violates the outrage constraint by raising the salary rather than the performance-based part of the agent's compensation. In fact, if  $\kappa = 1$ , both forms of pay cause the same marginal outrage cost, whereas if  $\kappa < 1$ , the same expected amount of compensation causes less outrage if it is performance-based. Bebchuk and Fried (2004) raise a related argument. Based on the idea that performance-based pay is generally perceived as being more acceptable than a lump sum transfer, they conjecture that management-friendly boards deliberately use inflated bonus or stock-option grants to camouflage excessive pay levels. The cost function in (2.20) allows to study the consequences of this asymmetry

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<sup>11</sup>Alternatively, the outrage cost could be based on the realized compensation amounts and distinguish between the compensation paid for good and bad performance. This approach could be studied using the modified cost function  $O(a) = [i_1 \cdot (1 - a) \cdot (w - \bar{s}_1) + i_2 \cdot a \cdot (w + \kappa \cdot b - \bar{s}_2)]$  where  $i_j \in \{0, k\}$ ,  $j = 1, 2$  are appropriately chosen indicator variables taking the value of  $k$  if the compensation in the relevant state exceeds the relevant limit  $\bar{s}_j$  in the case of good or bad performance. Using this approach allows for more detailed case distinctions but yields qualitatively similar results as the cost function in (2.20).

for the board's compensation policy without proposing a microfoundation of this phenomenon.

**Proposition 4:** Suppose that the outrage costs take the form in (2.20) and the expected compensation level exceeds the threshold level of  $\bar{s}$ . If  $\delta \leq 1+k$ , the board sets the salary so that  $w = \underline{w}$  and the bonus takes the form

$$\underline{b}(\delta, \kappa) = \frac{x'(a) - (1 + k \cdot \kappa - \delta) \cdot a \cdot c''(a)}{1 + k \cdot \kappa}.$$

If  $\delta > 1+k$ , the optimal bonus takes the form

$$(2.21) \quad \bar{b}(\delta, \kappa) = \frac{(\delta - k) \cdot x'(a) + k \cdot (1 - \kappa) \cdot a \cdot c''(a)}{\delta - k \cdot (1 - \kappa)}$$

and the salary equals  $w(\delta, \kappa) = x(a) - a \cdot \bar{b}(\delta, \kappa)$ .

*Proof:* Follows from the proof of *Proposition 2* considering the cost function in (2.20).

A comparison of the optimal contracts in *Propositions 2* and *4* shows that the presence of outrage costs affects the board's compensation policy in several dimensions. First of all, the critical value of  $\delta$ , above which the board transfers the entire surplus to the agent, increases from 1 to  $1+k$ . As in Section 3, the switching point is determined by the value of  $\delta$  beyond which the board's objective function is increasing in the agent's compensation. Since the total weight on the agent's compensation equals  $\delta - 1 - k$  if  $s(a) > \bar{s}$ , the board must put a larger weight on the CEO's utility than without outrage cost before it transfers the surplus to the agent. Figure 2 illustrates this effect. In the absence of outrage cost, the shareholders' participation constraint is binding if  $\lambda > 1/2$  ( $\delta > 1$ ). With the outrage cost in (2.20) and  $k = 0.5$ , the critical point moves from  $1/2$  to  $\bar{\lambda} = (1+k)/(2+k) = 0.6$ .

Figure 2 also shows how the outrage cost affects the salary and the bonus. Consider first the optimal contract in the absence of outrage cost: The optimal bonus given by the dotted black line in figure 2 is monotonically increasing in  $\lambda$  as long as  $\lambda \leq 1/2$  and flat if  $\lambda > 1/2$ . The salary is flat for all values of  $\lambda$ . If  $\lambda \leq 1/2$ , the limited liability constraint is binding and  $w = \underline{w} = 0$ . For  $\lambda > 1/2$ , the salary is determined by the shareholders'

participation constraint and  $w = x(a) - a \cdot x'(a) = 0$  because  $x(a)$  is linear in  $a$ .

In the presence of outrage cost, the red line depicts the bonus and the blue line represents the salary. The bonus is still increasing in  $\lambda$  but it is strictly lower than in the absence of outrage cost for all values of  $\lambda < 1$ . The salary is flat for  $\lambda \leq \bar{\lambda}$  but positive and decreasing in  $\lambda$  otherwise. Both solutions coincide if  $\lambda$  approaches one.<sup>12</sup> Thus, the outrage cost makes the board more reluctant to increase the agent's bonus beyond the optimal level from the shareholders' perspective.

Since  $\bar{b}(\delta, \kappa) < x'(a)$  unless  $\lambda = 1$ , the optimal contract in the presence of outrage cost implements less than the first-best effort level even if the board puts a significant weight on the agent's utility. This observation has two consequences. First, the optimal salary must be positive if  $\lambda \in (\bar{\lambda}, 1)$  even if  $x(a)$  is linear as in the example because  $x(a) > a \cdot \bar{b}(\delta, \kappa)$  as long as  $\bar{b}(\delta, \kappa) < x'(a)$ . Second, and more importantly, the agent's expected total compensation must be lower than in the absence of outrage cost unless  $\lambda = 1$  because  $s(a) = x(a)$  but  $a < a^F$  if  $\lambda \in (\bar{\lambda}, 1)$ .

To study how differentiated outrage cost for fixed and performance-based compensation elements affect the board's compensation policy, we examine how varying the parameter  $\kappa$  affects the optimal contract. It is straightforward to see that a decrease of  $\kappa$  reduces the board's marginal cost of implementing a given effort level. Therefore, the agent's bonus and his equilibrium effort are both decreasing in  $\kappa$ . As long as  $\lambda \leq \bar{\lambda}$ , a change of the bonus does not affect the size of the salary because it is determined by the agent's limited liability constraint. However, if  $\lambda > \bar{\lambda}$ , the salary is determined by the shareholders' participation constraint. Since the bonus and the salary are substitutes in meeting this constraint, the salary is increasing as  $\kappa$  becomes larger. Put differently, if the board believes that the marginal outrage cost associated with an increase of the agent's bonus is lower than the marginal cost associated with a corresponding increase of the salary, it

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<sup>12</sup>In fact, it holds that  $\lim_{\delta \rightarrow \infty} \bar{b}(\delta, \kappa) = \lim_{\lambda \rightarrow 1} \bar{b}(\lambda/(1-\lambda), \kappa) = x'(a)$ . With  $b = x'(a)$ , the salary equals  $w = x(a) - a \cdot x'(a)$  as in equation (2.12).

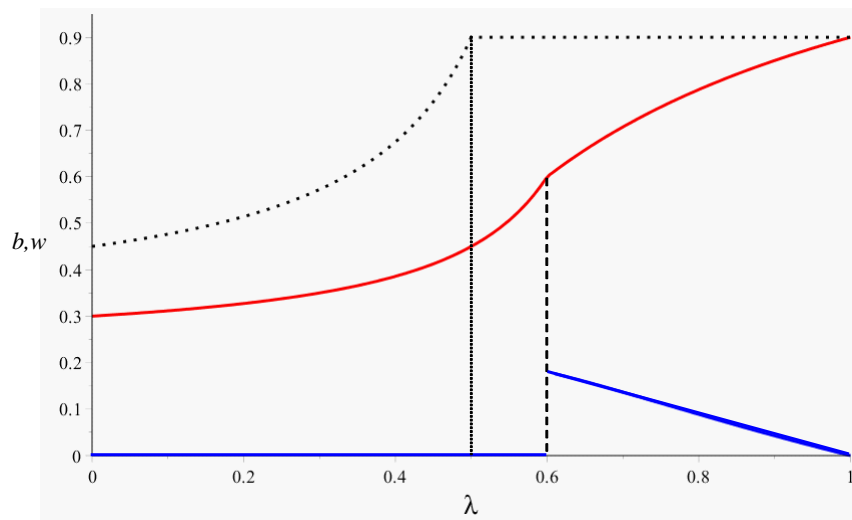


FIGURE 2. Bonus and salary with outrage cost. The figure shows the optimal bonus (red) and the salary (blue) in *Proposition 4* as a function of  $\lambda$  for an example firm where  $x(a) = 0.9a$ ,  $c(a) = a^2/2$ ,  $\underline{w} = 0$ ,  $k = 0.5$ , and  $\kappa = 1$ . The dotted curve represents the optimal bonus in the absence of outrage cost.

will offer the agent a contract with a lower salary and a higher bonus to implement a given effort level. While this observation is consistent with the camouflage argument of Bebchuk and Fried (2004), it leaves open why high levels of performance-based compensation should be less prone to outrage costs than lavish amounts of flat pay.

**4.2. The million dollar tax cap.** The so called “million-dollar tax cap” in Section 162(m) of the Internal Revenue Code is a real world constraint faced by public firms in the United States (US). It limits the tax-deductibility of non-performance-based executive compensation such as salaries or other cash benefits to \$1 million per year. The rule is one of the early attempts to regulate executive pay. It was introduced by the Clinton administration in 1993 as a response to concerns about excessive pay levels and a poor link between pay and performance. Despite some fundamental concerns about its effectiveness and its unintended consequences, the rule is still in place. Göx (2008) studies the economic consequences of the tax

cap in the context of a linear agency model assuming that the contract is determined in the best interest of shareholders.<sup>13</sup>

In what follows, we review the main insights of this study and examine whether and how the presence of a management-friendly board could affect the consequences of the rule for the firm's compensation policy. In this section, we assume that the agent is risk averse with CARA utility and Arrow-Pratt measure  $r$ . Further, the performance measure is a linear function of the agent's effort

$$(2.22) \quad \tilde{y} = a + \tilde{\eta} + \tilde{\varepsilon}_y,$$

where  $\tilde{\eta} \sim N(\mu_\eta, \sigma_\eta^2)$  and  $\tilde{\varepsilon}_y \sim N(0, \sigma_\varepsilon^2)$  are independent risk factors that determine the value of the performance measure beyond the agent's effort. An important difference between the two random variables is that  $\tilde{\eta}$  is a common risk factor and publicly observable, whereas  $\tilde{\varepsilon}_y$  is idiosyncratic to the performance measure  $\tilde{y}$  and not directly observable. Examples of common factors that positively affect firm performance independent of the CEO's actions are currency prices, raw material prices, or the market component of stock returns.

Since the agent is risk averse and  $\tilde{\eta}$  is verifiable, standard theory suggests that the firm should compensate the agent on the basis of the net performance measure  $\tilde{y} - \tilde{\eta} = a + \tilde{\varepsilon}_y$ . Rewarding the agent for changes of  $\tilde{\eta}$  merely increases the agent's compensation risk without providing any effort incentives.<sup>14</sup> Thus, with a linear compensation contract of the form

$$(2.23) \quad s(\tilde{y}, \tilde{\eta}) = w + v \cdot \tilde{y} - z \cdot \tilde{\eta},$$

it must hold that  $v = z$ . Such a contract completely removes the common risk factor from the agent's compensation and thereby avoids that he is rewarded for luck due to variations of measurable random factors beyond

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<sup>13</sup>In an earlier study, Halperin et al. (2001) analyze the consequences of the tax cap in a binary outcome moral hazard model. They find that the tax cap induces firms to substitute salaries with a higher amount of performance-based pay.

<sup>14</sup>Various versions of this fundamental argument can be found in Holmstrom (1979), Holmstrom and Milgrom (1987), or in Banker and Datar (1989).

his control. Lemma 1 challenges the standard argument that common risk factors should always be completely removed from optimal compensation contracts.

**Lemma 1:** Suppose that there is a flat corporate tax rate  $\tau \in (0, 1)$  and salaries above  $\bar{w}$  are not tax deductible. If  $w > \bar{w}$ , the optimal linear compensation contract takes the form

$$(2.24) \quad z = v - \frac{\tau}{r} \cdot \frac{\mu_\eta}{\sigma_\eta^2}, \quad v = \frac{(1 - \tau) \cdot x'(a) + a \cdot c''(a)}{1 - \tau + c''(a) \cdot r \cdot \sigma_\varepsilon^2}.$$

The contract always induces reward for luck ( $z < v$ ). It induces a lower equilibrium effort ( $v < v^S$ ) if the following condition holds

$$(2.25) \quad a^S - c'(a^S) \cdot r \sigma_\varepsilon^2 < 0,$$

where  $a^S$  is the agent's equilibrium effort induced by the optimal incentive rate  $v^S = x'(a)/(1 + c''(a) \cdot r \cdot \sigma_\varepsilon^2)$  in the absence of the tax cap. *Proof:* See Göx (2008).

The result in *Lemma 1* indicates that the million dollar tax cap can induce undesirable adjustments of compensation contracts even in the absence of any governance problems. First of all, shareholders no longer find it optimal to remove the common risk factor from the performance measure. Since  $z < v$  and  $\mu_\eta > 0$ , the contract puts a positive net weight on the common risk factor and rewards the agent for luck. This policy is optimal because the tax cap raises the marginal cost of lump sum wealth transfers above 1\$ million by the factor  $\tau/(1 - \tau)$ . For a statutory tax rate of 40 % ( $\tau = 0.4$ ) an increase of the salary raises the after tax cost to shareholders by 2/3. To make up this increase of the compensation cost, the firm partly replaces the salary by rewarding the agent for changes of the common risk factor  $\tilde{\eta}$ . At the margin, this form of reward is cheaper than a salary raise. Since doing so is more beneficial for a high tax rate and expected reward,  $z$  is decreasing in  $\tau$  and  $\mu_\eta$ . On the other hand, rewarding the agent for luck increases the risk premium. Therefore,  $z$  is increasing in  $r$  and  $\sigma_\eta^2$ .

While the optimal amount of reward for luck is independent of the agent's equilibrium effort, the optimal compensation contract induces a lower equilibrium effort if condition (2.25) holds. To understand the economic logic behind this effect, it is helpful to consider the role of  $w$  in the optimal linear compensation contract. In the standard case,  $w$  is determined by the agent's participation constraint. After removing the common noise from the performance measure, this constraint takes the form

$$(2.26) \quad w = c(a) + \frac{r}{2} \cdot \sigma_\varepsilon^2 \cdot c'(a)^2 - a \cdot c'(a),$$

where we use the fact that  $v = c'(a)$  from the agents' incentive constraint. Thus,  $w$  is sum of the agent's effort cost and the risk premium minus the expected amount of performance pay. Since the sum of these components becomes negative if the performance pay is higher than the two cost components,  $w$  can only be interpreted as a salary if it is positive. Otherwise  $w$  is a lease payment as in the risk neutral contracting setting with unrestricted wealth transfers in Section 2. Clearly, the million dollar tax cap can only affect the firm's compensation policy if  $w$  is positive. Rearranging the last two terms in (2.26) shows that (2.25) is satisfied whenever  $w$  is unambiguously positive.<sup>15</sup>

To see why condition (2.25) determines whether the tax cap induces a lower or a higher equilibrium effort, it is helpful to study the equilibrium relation between  $w$  and  $a$ . Since the tax cap provides incentives for a salary cut, it must be that  $w$  and  $a$  are complements. That is, the size of the salary must be increasing if the firm induces a higher equilibrium effort and vice versa. It is easy to verify that  $w'(a) > 0$  whenever (2.25) holds. The reason for this result is that a marginal change of the agent's effort has countervailing effects on the salary. On the one hand it increases the

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<sup>15</sup>To demonstrate this fact, it suffices to rewrite equation (2.26) as follows

$$w = c(a) - \left( a - \frac{r}{2} \cdot \sigma_\varepsilon^2 \cdot c'(a) \right) \cdot c'(a).$$

This expression is unambiguously positive if the term in brackets is negative. Moreover, comparing the expression with the claim in Lemma 1 shows that (2.25) is satisfied whenever the term in brackets is negative.

risk premium by the factor  $r \cdot \sigma_\varepsilon^2 \cdot c'(a) \cdot c''(a)$  and the reimbursement for the agent's personal cost by  $c'(a)$ . On the other hand, it also increases the expected deduction for the performance pay by  $c'(a) + a \cdot c'(a)$ . If the sum of the first two effects is larger than the last effect, inducing a higher effort level requires a higher salary. Otherwise,  $w$  is decreasing in the agent's effort level as it is always the case for a lease contract where  $w < 0$ .

To study how the firm's governance structure interacts with the consequences of the tax cap, it is helpful to recall from *Proposition 1* that the governance structure does not affect the agent's equilibrium effort if wealth transfers are not restricted. It is straightforward to demonstrate that this result also holds for the solution of the linear agency model in the presence of the tax cap. Regardless of whether the board maximizes a weighted average of the principal's and the agent's certainty equivalents or the agent's compensation is determined by Nash bargaining, the board will optimally implement the contract in (2.25) whenever the tax cap is binding. However, the interesting case is the case where the optimal contract written in the best interest of shareholders is not affected by the tax cap.

**Proposition 5:** Suppose that the board maximizes a weighted average of the principal's and the agent's certainty equivalents as in (2.7) and that  $w < \bar{w}$  for  $\delta = 0$ . As long as  $\delta \leq 1$ , the board implements the unconstrained contract so that  $v = v^S = z$ . If  $\delta > 1$  it implements the contract in (2.25) whenever

$$(2.27) \quad w = x(a^S) - a^S \cdot c'(a^S) > \bar{w}.$$

*Proof:* Follows from Proposition 1 and the fact that the tax cap is binding if  $w > \bar{w}$ .

Thus, if shareholders prefer a contract with a salary below the tax cap or a lease contract, a sufficiently management-friendly board will always propose a contract with a positive salary. In fact, if  $\delta > 1$ , the salary is determined by the shareholders' participation constraint and designed to

transfer the net surplus to the agent. The expression in (2.27) is the difference between the expected firm value and the agent's expected performance pay in the absence of the tax cap. Since this difference is strictly positive, the tax constraint will almost always be binding except for firms with negligible fundamental values. Thus, even if the firm's governance structure usually does not affect the performance-based compensation and the equilibrium effort if wealth transfers are unrestricted, governance becomes relevant for the firm's compensation structure if the magnitude of the wealth transfer triggers a change of the relevant set of constraints for solving the problem.

It is interesting to relate this result to the main finding of Bertrand and Mullainathan (2001). The authors of this frequently cited study provide empirical evidence of reward for luck and find that firms with large shareholders on the board reward their CEO's significantly less for luck. Bertrand and Mullainathan (2001) take their observations as support of the rent seeking hypothesis. Bebchuk and Fried (2004) take the results of this study as a leading example of poor pay practices and blame reward for luck as a means to camouflage excess compensation as performance pay. Unfortunately, these interpretations overlook the possibility that the mechanism that causes poorly governed firms to reward CEOs for luck in the first place, might be more subtle. As shown in Proposition 1, poorly governed firms indeed reward their CEOs for luck but only because of the million dollar tax cap. Without this cap, even a board that aims to maximize the CEO's utility would never propose a contract that rewards the CEO for luck.

### **5. Is weak governance always harmful for shareholders?**

The analysis of the previous sections shows that compensation contracts designed by management-friendly boards can differ in many ways from the contracts designed to maximize shareholder value. Regardless of how the board deviates from the shareholder value maximizing compensation scheme, the solution is almost always detrimental for shareholders because it always shifts rents to the CEO. If wealth transfers are unrestricted, the board does not distort the agent's effort choice but it shifts rents to the

CEO by inflating his salary. If the agent is protected by limited liability, the board shifts rents to the CEO by inflating his bonus. Even though a higher bonus induces a higher equilibrium effort, this solution is detrimental to shareholders because it fails to implement the second-best effort level that solves the trade-off between effort provision and rent sharing in the best interest of shareholders. Thus, in all the models considered so far, the shareholders suffer from a management-friendly board and would benefit if they could establish a board with perfectly aligned preferences.

The reason for this result is that the basic model does not allow for a friendly board to provide benefits to shareholders. In this section we study two straightforward extensions of the limited liability model in Section 3 in which rational shareholders strictly prefer a management-friendly board over a board with perfectly aligned preferences. The first extension considers a setting where the board has superior information about the CEO's expected contribution to firm value.

The second extension is based on Laux and Mittendorf (2011). They consider a scenario, where the CEO can increase the firm value by searching for profitable investment projects before implementing them. In both models, we make the simplifying assumption that shareholders can perfectly observe the preferences of the board and replace it whenever it is profitable to do so. These assumptions might not be very realistic because on the one hand it is not easy for shareholders to verify in how far formally independent board members are effectively acting in their best interest. On the other hand, replacing incumbent board members is difficult and costly. However, these difficulties do not impair the validity of the arguments in favor of friendly boards provided below.

As a first extension of the basic model in Section 3, we consider a setting where the incumbent board not only favors the CEO by maximizing the objective function in (2.7) but also that it has superior information about the agent's expected contribution to firm value. Suppose that the current board perfectly knows  $x(a)$  but outsiders and the firm's shareholders only know the expectation  $\hat{x}(a) := E[\tilde{x}(a)]$ .

According to Bebchuk and Fried (2005), this scenario arises quite naturally in firms with a long-standing CEO where the majority of board members has been appointed during the CEO's tenure. In these firms, members of the incumbent board not only acquire a thorough understanding of the firm's business model and the CEO's role in creating shareholder value but they also run the risk of becoming overly loyal and less critical towards the CEO. Of course, shareholders can try to reduce the CEO's power over the incumbent board by appointing some new directors, but new board members might not only depend less on the current CEO but also lack the relevant information to evaluate his contribution to firm value. The optimal solution of the shareholder's trade-off is summarized in Proposition 6.

**Proposition 6:** If the shareholders are imperfectly informed about the agent's contribution to firm value, there is a range of values  $\delta \in [0, \delta^+]$  for which they strictly prefer an informed and friendly incumbent board over an uninformed board with perfectly aligned preferences.

*Proof:* If shareholders keep the incumbent board, they know from *Proposition 2* that for  $\delta \leq 1$ , the board sets the CEO's compensation so that

$$(2.28) \quad a(\delta) = \max_a \{x(a) - \delta \cdot c(a) - (1 - \delta) \cdot a \cdot c'(a) - \underline{w}\}.$$

In contrast, if the shareholders replace the incumbent board with a new board with perfectly aligned preferences, it will implement an equilibrium effort of

$$(2.29) \quad \hat{a} = \max_a E[\Pi(a)] = \hat{x}(a) - a \cdot c'(a) - \underline{w}.$$

Since shareholders only know  $\delta$  but not  $x(a)$  when they decide on replacing the board, they must evaluate the firm value attainable with the incumbent board based on their expectations about  $x(a)$  and the resulting equilibrium effort of the board. Let  $\hat{a}(\delta)$  and  $E[\Pi(\hat{a}(\delta))]$  denote the expected solution of (2.28) and the expected net firm value resulting from this solution, respectively. If shareholders always prefer a board with perfectly aligned preferences, it must be that

$$(2.30) \quad E[\Pi(\hat{a})] > E[\Pi(\hat{a}(\delta))] \quad \forall \delta.$$

However, since  $\Pi(a)$  is strictly concave in  $a$  and  $\hat{a} = \hat{a}(0)$ , it must be that  $E[\Pi(\hat{a})] < E[\Pi(\hat{a}(0))]$ . It follows that there exists a range of values  $\delta \in [0, \delta^+]$  for which the shareholders prefer the incumbent board over a new board with perfectly aligned preferences due to its superior information about the CEO's productivity.

The following example illustrates the result. Suppose that  $x(a) = \theta \cdot a$ ,  $c(a) = a^2/2$ , and  $w = 0$ . The incumbent board knows  $\theta$  but the potential replacement board and the firm's shareholders take  $\theta$  as a draw from a random variable  $\tilde{\theta}$  with a known distribution. With this structure, the incumbent board implements an effort level of  $a(\delta) = \theta/(2-\delta)$ . Substituting this solution into the shareholders' objective function and taking expectation yields

$$E[\Pi(\hat{a}(\delta))] = \frac{1-\delta}{(2-\delta)^2} \cdot E[\tilde{\theta}^2].$$

In contrast, the new board implements an equilibrium effort of  $\hat{a} = E[\tilde{\theta}]^2/2$  resulting in an expected profit of  $E[\Pi(\hat{a})] = E[\tilde{\theta}^2]/4$ . Clearly, the shareholders always prefer to have an informed over an uninformed board with perfectly aligned interests. The expected profit difference evaluated at  $\delta = 0$  equals  $E[\Pi(\hat{a}(0))] - E[\Pi(\hat{a})] = VAR[\tilde{\theta}]/4$  and represents the value of the incumbent board's information about the expected firm value. Since this value is positive and  $E[\Pi(\hat{a}(\delta))]$  is monotonically decreasing in  $\delta$ , the shareholders strictly prefer to keep the incumbent board provided it is not too friendly towards the CEO. For example, if  $\tilde{\theta} \sim U[0, 1]$ , the shareholders prefer the incumbent board as long as  $\delta \leq 2/3$ .

As a second example for the existence of possible benefits derived from a friendly board, suppose that the CEO can positively affect the distribution of the firm's fundamental value by searching for profitable investment projects before the contracting stage. The agent's search effort  $e \in [0, 1]$  is not observable and causes strictly convex personal cost  $k(e)$ , where we assume that  $k(0) = k'(0) = 0$  and  $k'(1) > \Pi(a)$  for all  $a$  to assure the existence of an interior solution. For simplicity, let the firm's fundamental value equal

$x(a)$  if and only if the CEO's search is successful and zero otherwise, where  $e$  is the probability of success.

Following Laux and Mittendorf (2011), we assume that the board observes the outcome of the agent's search activities before proposing the compensation contract. This assumption implies that the agent can only attain a bonus if his project search is successful. Since the agent is not rewarded for his search effort if he fails to find a profitable investment project once his search costs are sunk, he faces a hold-up problem and exerts less search effort than in a setting where the search effort is chosen after contracting. Considering this problem structure, the players' expected utilities at the search stage can be expressed as

$$(2.31) \quad \Pi(e, \delta) = e \cdot \Pi(a(\delta))$$

$$(2.32) \quad U(e, \delta) = e \cdot U(a(\delta)) - k(e),$$

where  $a(\delta)$  is the agent's equilibrium effort implemented by the optimal bonus contracts (2.17) or (2.18) in *Proposition 2*.

**Proposition 7:** Suppose that the CEO can positively affect the distribution of the firm's cash flows by searching for profitable investment projects before the implementation stage. To motivate the CEO's search effort, the shareholders strictly prefer a management-friendly board over a board that aims to maximize shareholder value. If the board maximizes the weighted utility objective in (2.7), the optimal level of board-friendliness is implicitly defined as

$$(2.33) \quad \delta = \frac{\Pi(a(\delta))}{e \cdot k''(e)} \in (0, 1).$$

If the agent's bonus is determined by Nash bargaining, the expected shareholder value is maximized by

$$(2.34) \quad \delta = \frac{k'(e)}{e \cdot k''(e)} > 0.$$

In both cases, the optimal search effort equals  $e = k^{-1}(U(a(\delta)))$ .

*Proof:* See appendix.

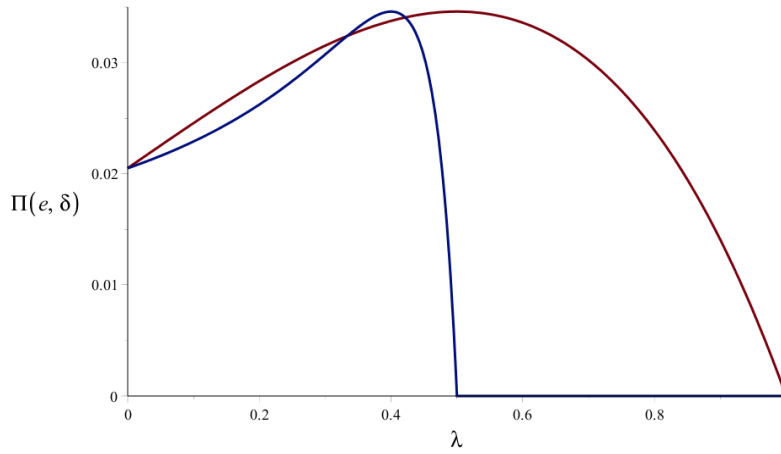


FIGURE 3. Optimal governance structure with search effort. The figure shows the expected firm value as a function of the governance parameter  $\lambda$ . The blue line represents the firm value for the weighted utilities objective (2.6) and the red line the expected value under Nash bargaining in (2.8). The example assumes a firm where  $x(a) = 0.9a$ ,  $c(a) = a^2/2$ ,  $k(e) = e^2/2$ , and  $\underline{w} = 0$ .

Regardless of whether the board maximizes the weighted utility objective in (2.7) or the agent's compensation is determined by Nash bargaining, the shareholder always prefer a management-friendly board over a board with perfectly aligned objectives. The reason for the result is that the CEO's search effort is an increasing function of the rent he expects to derive from his compensation contract. Since the rent is non-decreasing in  $\delta$ , a more friendly board motivates the CEO to exert a higher search effort and thereby mitigates the hold-up problem.

The optimal level of  $\delta$  from the shareholders' perspective solves a trade-off between motivating a higher search effort ex ante and incurring an efficiency loss ex post. Since the agent's bonus and thereby his rent are increasing at a steeper rate if the CEO's compensation is determined by the weighted utility objective in (2.7) rather than by Nash bargaining, the optimal degree of friendliness in equation (2.33) is generally lower than in equation (2.34).

Figure 3 illustrates the result of Proposition 7. The example shows that the expected firm value is strictly concave in the relevant range for both board objectives. However, as indicated by the blue curve in figure 3, the expected firm value takes its maximum at  $\lambda = 0.4$  ( $\delta = 2/3$ ), whereas the expected firm value under Nash bargaining takes its maximum at the value of  $\lambda = 0.5$  ( $\delta = 1$ ). Since both solutions implement the same vector of equilibrium efforts  $(e, a)$ , the maximum profit takes the same value in both cases.

Even in a simple setting where the role of the board is limited to determining the agent's pay<sup>16</sup>, there are circumstances under which shareholders strictly benefit from a management-friendly board. Despite the fact that a friendly board offers the CEO an overly generous compensation package, shareholders can derive a net benefit from its presence as long as the board does not put too much weight on the CEO's utility in its compensation decisions.

## 6. Discussion

The analysis of Chapter 2 shows that even in the context of a rather simple moral hazard model, the preferences of the board can have a range of different consequences for the level and the structure of the CEO's compensation. The optimal compensation not only depends on the preferences of the board but also on the constraints that it faces when designing the contract. Moreover, even though a management-friendly board always inflates the CEO's compensation level in our model, it can be beneficial for shareholders for various reasons. The complexity of the problem and the large number of (observable and unobservable) factors that determine the outcome of the board's decision problem, make it a demanding task for shareholders

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<sup>16</sup>Several other authors have proposed models in which the shareholders benefit from a friendly board. In most of these studies the shareholders either benefit from the board's role as a monitor (e.g. Drymiotis 2007, Kumar and Sivaramakrishnan 2008) or its dual role of monitoring and advising the CEO (e.g. Adams and Ferreira 2007, Baldenius, Melumad and Meng 2014).

and other outside parties to evaluate the efficiency and desirability of the board's compensation policy.

A key difference between our model and a large part of the previous literature on friendly boards is that we focus exclusively on the board's role in setting the CEO's compensation. On the one hand, this choice does not allow us to study the interplay between the board's compensation decisions and its roles as a monitor and advisor of the CEO. On the other hand, this setting allows us to keep a clear focus on the cost and benefits of the board's friendliness on the firm's compensation policy. We also take the firm's governance structure as given and, except for the two examples given in Section 5, we do not seek to explain why the shareholders accept to establish a management-friendly board in the first place. Of course, there are trade-offs between the different roles of boards in richer settings that could render a management-friendly board desirable for shareholders but these trade-offs have been extensively studied in previous literature and are beyond the scope of this monograph.<sup>17</sup>

Finally, we do not consider the role of board committees in setting the CEO's compensation. Among the studies that consider the composition of the compensation committee and its interaction with other committees are Laux and Laux (2009) and Göx (2016). However, since the incentives of a management-friendly compensation committee are similar to those of a management-friendly board, delegating the compensation decision to a separate committee would lead to qualitatively similar results.

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<sup>17</sup>A large part of the related literature studies the relation between the board's monitoring activities and CEO turnover. See e.g. Hermalin and Weisbach (1998), Hermalin (2005), Laux (2008). A comprehensive summary of the model classes and problems considered in this literature can be found in Laux (2014).



## CHAPTER 3

### **The Economics of Say on Pay**

Until very recently, shareholders virtually had no direct control over the board's compensation policy. Motivated by the public debate on increasing levels of executive pay in public firms, many countries worldwide have introduced shareholder votes on the compensation of executives. This voting right is typically referred to as "Say on Pay". According to its proponents, Say on Pay is thought to facilitate the communication between shareholders and the board of directors on compensation issues and to strengthen the board's responsibility towards shareholders.<sup>1</sup> Ideally Say on Pay can help to align the compensation policy of public firms with the interest of shareholders and discourage the use of pay practices that favor the firm's executives.

In order to study the impact of Say on Pay on the firm's compensation policy in the context of our agency model, we will briefly outline the relevant institutional details of the regulation. In Section 1 of Chapter 4, we provide a more detailed account of its origins and the international development of the regulatory environment over time. Say on Pay was first introduced in 2002 in the UK where listed firms are required to submit an annual remuneration report to an advisory vote at the annual shareholder meeting. In the US, Say on Pay was introduced with the Dodd-Frank Act in 2010. Beginning with the 2011 proxy season, it requires public firms in the US to provide shareholders at least every three years with the opportunity to give a non-binding vote on the compensation of the executives for which the compensation must be disclosed in the firm's proxy statements. In recent years, several other European countries adopted similar rules. According to a report of the European Commission (2010), a total of 19 out of the

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<sup>1</sup>See e.g. European Commission (2004) or Gordon (2009).

27 member states of the European Union have either introduced mandatory legal provisions or at least recommendations in their local corporate governance codes requiring shareholder votes on the remuneration of executives. The report also shows important disparities not only concerning the legal basis but also with respect to the practical implementation of Say on Pay, most importantly with regard to the enforceability, the subject and the timing of the shareholder vote.

With respect to enforceability different from the Anglo-Saxon model of an advisory Say on Pay, many European Say on Pay adopters have introduced various forms of binding shareholder votes.<sup>2</sup> Moreover, a substantial fraction of the newly introduced voting rights differ in the subject of the vote, in that they do not refer to the annual compensation report but to the firm's compensation policy or to the actual remuneration of executives. For example, countries such as the Netherlands and Sweden have adopted a binding shareholder vote on the firms' compensation policies, whereas Switzerland has recently adopted a binding vote on the actual compensation amounts of executives.<sup>3</sup> Since votes on the compensation policy apply to future compensation arrangements and not to the compensation paid out during the current reporting period, the different subject of the vote also implies a different timing (i.e. retroactive vs. prospective vote).<sup>4</sup> These observations not only show that there is no unique approach to Say on Pay but also that a better understanding of the economic incentives generated by different Say on Pay designs is crucial for evaluating their economic consequences.

In this chapter, we extend the limited liability model from Section 3 to study the economic consequences of Say on Pay. The analysis begins with

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<sup>2</sup>In fact, 13 out of the 19 Say on Pay adopters within Europe require a binding shareholder vote. Only 4 countries rely on a pure advisory vote and 2 countries allow for both types of votes, see European Commission (2010) for details.

<sup>3</sup>See Glass Lewis (2016) for an overview of the regulatory environment in Switzerland and European Commission (2010) for the members of the European Union.

<sup>4</sup>Gordon (2009, p. 337) classifies the available design options along *...four binary choices: (1) "before" versus "after", (2) "binding" versus "advisory", (3) "general" versus "specific" compensation plans, and (4) "mandatory" versus "firm-optional"*.

the advisory Say on Pay model in Section 1. The model of this chapter is based on Göx (2013 and 2016). The model extension assumes that shareholders base their voting decision on a comparison of the firm's pay level with a benchmark pay level and disagree with the board's compensation proposal if the CEO's compensation exceeds the benchmark level. Since the bonus in the limited liability model determines both the pay level and the pay-performance relation, the disagreement with a high pay level equally represents the shareholders' dissatisfaction with a poor relation between pay and firm performance. Of course, the second interpretation is more consistent with the empirical evidence on the subject but to avoid clutter, we will subsequently refer to the compensation level when evaluating the desirability of the firm's compensation policy from a shareholder perspective.

As it turns out, the economic consequences of the advisory Say on Pay model critically depend on the shareholders' ability to determine the efficient compensation level. If shareholders possess the relevant information to determine the value maximizing compensation level, the advisory Say on Pay model always weakly benefits shareholders, otherwise it can also destroy shareholder value.

In sections 2 and 3, we study the consequences of a binding vote and its timing on the remuneration of executives. The analysis primarily draws on Göx (2013), Göx et al. (2014), and on Göx and Kunz (2012). In particular, in Section 2 we study the consequences of a retroactive vote and in Section 3, we analyze the consequences of a prospective vote. We find that the effectiveness of the binding Say on Pay critically depends on the CEO's compensation level in case of a shareholder disapproval. This pay level can either represent the legally protected minimum pay in case of a retroactive bonus cut or the contractual payments specified in the board's fallback solution after a rejection of its initial compensation proposal in a prospective Say on Pay vote. Interestingly, a lower compensation level in case of a shareholder disapproval makes the retroactive vote a more effective and the prospective vote a less effective instrument for controlling the

board's compensation policy. However, since shareholders face a moral hazard problem if the vote takes place after the agent has delivered his effort, a more effective Say on Pay regime could destroy shareholder value if the voting is retroactive. In contrast, shareholders could benefit from a more effective voting regime if the vote is prospective.

In Section 4, we close this chapter with a discussion of our key findings, the limitations and possible extensions of our model, and its implications for empirical research.

### 1. The advisory Say on Pay model

Most countries use the advisory Say on Pay model where the shareholder vote on the firm's compensation policy is non-binding. It is also quite common that shareholders vote on the Say on Pay proposal after the board has decided on the CEO's compensation contract and the firm's stock and accounting performance for the relevant performance evaluation period are publicly known.

From a purely theoretical perspective, this model has a conceptual weakness. Since the vote is not enforceable, the board could simply ignore it even if the majority of shareholders disagrees with the firm's compensation policy. Likewise, rational shareholders should not waste their time and vote against the compensation proposal if they anticipate that their vote will have no effect. However, this overly simplified view is clearly inconsistent with the empirical evidence. On the one hand, shareholders and proxy advisors actively articulate their concerns about poor compensation practices and an insufficient link between pay and performance. On the other hand, boards appear to take these concerns seriously and adopt changes to their compensation policy when they are confronted with a substantial opposition from shareholders and major proxy advisors.<sup>5</sup>

These findings suggest that the advisory Say on Pay mechanism seems to motivate a certain fraction of shareholders to signal their concerns about

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<sup>5</sup>See e.g. Ferri and Maber (2013), Ertimur et al. (2013) and Chapter 4 for a detailed overview and discussion of the empirical research on Say on Pay.

problematic compensation practices and at the same time prompts boards to propose less controversial compensation arrangements. Following Göx (2016), we integrate these considerations into our moral hazard model assuming that shareholders base their voting decision on an evaluation of the board's compensation policy and that the board derives disutility from a negative shareholder vote.

More precisely, shareholders are supposed to compare the proposed compensation with a benchmark pay level  $\underline{s}$  and begin to disagree with the board if the compensation exceeds  $\underline{s}$ . The benchmark pay level  $\underline{s}$  represents the shareholders' aggregate perception of an appropriate compensation level. Since the bonus payment in the limited liability setting determines both the pay level and the pay-performance relation, the disagreement with a high pay level equally represents the shareholders' dissatisfaction with a poor relation between pay and firm performance. For simplicity, we will nevertheless refer to the compensation level when evaluating the efficiency of the firm's compensation policy from a shareholder perspective.

In practice, this benchmark pay level (or pay-performance relation) could be derived from the average compensation paid in the firm's compensation peer group. For shareholders relying on the voting recommendations of proxy advisors,  $\underline{s}$  can also represent the maximum pay level that the proxy advisor would accept in order to provide a positive recommendation for the firm's Say on Pay proposal. Clearly, shareholders might have individual reference points for various reasons such as their information about the appropriate compensation level or their tolerance towards high pay levels. Rather than modeling these differences and their consequences for the voting outcome explicitly, we portray the voting dissent  $d \in [0, 1]$  as an increasing function of the difference between the actual compensation  $s$  and the benchmark compensation so that

$$(3.1) \quad d(s, i) = i \cdot H(s - \underline{s}),$$

where  $H(0) = H'(0) = 0$ ,  $H(s - \underline{s}) \leq 1 \forall s$ , and  $i$  is an indicator variable that takes the value of one if  $s > \underline{s}$  and zero otherwise.<sup>6</sup> To assure that no shareholder rejects the minimum compensation that the firm must offer the agent in order to satisfy the limited liability constraint, we assume that  $\underline{s} \geq \underline{w}$ .

The board's disutility function takes the simple multiplicative form  $D(a, i) = \rho \cdot d(s(a), i)$ , where  $\rho$  is a non-negative parameter representing the board's responsiveness to shareholder concerns caused by the perceived consequences of a negative vote on its compensation policy. A strictly positive disutility can arise from several risk factors faced by the board ranging from a negative press coverage to an eventual shareholder litigation or reputation costs in the director labor market. Most importantly, boards failing to react appropriately to a significant voting dissent in a Say on Pay proposal face a higher risk of not being reelected. Therefore, the parameter  $\rho$  also represents the strictness of the regulatory environment. The stricter the regulatory environment, the higher the anticipated voting dissent, and the higher is the disutility of the board. If either  $\rho$  or  $d$  are zero,  $D(a, i) = 0$ . That is, only if the board disregards the shareholders' concerns about its pay policy or it anticipates that all shareholders approve it, an advisory Say on Pay cannot affect the board's compensation decisions. *Proposition 8* summarizes the consequences of Say on Pay for the solution of the limited liability model in Section 3.

**Proposition 8:** The threat of an advisory Say on Pay induces the board to cut the agent's optimal bonus in (2.17). If shareholders are perfectly informed about the efficient pay level, Say on Pay unambiguously benefits shareholders. If shareholders have imperfect information about the efficient pay level, Say on Pay can destroy shareholder value at good governed firms. *Proof:* See G6x (2016), Proposition 2.

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<sup>6</sup>As shown by G6x (2016), an economically equivalent cost function can be derived in closed form assuming that shareholders have individual reference points that take the form of a uniformly distributed random variable from the board's perspective.

The intuition behind the result in Proposition 8 is as follows: At the time of the vote on the Say on Pay proposal, shareholders compare the realized compensation with their benchmark level and vote against whenever  $s > \underline{s}$ . Since  $\underline{s} \geq \underline{w}$ , the voting dissent can only be positive if the agent was successful and receives a bonus. Thus, if we normalize  $\underline{w}$  to zero, the voting dissent is positive whenever  $b(\delta) > \underline{s}$ , where  $b(\delta)$  is the optimal bonus in (2.17). At the time the board sets the agent's compensation, it anticipates the voting outcome and maximizes the objective function in (2.7) minus the expected disutility from a negative shareholder vote,  $a \cdot D(a, i)$ . The first-order condition of the modified optimization problem is

$$(3.2) \quad V'(a) - a \cdot D'(a, 1) - D(a, 1) = 0.$$

It is easy to see from equation (3.2) that the compensation is lower than  $b(\delta)$  because from *Proposition 2*,  $b(\delta)$  solves  $V'(a) = 0$  as long as the agent's limited liability constraint is binding ( $\delta \leq 1$ ). Thus, whenever the board anticipates that the size of the agent's bonus will trigger a negative shareholder vote, it sets a lower bonus than in the absence of Say on Pay. Let  $\bar{b}(\delta)$  denote the bonus that solves equation (3.2). Say on Pay is beneficial for shareholders whenever it induces a friendly board of type  $\delta$  to set a bonus within the range  $[b(0), b(\delta))$ . If  $\bar{b}(\delta)$  is within this range, the pay cut moves the compensation policy closer to the efficient solution of the agency problem. However, if Say on Pay leads the board to cut the bonus below  $b(0)$ , it can destroy value because a bonus below  $b(0)$  induces an inefficiently low effort level.

To avoid this risk, shareholders must be in a position to distinguish efficient from inefficient compensation arrangements. If shareholders can determine the efficient compensation level without ambiguity, they simply need to fix the voting benchmark so that  $\underline{s} = b(0)$ . With this benchmark the compensation of a board with perfectly aligned interests is approved and all boards that consider the CEO's utility in their compensation decisions are forced to cut the CEO's bonus. In contrast, if shareholders lack the necessary information to determine the efficient compensation level, they

run the risk to vote against the compensation policy of a board that acts in the best interest of shareholders.

As shown in Göx (2016), this problem can arise if shareholders can neither determine the agent's marginal contribution to firm value nor the management-friendliness of the board. Since  $b(\delta)$  increases in  $x'(a)$  and in  $\delta$ , shareholders cannot determine if the size of the bonus simply reflects the optimal compensation of a highly productive agent or a generous pay package for a mediocre CEO granted by a friendly board. In such a setting, shareholders still benefit from dampening the average board's incentives to overpay the agent by voting against the Say on Pay proposal. However, since shareholders cannot identify the efficient compensation level for a given marginal productivity of the agent, the shareholder vote on the CEO's compensation will motivate the board to cut the agent's compensation regardless of whether or not the size of the bonus is justified by the agent's productivity or caused by a management-friendly compensation policy.

To see the economic consequences of this problem, suppose that shareholders estimate the efficient bonus so that  $\widehat{b}(0) < b(0)$ . This scenario could arise if the agent's unknown productivity is above average but  $\widehat{b}(0)$  must be determined on the basis of the expected productivity of all agents. If the firm's shareholders base their voting decision on their estimate so that  $\underline{s} = \widehat{b}(0)$ , even a board acting in the best interest of shareholders faces the threat of a negative shareholder vote and cuts the CEO's bonus from  $b(0)$  to  $\bar{b}(0)$ . In this case, Say on Pay destroys shareholder value. On the other hand, if  $\widehat{b}(0) > b(0)$ , shareholders fail to challenge the compensation policy of some moderately friendly boards and Say on Pay becomes less effective than it could be in the presence of full information.

Figure 1 illustrates the problem. In the absence of Say on Pay, the board sets the optimal bonus equal to  $b(\delta)$  as defined in equation (2.17). This solution is depicted by the red curve. Consistent with the example in figure 1, the bonus is an increasing function of  $\delta$  and takes its maximum at  $\delta = 1$ , the point where the shareholders' participation constraint is binding. If shareholders are allowed to vote on the CEO's compensation, the optimal

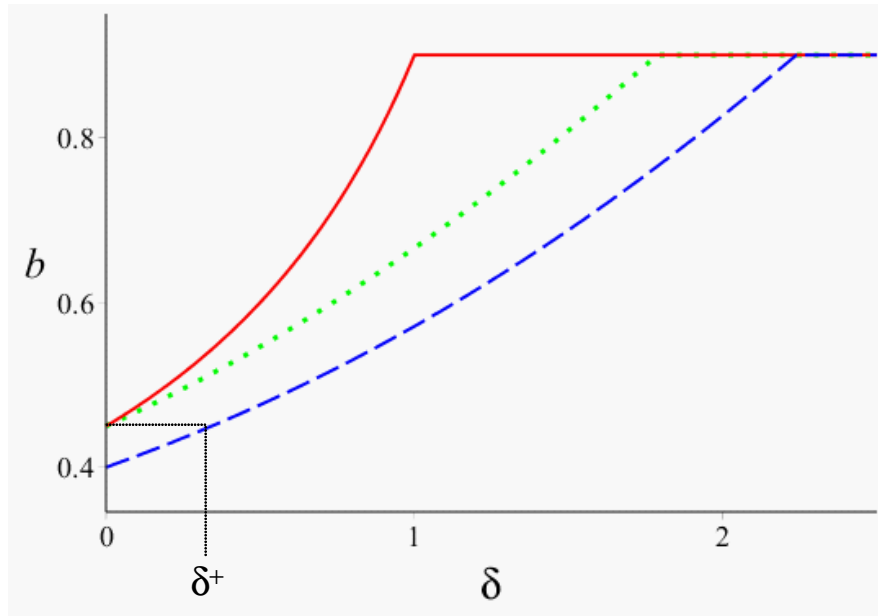


FIGURE 1. Optimal bonus with advisory Say on Pay. The figure compares the optimal bonus of the limited liability model in (2.17), given by the red line, with the optimal bonus in the presence of Say on Pay. The dotted line in green depicts the bonus with the efficient reference point  $\underline{s} = b(0)$ . The dashed line in blue depicts the bonus with a reference below  $\underline{s}$ . The example assumes a firm where  $x(a) = 0.9a$ ,  $c(a) = a^2/2$ ,  $d(a, i) = i \cdot (s - \underline{s})^2$ ,  $\rho = 0.7$ , and  $\underline{w} = 0$ .

bonus depends on their ability to determine the efficient bonus level  $b(0)$ . It is found at the point where the red curve crosses the vertical axis and takes the value of 0.45. If shareholders possess the required information to determine  $b(0)$ , they begin to vote against compensation levels above 0.45. The prospect of a negative shareholder vote motivates the board to cut the bonus to  $\bar{b}(\delta)$  for all compensation levels above  $b(0)$ . The new bonus is given by the dotted curve in green. Since  $\bar{b}(\delta) < b(\delta)$  for  $\delta \in (0, 1.78)$ , the shareholders with friendly boards in this range strictly benefit from Say on Pay, whereas firms with boards outside this range realize the same value as in the absence of Say on Pay.

If the shareholders underestimate  $b(0)$ , the voting begins at the estimated benchmark pay level  $\widehat{b}(0)$ . In the example, we assume that  $\widehat{b}(0) = 0.25$ . The voting pattern induced by the lower reference point is more aggressive and induces all boards with  $\delta \in [0, 2.23)$  to perform a bonus cut. The resulting bonus is depicted by the dashed line in blue. Since the bonus cut is higher than with a perfectly adjusted reference point, all firm's with boards in the range  $[\delta^+, 2.23)$  strictly benefit from this solution. However, it can also be seen that the shareholders of firms with moderately friendly boards, where  $\delta \in [0, \delta^+)$ , suffer a strict loss from this policy because the board implements less than the efficient effort level. Thus, Say on Pay is not only an effective means to discipline the compensation policy of poorly governed firms but it can also be a potential threat for firms with good governance structure and thereby destroy shareholder value.

## 2. A retroactive binding Say on Pay model

A number of European countries did not follow the Anglo-Saxon approach of an advisory voting regime and adopted a binding Say on Pay. While most binding Say on Pay models require an approval of the firm's remuneration policy, Switzerland voted for the introduction of a binding shareholder vote on the remuneration amounts of executives in 2013. Following the public referendum, the Swiss Federal Government introduced an "Ordinance against excessive compensation" in 2015 in which the binding Say on Pay became mandatory for public firms. The Ordinance left open if the vote should take place in advance of or after the relevant reporting period. While the majority of firms adopted a prospective approval of the compensation amounts (combined with a retroactive advisory vote on the remuneration report at the general assembly), other firms opted for a retroactive vote.<sup>7</sup> In this section, we briefly discuss the potential consequences of the latter approach. The economic consequences of a prospective voting regime will be discussed in Section 3. Thus, as in section 1, we continue to assume that

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<sup>7</sup>See Ethos (2016) or Glass Lewis (2016) for details. Interestingly, both proxy advisor firms recommend the use of prospective votes on salaries but retroactive votes on annual bonus payouts.

the vote takes place after the compensation contract has been signed and the firm's results are realized but *before* the agent's compensation is paid out.

With a binding vote, the board can only pay out the intended compensation to the agent if shareholders approve the payment, otherwise the agent's compensation needs to be adjusted. As a practical matter, this type of regulation requires that the board closes all compensation contracts subject to later shareholder approval in order to avoid the payment of damages in case of a negative shareholder vote. Otherwise, the CEO could sue the firm for the payment of his contractual claims.

To study the consequences of a binding Say on Pay within our model framework, we assume that the shareholders can effectively refuse the payout of any compensation exceeding an exogenously given amount of  $m$ , provided that the majority of the votes are cast against the Say on Pay proposal. The amount  $m$  defines the legal protection standard of the CEO. On the one hand it determines the extent to which Say on Pay can overrule existing compensation arrangements, and on the other hand it limits the amount of compensation that can be granted without shareholder approval. For example, if  $m = \underline{w}$ , all bonus payments are subject to prior shareholder approval, whereas if  $m > \underline{w}$ , the CEO is essentially in a position to enforce a part of her bonus awards by legal action. To assure that the contract is feasible, we assume that  $m \geq \underline{w}$ . Consequently, a binding Say on Pay can only affect the firm's compensation policy if the agent's effort yields a high performance.

As in Section 1, the analysis of the players' equilibrium strategies starts with the shareholders' voting decision. Since the vote takes place after the agent has supplied his effort, the firm's shareholders face a moral hazard problem. If they approve the bonus, they must pay an amount of  $b(\delta) + \underline{w}$ . If they refuse it, they must only pay a compensation of  $m$ . It follows that rational shareholders are strictly better off if they refuse any compensation exceeding  $m$ . For compensation levels below  $m$ , shareholders face the same

problem as with an advisory Say on Pay. The consequences of the shareholder vote on the agent's compensation and the expected firm profit are summarized in *Proposition 9*.

**Proposition 9:** A retroactive and binding Say on Pay effectively constrains the board's compensation policy. If  $s > m$ , the optimal bonus equals  $\bar{b} = m - \underline{w}$ , the agent's equilibrium effort is  $\bar{a}$ , and the firm's profit becomes  $\Pi(\bar{a})$ . Let  $\Pi(a(\delta))$  and  $a(\delta)$  denote the expected firm profit and the agent's equilibrium effort in the absence of Say on Pay, respectively. If  $a(0) \leq \bar{a} < a(\delta)$ , it holds that  $\Pi(a(0)) \geq \Pi(\bar{a}) > \Pi(a(\delta))$  so that a binding Say on Pay adds shareholder value. If  $\bar{a} < a(0)$  a binding Say on Pay increases shareholder value if  $\Pi(\bar{a}) > \Pi(a(\delta))$  but it destroys shareholder value if  $\Pi(\bar{a}) < \Pi(a(\delta))$ . Finally, if  $\bar{a} > a(1)$  a retroactive and binding Say on Pay has no impact on the board's compensation policy.

The enforceability of the shareholder vote on the Say on Pay proposal can only affect the players' equilibrium strategies if the legal protection standards are low. Particularly, if  $m > s$ , the board implements the same contract as with advisory Say on Pay. If  $s > m$ , shareholders can threaten the board to cut the agent's bonus to  $\bar{b}$  whenever  $s > m$ . A rational board of directors anticipates the credibility of this threat and reduces the contractually specified bonus to  $\bar{b}$ . This strategy avoids that the same equilibrium outcome is realized as the consequence of a rejected Say on Pay proposal. In equilibrium, the threat of a retroactive bonus cut is never carried out because implementing the same solution ex ante avoids the disutility from a negative shareholder vote.

Faced with a contractual bonus of  $\bar{b}$ , the CEO reduces his effort to  $\bar{a} = c'^{-1}(\bar{b})$ . Since  $\bar{b}$  is increasing in  $m$ , the agent's effort is a function of the legal protection standard. The higher (lower) the amount of the agent's compensation that can be granted without shareholder approval, the higher (lower) his equilibrium effort. The agent's effort level is lower than the equilibrium effort in the absence of Say on Pay whenever  $\bar{b} < b(\delta)$ , where  $b(\delta)$  is the optimal bonus in the absence of Say on Pay defined in equation

(2.17). As long as  $b(0) \leq \bar{b} < b(1)$  shareholders benefit from this outcome because the solution of the agency problem moves closer towards the value maximizing effort level  $a(0)$ .

The situation changes if the legal protection standards are sufficiently low so that  $\bar{b} < b(0)$ . In this case, a retroactive and binding Say on Pay does not necessarily benefit shareholders because it forces the board to implement an inefficiently low effort level. Since the firm's profit function is strictly concave in  $a$  and takes its maximum at  $a(0)$ , it holds that  $\Pi(\bar{a}) < \Pi(a(0))$  because the agent's equilibrium effort is lower than the effort level that maximizes shareholder value.

However, since the effort level induced by the board in the absence of Say on Pay is larger than the optimal effort level, it also holds that  $\Pi(a(\delta)) < \Pi(a(0))$ . Thus, with low legal protection standards, a retroactive and binding Say on Pay can only benefit shareholders if the loss from inducing an excessive equilibrium effort in the absence of Say on Pay outweighs the loss from an immoderate effort reduction in the presence of Say on Pay. Therefore, a retroactive and binding Say on Pay destroys shareholder value whenever  $\Pi(\bar{a}) < \Pi(a(\delta))$  and it adds shareholder value whenever  $\Pi(\bar{a}) > \Pi(a(\delta))$ . The former scenario is more likely if the legal protection standards ( $m$ ) are low and the management-friendliness of the board ( $\delta$ ) is moderate, whereas the latter scenario is more likely if the board's compensation policy mainly caters the interests of the CEO and moderate legal standards insure the CEO against exaggerated bonus cuts.

The analysis shows that a binding Say on Pay can be more effective than an advisory vote for controlling the level of board dependence and thereby the CEO's compensation. The consequences of a binding Say on Pay crucially depend on the legal protection standard of the CEO. If  $m$  is high so that shareholders cannot impair existing contractual arrangement between the board and the CEO, a binding Say on Pay offers no advantage over an advisory vote. For lower values of  $m$ , a binding Say on Pay becomes an effective control mechanism for shareholders. However, this mechanism can also become too rigid and impair the agent's effort incentives. In the

worst case ( $m = \underline{w}$ ), the agent exerts no effort because the prospect of a retroactive pay cut by the firm's shareholders prompts the board to remove any bonus payment from the agent's compensation contract. In this case, the binding Say on Pay regime destroys shareholder unless the board designs the compensation contract in the absence of Say on Pay so that the entire surplus of the agency is transferred to the CEO.

### 3. A prospective binding Say on Pay model

In this section, we briefly study the potential consequences of a prospective and binding shareholder vote on the remuneration of the CEO. The moral hazard problem caused by a retroactive vote can basically be avoided if the vote on the compensation takes place before the board signs the compensation contract with the agent.<sup>8</sup> This simple change of the decision sequence avoids that shareholders are tempted to adjust the agent's prospective compensation after he has taken his effort decision and thereby secures the agent's contractual claims.

Different from the previous analysis, the shareholders vote on the board's contract proposal for the relevant performance evaluation period before the agent's compensation contract is signed. Based on the voting outcome, the board decides on the revision of the contract offer and proposes a potentially revised compensation contract to the CEO. Provided that shareholders can only accept or reject the board's compensation proposal but not determine the details of the contract, it is necessary to define the board's fallback position for a shareholder disapproval in a binding vote. To keep the analysis comparable to Section 2, we assume that in case of a shareholder disapproval, the board revises the contract so that it comprises a salary of  $\underline{w}$  and bonus of  $\underline{b} \in [0, b(0))$ , where  $b(0)$  is the bonus that implements the value maximizing effort level.

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<sup>8</sup>In fact, some European countries such as the Netherlands or Sweden have recently adopted a pre-contractual (i.e. prospective) binding Say on Pay, see European Commission (2010) for details.

Since the agent's effort choice for a given bonus contract is not affected by the pre-contractual vote, it suffices to begin the analysis with the shareholders' voting decision. Suppose that the board makes a compensation proposal specifying a salary of  $\underline{w}$  and an arbitrary bonus  $b^\circ$ . Different from a post-contractual (retroactive) Say on Pay, shareholders must vote on the contract proposal before they know the firm's result and the agent's final compensation. The modified timing fundamentally changes the consequences of the binding vote.

**Proposition 10:** The effectiveness of a prospective and binding Say on Pay critically depends on the size of the bonus in the fallback solution. The lower  $\underline{b}$ , the lower is the effectiveness of Say on Pay in constraining the board's compensation policy.

*Proof:* The key difference between a retroactive and prospective vote is that shareholders cannot breach contracts in the latter case because the vote takes place before the contract is signed. At the time of the vote, rational shareholders compare the economic consequences of accepting the board's contract proposal with the consequences of a rejection. Let  $a^\circ$  and  $\underline{a}$  denote the effort levels induced by the board's initial bonus proposal  $b^\circ$  and fallback solution  $\underline{b}$ , respectively. Clearly it must be that  $a^\circ \geq \underline{a}$  because otherwise the board always implements the fallback solution. Whenever  $\Pi(a^\circ) \geq \Pi(\underline{a})$ , shareholders accept the board's contract proposal, otherwise they refuse it.

Since  $\Pi(a)$  is strictly concave in  $a$  and takes its maximum at  $a = a(0) > \underline{a}$ , there is a range of effort levels so that  $a \in [\underline{a}, a^+]$  where shareholders benefit from accepting the board's initial proposal. Due to the concavity of the shareholder's objective function, the critical value of  $a^+$  is larger than  $a(0)$  and found at the point where  $\Pi(a^+) = \Pi(\underline{a})$ . Moreover, the concavity of the objective function also implies that the range of acceptable bonus proposal becomes larger as  $\underline{b}$  becomes smaller. In other words, the smaller  $\underline{b}$ , the higher the shareholders' willingness to tolerate that the board favors the CEO in its compensation decisions. If  $\underline{b} = 0$ , the shareholders are even indifferent between accepting and refusing a bonus of  $b(1)$  because in both

cases, their expected utility equals zero. Perhaps somewhat surprisingly, shareholders benefit the least from a prospective vote on executive pay if they have full control about the size of the agent's bonus.<sup>9</sup>

#### 4. Discussion

Our analysis shows that Say on Pay is a complex and potentially powerful instrument that allows shareholders to influence the compensation policy of the board. Its effectiveness and its desirability from a shareholder perspective critically depend on the incentives and the information of the parties involved in the pay-setting process as well as on the organization and the legal and economic consequences of the vote.

The model of Section 1 suggests that the effectiveness of the Anglo-Saxon advisory Say on Pay model not only depends on the responsiveness of the board to the shareholders' concerns about its compensation policy but also on the shareholders' ability to determine the value maximizing compensation contract. If shareholders lack important information about the firm's production model and the degree to which the board considers the CEO's interests in its compensation decisions, they can hardly evaluate the efficiency of the board's compensation policy and make an informed voting decision. Since acquiring the required information is difficult and typically too costly as compared to the prospective benefits, small individual shareholders will typically have little or no incentives to become better informed. This problem is similar to the problem of the rationally uninformed voter in a democracy laid out by Downs (1957).<sup>10</sup>

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<sup>9</sup>Clearly, if shareholders were allowed to make their own bonus proposals, they could force the board to set the bonus that maximizes their utility. However, assuming that shareholders are able to determine the details of the CEO's compensation contract would lead the idea of Say on Pay to the point of absurdity. See Göx and Kunz (2012) for a detailed discussion of this problem.

<sup>10</sup>As shown by Levit and Malenko (2011), non-binding shareholder proposals can also serve as a mechanism for conveying the expectations of shareholders to the firm. These authors study a model, where shareholders receive private signals about the value of a proposal that can be implemented by an uninformed CEO. Since the vote takes place before the CEO decides on the proposal, he can condition his decision on the voting outcome

Most institutional investors such as mutual funds or pension funds usually rely on the advice of proxy advisors to take an informed voting decision. Since proxy advisors are paid to provide voting recommendations for a large number of institutional investors, it seems natural to assume that their marginal benefit of acquiring the required information to develop a well informed vote is larger than for individual shareholders. However, whenever the information acquired by a proxy advisor is noisy, it is not excluded that he issues a voting decision that diminishes shareholder value despite his superior information acquisition effort. Since a large fraction of shareholders typically follows the recommendation of the proxy advisor, the consequences of an uninformed voting decision are likely to be exacerbated in this case.

So far, the research on the role of proxy advisors in determining executive pay is mainly empirical. Malenko and Malenko (2017) and Matsusaka and Ozbas (2017) are among the few theoretical papers that study the role of proxy advisors as a source of information for shareholders without explicitly examining compensation issues. Malenko and Malenko (2017) study a setting where shareholders can buy a recommendation from a proxy advisor prior to acquiring their own information and before voting on a proposal at the general shareholder meeting. They find that the presence of the proxy advisor can crowd out the information acquisition activities of shareholders, result in a less informed voting outcome, and reduce firm value.

Matsusaka and Ozbas (2017) study the usefulness of proxy advice under different degrees of shareholder empowerment without modeling the proxy advisor as a strategic player. Shareholders can either have binding approval rights (i.e. approve or reject a management proposal) or proposal rights (i.e. force the firm to adopt a strategy change proposed by a blockholder). Since shareholders lack the information to evaluate the economic consequences of the proposals, they base their voting decision on the noisy signal provided

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and make an informed choice. In line with these results, Say on Pay can also be thought of as a channel to communicate shareholders' expectations about the firm's compensation policy to the board and thereby help it in making better informed compensation decisions.

by a third party.<sup>11</sup> Matsusaka and Ozbas (2017) show that proposal rights can cause value-maximizing managers to take value-reducing actions to accommodate activist investors with non-value-maximizing goals. In contrast, approval rights (such as a binding Say on Pay vote) weakly benefit shareholders in their setting. On the one hand, they limit the manager's ability to pursue private benefits at shareholder expense. On the other hand, they have minimal impact on managerial actions and firm value because the manager in effect can threaten shareholders with an undesirable status quo if they do not approve the manager's proposed action.

The analysis of sections 2 and 3 shows that the consequences of the binding approval rights depend on both the CEO's pay level in case of a disapproval and on the time of the vote. If the vote on the Say on Pay proposal is taken retroactively, it can cause a hold-up problem that destroys shareholder value. A limitation of this model is that it does not consider long-term oriented shareholders. Established equilibrium concepts for repeated games show that hold-up problems in one shot games can theoretically be solved if the players are allowed to interact repeatedly over a multi-period planning horizon with unknown end.<sup>12</sup> Göx, Imhof and Kunz (2014) examine this hypothesis in a laboratory experiment where a privately informed CEO with limited control over his own compensation level must implement a risky investment project.

Göx et al. (2014) find that a retroactive binding Say on Pay is an effective means to limit the CEO's excess compensation but it equally destroys firm value because the CEO anticipates that rational shareholders will use the Say on Pay vote to cut his compensation even after successfully implementing a positive NPV project. Perhaps surprisingly, Göx et al. (2014) find that this hold-up problem is equally pronounced in a one shot game and in a repeated game with an unknown end. Since there is little evidence

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<sup>11</sup>As suggested by the Matsusaka and Ozbas (2017), such a signal could be provided by a proxy advisor. However, assuming that the source of information is an arbitrary third party such as a large institutional investor or an investment analyst would not change the results of the model.

<sup>12</sup>See e.g. Fudenberg and Tirole (1991), chapter 5.

on the consequences of binding Say on Pay votes (see Section 4), it is an open issue how the length of the shareholders' planning horizon effectively determines the economic consequences of a binding Say on Pay vote.



## CHAPTER 4

### **Empirical Evidence: Fifty Shades of Say on Pay**

The purpose of this chapter is to review the empirical research on the economic impact of Say on Pay. The chapter is organized around five sections. Section 4.1 provides a brief history of Say on Pay, placing its roots in the broader context of a gradual shift toward a more shareholder-centric governance system. The rich set of legislative events accompanying the adoption of Say on Pay in many countries has provided fertile ground for empirical studies. Sections 4.2 and 4.3 review the evidence in such studies, focusing on the effect of advisory Say on Pay votes, respectively, on executive pay and firm value. Section 4.4 reviews the corresponding evidence regarding binding Say on Pay regimes. Section 4.5 discusses studies examining other issues related to Say on Pay.<sup>1</sup>

#### **1. A brief history of Say on Pay**

While making headlines for many decades (Murphy 2012), CEO pay has become a recurring topic of debate during the New Economy of the nineties, when the growing use of stock options as incentive tool (favored by a benign accounting treatment) led to a rapid increase in CEO pay (the average CEO-to-worker pay ratio peaked at more than 400 in 2000, up from 18 in 1965; Mishel and Sabadish 2012). As the dot-com bubble burst and a series of accounting and governance scandals unfolded in 2001-2002 (e.g. Worldcom, Enron), stock options and executive pay were blamed for providing perverse incentives to manipulate financial reports and the stock price. These scandals led many institutional investors to take a more active role in monitoring corporations, spurring a wave of shareholder activism and a new industry

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<sup>1</sup>This chapter draws on a previous review of the empirical research on Say on Pay in Ferri (2015). In addition to reviewing recent studies not examined in Ferri (2015), this chapter devotes more attention to the international evidence.

of governance intermediaries (governance ratings agencies, proxy advisors). At the same time, influential academic studies documented a large impact of governance quality on firm value (Gompers, Ishii and Metrick 2003; Bebchuk, Cohen and Ferrell 2009) and calls for policy reforms empowering shareholders became louder (Bebchuk 2005).

Like other institutional investors, union pension funds began to take a more active role. Because these funds tend to be well diversified, holding very small stakes in thousands of firms, they could not exert their influence by buying large stakes in individual firms. Hence they resorted to ‘low-cost’ tools of activism (Ferri 2012), such as shareholder proposals and shareholder votes on uncontested director elections.<sup>2</sup> Between 2003 and 2010, led by union pension funds’ efforts, the frequency of, and voting support for, compensation-related shareholder proposals and compensation-related ‘vote-no’ campaigns against directors up for election increased quickly. Among S&P 1500 firms, there were approximately 66 compensation-related proposals per year in the 1997–2002 period (averaging 16.2 percent votes in favor) compared to about 160 proposals per year in the 2003–2007 period (averaging 28.9 percent votes in favor; Ertimur, Ferri and Muslu 2011). New types of shareholder proposals emerged (e.g. proposals to introduce performance-based vesting conditions in equity grants, to expense stock options, to subject severance payments to shareholder approval), gaining higher voting support. While these votes were non-binding, firms began to respond, particularly when votes were withheld from compensation committee members up for re-election (Del Guercio, Seery and Woidtke 2008; Cai, Garner and Walkling 2009; Ertimur et al. 2011).

Meanwhile, an important development had taken place in the UK. In 2002 the UK government had introduced a mandatory annual advisory vote on the executive compensation report, known as Say on Pay, largely in

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<sup>2</sup>The percentage of all shareholder proposals filed by union pension funds increased from 13.6 percent in 1997 to 43.6 percent in 2003, when union pension funds surpassed individual investors in terms of number of proposal (Ertimur, Ferri and Stubben 2010). Not surprisingly, executive pay became a central focus of unions’ activism.

response to a perceived increase in US-style, ‘fat cat’ executive pay packages among UK firms. During the first Say on Pay proxy season, a failed Say on Pay vote at Glaxo SmithKline (with 50.7 percent of the votes cast against approval of the remuneration report) made headlines around the world. Shareholders had objected to an estimated £22 million severance arrangement for the CEO (based on a two-year notice period), lack of challenging performance targets and the presence of a retesting provision in the stock option plan.<sup>3</sup> Glaxo SmithKline’s board responded to the vote by launching an extensive consultation process with shareholders and adjusting the compensation package accordingly (Ferri and Maber 2013).

In the US, a union pension fund, the American Federation of State, County and Municipal Employees took notice of the UK experience and rallied other activist investors to submit shareholder proposals requesting the adoption of Say on Pay (Ferri and Weber 2009). Between 2006 and 2010, more than 250 Say on Pay proposals were submitted and voted upon, averaging more than 43 percent votes in favor and often winning a majority vote, with increasing success over the years (Burns and Minnick 2013; Cuñat, Gine and Guadalupe 2016). High-profile executive pay scandals (e.g. option backdating, the large severance package awarded to the CEO Nardelli at Home Depot) helped activists in making their case for Say on Pay. Policy makers took notice too, and on April 20, 2007, the House of Representatives passed a Bill requiring a non-binding annual shareholder vote on executive compensation (hereafter Say on Pay Bill). On the same day, then-Senator Barack Obama introduced a companion Bill in the Senate.

However, it was the financial crisis of 2007–2008 that accelerated the path toward mandatory adoption of Say on Pay in the US. Growing income inequality, public outrage over banks’ bailouts and Wall Street excesses (e.g. the large bonuses paid at AIG), and the perception that executive pay played

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<sup>3</sup>Retesting provisions in the performance-based vesting conditions of equity grants allow boards to reevaluate in subsequent years performance targets not achieved during the initial measurement period, rather than allowing the equity grant to lapse. As such, they were criticized in the UK as a form of ‘reward for failure’.

a role in inducing excessive risk-taking, pressured regulators to take action. Many of the legislative proposals discussed in the House and Senate in 2008 and 2009 contained a Say on Pay Provision (see Table 1 in Larcker, Ormazabal and Taylor 2011). Holding a Say on Pay vote was also a mandatory condition for firms to receive funds under the Troubled Asset Relief Program (TARP). During the 2008 campaign, both Presidential candidates expressed support for Say on Pay.

As these events unfolded, the debate on the merits and drawbacks of Say on Pay heated up. Critics of Say on Pay argued that, at best, Say on Pay votes would be ignored (because of their non-binding nature) and, at worst, would cause directors to pander to shareholders with special interests or lacking the required expertise and sophistication, ultimately resulting in the adoption of suboptimal pay practices (Kaplan 2007; Bainbridge 2008). They also cautioned that the high cost of analyzing executive pay at thousands of firms would lead shareholders to outsource voting decisions to proxy advisors, who in turn would minimize their own costs by promoting one-size-fits-all compensation practices which would hurt firm value (Gordon 2009). Finally, some predicted that shareholders would not use the Say on Pay tool, because they already have tools to express their views on compensation matters, such as the ability to submit shareholder proposals on compensation and withhold votes from directors responsible for compensation packages. In contrast, supporters of Say on Pay argued that enhanced shareholder voice (as formalized in a Say on Pay vote) and reputation concerns would help boards overcome psychological barriers to negotiating with CEOs on behalf of shareholders, resulting in more efficient compensation contracts and more dialogue between boards and shareholders (Bebchuk 2007). They also pointed to growing evidence of shareholders' sophistication in casting informed votes. Finally they argued that Say on Pay would be more effective than shareholder proposals (which are limited to a single issue) and less disruptive than a confrontational vote against an otherwise valuable director. More fundamentally, as outlined in Chapter 2, critics and supporters of Say on Pay disagreed on whether existing compensation contracts were

the result of an efficient labor market for talent or instead the expression of management power over captive boards.

Finally, on July 21, 2010, President Obama signed into law the Dodd-Frank Wall Street Reform and Consumer Protection Act (hereafter Dodd-Frank Act). One provision of the Act mandated that, beginning with annual meetings on or after January 21, 2011, US publicly traded firms must hold a non-binding shareholder vote on executive pay. Ironically, Say on Pay, a provision designed to provide *more* alignment of interests between shareholder and management was adopted as part of a financial reform package aimed at deterring ‘excessive’ risk taking (excessive from the point of view of social welfare), which may be the result of ‘too much’ alignment between shareholders and management.

The US was not the only country to take notice of the UK experience with Say on Pay. Similar *advisory* (non-binding) *mandatory* Say on Pay votes (on the compensation report) have been mandated in Australia (2005), Portugal (2010), Italy (2011), Spain (2011), Belgium (2012), Israel (2012) and France (2014), while Switzerland (2007), Germany (2010) and Canada (2012) introduced a *voluntary* Say on Pay regime. On the other hand of the spectrum, Netherlands (2004), Japan (2005), Sweden (2005), Denmark (2007), Norway (2007), Finland (2007) and South Africa (2011) adopted some version of a *binding* Say on Pay vote (usually a prospective vote on future compensation policy), which is now also being considered by the European Union (for more details about the international development of Say on Pay, see Thomas and Van der Elst (2015) and Stathopoulos and Voulgaris (2016)).<sup>4</sup> Notably, some countries have already modified their first Say on Pay legislation. Following a referendum in 2013, in 2015 Switzerland adopted a mandatory, retroactive binding Say on Pay vote on the compensation amounts. Interestingly, the final law adopted to implement the referendum also allows for a prospective vote on a bonus budget for the upcoming year. In 2013 the UK added to its advisory, backward-looking Say

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<sup>4</sup>Netherlands adopted a comply-or-explain regime, where firms may opt out of the Say on Pay vote if there are no significant changes to the remuneration policy.

on Pay vote a binding, forward-looking vote on the proposed compensation policy (to be held at least once every three years). In 2012 Australia modified the advisory Say on Pay vote adopted in 2005 to introduce the so-called ‘two-strikes’ rule, aimed at increasing the effectiveness of the advisory vote (see Section 4.2.4). Other countries have elements of both advisory and binding regimes.<sup>5</sup>

The rapid adoption of different “shades” of Say on Pay around the world has provided researchers with many opportunities to investigate this phenomenon. In the next section we begin to review the empirical evidence produced by these studies. In doing so, it is important to appreciate that Say on Pay has come to epitomize a broader movement toward greater shareholder democracy, beyond the issue of executive pay.<sup>6</sup> As a result, many observers view the successes and failures of Say on Pay as a window into the potential effects of other reforms aimed at increasing shareholder power, making the academic research on Say on Pay (and its review here) all the more relevant.

## **2. The effect of advisory Say on Pay on executive compensation**

The most natural question concerning Say on Pay is whether it affects executive pay. Thus we first review the empirical evidence on its impact on level and structure of pay (Section 4.2.1) and compensation practices (Section 4.2.2) in the UK and US, the two countries most analyzed by researchers. Then, in Section 4.3 we examine the evidence from other countries (Section 4.2.3), with special emphasis on the two-strike regime introduced in Australia (4.2.4).

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<sup>5</sup>In Italy the vote is generally advisory, but binding for firms in the financial sector. In Israel the vote is advisory, but a binding vote is required if the levels of pay are outside the range allowed under the remuneration policy.

<sup>6</sup>During this period shareholder activists in the US (unsuccessfully) lobbied for a proxy access rule that would make it easier for shareholders to oust corporate directors and nominate their own candidates. At the same time, they pressured firms to switch from a plurality to a majority voting standard for uncontested director elections, as a way to increase directors’ accountability and responsiveness to shareholders (Ertimur, Ferri and Oesch 2015).

**2.1. Effect on level and composition of executive compensation.**

Ferri and Maber (2013) examine the adoption of Say on Pay in the UK in 2002. They report that in most cases shareholders voted in favor of compensation plans. Failed Say on Pay votes (i.e. more than 50 percent of votes against) were rare (2 percent of the sample), though highly publicized in the press. However, in the early years of Say on Pay (2003-2004) about one-fourth of the sample firms received more than 20 percent of votes against the compensation plans, a substantial level of voting dissent.

To capture the impact of Say on Pay on CEO pay, Ferri and Maber (2013) examine the sensitivity of CEO pay to its economic determinants over the 2000–2005 period (i.e. before and after the adoption of Say on Pay) and document a significant increase in the sensitivity of CEO pay to poor performance. Supporting a causal interpretation of this result, they also find that (i) the increase does not occur for a subset of UK firms exempted from Say on Pay (firms traded on the Alternative Investment Market, a sub-market of the London Stock Exchange with a more flexible regulatory system); (ii) the increase is more pronounced in firms experiencing high voting dissent and firms with high abnormal CEO pay before the adoption of Say on Pay. However, they fail to find an effect of Say on Pay on the level of pay, similar to most other studies examining Say on Pay in the UK.<sup>7</sup>

While in the US Say on Pay was mandated by the Dodd-Frank Act, its implementation was left to the Securities and Exchange Commission (SEC). The final rule, issued in January 2011, exempted ‘smaller reporting companies’ (i.e. firms with a public float below \$75 million) from the Say on Pay provision for two years. Iliev and Vitanova (2015) exploit this setting to estimate the effect of Say on Pay on CEO compensation. In particular, using a regression discontinuity (RD) design, they compare yearly changes in CEO pay between firms just above the SEC-imposed threshold and firms just below the threshold (but otherwise quite similar). They find a 23% relative increase in CEO pay in the first year post-Say on Pay for firms above the

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<sup>7</sup>Generally similar findings about the effect of Say on Pay in the UK are in Alissa (2015), Carter and Zamora (2008) and Conyon and Sandler (2010).

threshold and thus subject to Say on Pay, driven by a shift from fixed pay to performance-based pay.<sup>8</sup> They argue that the increase in pay may be a compensation for the greater turnover risk faced by CEOs in a post-Say on Pay environment (though they do not examine subsequent turnover). While the identification strategy chosen by the authors has the benefit of reducing endogeneity issues, it comes with the price of focusing only on fairly small firms (those around the \$75 million public float threshold), where shareholders may not view excessive CEO pay as a significant problem in the first place.

Cuñat et al. (2016) use a similar RD design to analyze non-binding shareholder proposals to adopt Say on Pay in the US (250 proposals between 2006 and 2010). In particular, they compare firms where the proposals receive slightly more than 50 percent of the votes (the threshold for approval) to otherwise similar firms where the proposals receive slightly less than 50 percent.<sup>9</sup> Using this approach they conclude that the passing and adoption of Say on Pay proposals is not associated with systematic changes in the level of CEO pay nor its composition. However both Cai and Walkling (2011) and Cuñat et al. (2016) show that firms targeted by Say on Pay proposals do not exhibit excess CEO pay or weaker governance.<sup>10</sup> Hence, the lack of an effect at these firms may not be surprising. Also, caution is required in generalizing these findings to targeted firms away from the 50 percent threshold (though the authors show that these firms do not differ in observable characteristics

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<sup>8</sup>Iliev and Vitanova (2015) do not examine changes in pay-for-performance sensitivity.

<sup>9</sup>Comparing the changes in CEO pay for firms voluntarily adopting Say on Pay in response to the proposals and firms not adopting Say on Pay would be problematic since the adoption decision is endogenous. Similarly, since the voting outcome is endogenous, it would be difficult to compare changes in CEO pay between firms where the proposal is approved and firms where it is not approved.

<sup>10</sup>This may appear surprising. However, Ferri and Weber (2009) report that activists submitting Say on Pay proposals chose to focus on a broad sample of large firms, rather than target only firms with problematic CEO pay practices, to obtain greater visibility and to show to policy makers that investors' support for Say on Pay was not limited to problematic firms.

from those around the threshold) or to firms not targeted by Say on Pay shareholder proposals (which tend to be substantially smaller).

Correa and Lel (2016) examine the effect of Say on Pay laws on CEO pay using a large cross-country sample of about 90,000 firm-year observations from 38 countries, including 11 countries that adopted an advisory or binding Say on Pay vote between 2001 and 2012.<sup>11</sup> In particular, they compare post-Say on Pay CEO pay at firms of countries adopting Say on Pay to a control sample which includes all non-Say on Pay observations (that is, pre-Say on Pay CEO pay in countries eventually adopting Say on Pay as well as CEO pay in countries never adopting Say on Pay). They find that following the adoption of Say on Pay laws: (i) pay-for-performance sensitivity increases, and (ii) CEO pay growth rates decline (i.e. CEO pay levels continues to rise in Say on Pay adopting countries, but at a lower rate). These changes are concentrated in firms with weak governance and presumably inefficient pay practices before the adoption of Say on Pay (e.g. firms with high excess CEO pay, low pay-for-performance sensitivity, high Say on Pay voting dissent, long CEO tenure, busier and less independent boards), suggesting that Say on Pay has a greater impact where other governance mechanism fail. Interestingly, they also document a relative decrease in the CEO pay slice, i.e. the ratio of CEO pay to the pay of the top five executives, which may be interpreted as evidence that Say on Pay mainly affected CEO's, rather than top executives', pay.

**2.2. Effect on compensation practices.** Studies of the effect of Say on Pay on level and composition of CEO pay may not capture important changes to compensation contracts induced by Say on Pay votes but not reflected in measures of CEO pay. For example, the introduction of

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<sup>11</sup>Australia (2005), Belgium (2012), Italy (2011), Portugal (2010), United Kingdom (2003) and Unites States (2011) adopted an advisory vote. Denmark (2007), Norway (2007), South Africa (2011) and Sweden (2005) adopted a binding vote. Netherland adopted a comply-or-explain version of Say on Pay in 2004, where firms can opt not to have the vote if there are no significant changes to the remuneration policy.

performance-based vesting provisions is typically not reflected in the estimates of fair value of equity grants used by researchers in measuring CEO pay. Many other changes (e.g. terms of severance packages) will only be reflected in measures of CEO pay contingent upon the occurrence of certain events. Thus, it is important to complement the evidence in Section 4.2.1 with an analysis of firms' disclosures of changes to observable provisions of compensation contracts. Besides, this approach captures changes that boards explicitly make in response to Say on Pay, and thus it acts as a reality check on more indirect, regression-based inferences of the effects of Say on Pay.

Two studies collect data on specific changes made to compensation contracts explicitly in response to Say on Pay votes in the UK and the US, using firms' disclosures in their proxy statements. Ferri and Maber (2013) examine the compensation reports of a sample of UK firms before and after the first Say on Pay vote and find that firms experiencing higher voting dissent were significantly more likely to remove compensation provisions criticized by investors as 'rewards for failure' relative to a matched sample of firms experiencing lower dissent.<sup>12</sup> For example, among firms with long notice periods (implying larger severance payments) the percentage of high dissent firms that shortened them after the vote (80 percent) was significantly higher than before the vote (20 percent) and also significantly higher than among low dissent firms after the vote (33.3 percent). Similar findings are reported for another controversial practice: the presence of retesting provisions in the performance-based vesting conditions of equity grants. Most firms indicate that these changes were the result of consultations with their major institutional investors. Importantly, firms' responsiveness to Say on Pay votes was 'rewarded' with a substantial increase in favorable Say on Pay votes at the subsequent annual meeting. Ferri and Maber (2013) also find that many firms experiencing low voting dissent at the first Say on Pay

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<sup>12</sup>Sheehan (2007, 2012) also reports examples of firms' responses to Say on Pay votes in the UK over the 2003-2005 period.

vote had removed those provision *before* the vote,<sup>13</sup> highlighting the importance of accounting for ex ante effects when assessing the impact of a new regulation.

Ertimur et al. (2013) examine the effect of Say on Pay on compensation practices in the US in 2011, the first proxy season under mandatory Say on Pay. Their key findings are generally similar to the evidence from the UK: (i) failed Say on Pay votes were rare (about 2 percent of the sample), though cases of substantial dissent were more frequent; (ii) more than 55 percent of the firms experiencing significant voting dissent responded by making material changes to their compensation plan during the subsequent year (e.g. introduction of performance-based vesting conditions in equity grants, use of tougher performance targets, removal of perks and tax gross-ups, removal of controversial provisions from severance contracts, etc.), usually in consultation with major institutional investors, and (iii) firms making changes to their compensation plans received greater voting support at the following Say on Pay vote.<sup>14</sup>

Ertimur et al. (2013) also highlight the strong influence of the recommendations released by proxy advisors (particularly Institutional Shareholder Services (ISS)), with a negative recommendation being associated with 25 percent more votes against the compensation plan. Further evidence of the significant influence of ISS is the striking discontinuity in the relation between the extent of Say on Pay voting dissent and firms' responsiveness to the vote: the percentage of firms making compensation changes in response to Say on Pay votes jumps from 32 percent to 72 percent around the 30 percent voting dissent threshold. Why? After the 2011 proxy season, ISS had indicated that firms failing to 'adequately' respond to Say on Pay voting dissent above 30 percent would receive a negative recommendation

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<sup>13</sup>In their sample, 70 percent of low dissent firms shortened their notice periods during the year *before* the first Say on Pay vote.

<sup>14</sup>Other studies examining Say on Pay voting patterns and firms' responses in the US, with generally similar findings, include Lo, Yang and Zhang (2014), Balsam, Boone, Liu and Yin (2016), Conyon (2016), Kimbro and Xu (2016), Collins, Marquardt and Niu (2017).

in 2012 on the Say on Pay proposal and on the election of compensation committee members.

Finally, similar to the UK experience, there is anecdotal evidence of analogous compensation changes being made by US firms *ahead* of the Say on Pay vote, in order to avoid a negative proxy advisor recommendation and an adverse shareholder vote (Balsam et al. 2016; Larcker, McCall and Ormazabal 2015; Thomas, Palmiter and Cotter 2013).

**2.3. Effect of Advisory Say on Pay Votes in countries with concentrated ownership structure.** In countries with diffuse ownership (such as US and UK) incentive pay has long been used as a means to alleviate the agency costs arising from the separation of management and ownership. However, greater use of incentive pay is risky to managers and thus it requires a risk premium, resulting in rising pay levels. The adoption of Say on Pay in these countries may be viewed as a tool allowing diffuse shareholders to ensure that incentive pay is properly designed and pay levels are thus justified. In countries with concentrated ownership, however, the rationale for the adoption of Say on Pay is less obvious, since controlling shareholders can directly monitor managers and their compensation (hence, the lower use of incentive pay and thus the lower executive pay levels in these countries). Thomas and Van der Elst (2015) posit that the adoption of Say on pay in these countries (e.g. Sweden, Germany) is likely the result of a gradual decrease in ownership concentration, due to institutional developments and the rise of foreign institutional investors, as well as social and political pressures due to rising income inequality Thomas and Van der Elst (2015) note that in many European countries Say on Pay was instituted by social democratic parties). Research on the effect of advisory Say on Pay votes in countries with concentrated ownership is generally more limited and more qualitative in nature. Yet, it provides interesting insights into the impact of Say on Pay in regimes with different institutional characteristics.

In Italy, an advisory Say on Pay vote on the compensation policy was adopted in 2011. Bruno and Bianconi (2015) analyze the voting patterns of large Italian companies (Mib 30 index) between 2012 and 2014 and report

that most Say on Pay proposals are approved with large support (over 90% on average). This is not surprising given the highly concentrated ownership structure. But there is significant dissent among minority, non-controlling, shareholders, fueled by the growth of foreign institutional investors and the rise of proxy advisors. For example, only 56% of the minority shareholders' votes were cast in favor of Say on Pay proposals in 2012, with numerous cases where the majority of the minority shareholders voted against Say on Pay. Some of the issues behind negative recommendations and adverse Say on Pay votes echo those in UK and US (e.g. large severance contracts), while others are more country-specific (lack of disclosure of performance criteria, limited information about peers used for benchmarking purposes, short vesting schedules). As in the US and UK, firms generally respond to adverse votes by making changes to their compensation contracts, resulting in more positive recommendations and voting outcomes in the subsequent year; and there is evidence of increasing engagement between remuneration committees and proxy advisors/institutional investors. Presumably as a result of these actions, by 2014 the percentage of votes cast by minority shareholders in favor of compensation reports increased to 73% (from 56% in 2012). However, Bruno and Bianconi (2015) note that these effects are limited to large firms. In small firms (representing the majority of listed firms in Italy), minority shareholders' dissent has remained at high levels (above 60%) over the years, an indication of limited firms' responsiveness (the authors conjecture this is due to the lower levels of minority shareholdings, especially by foreign institutional investors, at smaller firms).

Belcredi, Bozzi, Ciavarella and Novembre (2014) examine the determinants of Say on Pay voting dissent in 2012 in a sample of about 250 Italian firms and confirm that poor disclosure of variable pay is among the key reasons behind voting dissent. Also, voting dissent is higher when turnout by local and foreign institutional investors at the annual meeting is higher. Interestingly, they find that dissent is higher when one of the board members is appointed by minority shareholders (a peculiarity of the Italian setting),

perhaps a proxy for greater shareholders' activism and/or for more transparent compensation disclosures (which may facilitate voting decisions).

As noted earlier, in 2010 Germany adopted a voluntary rather than mandatory Say on Pay regime.<sup>15</sup> Powell and Rapp (2015) examine Germany's experience with Say on Pay in a sample of over 1,000 annual meetings between 2010 and 2013. They find that during this four year period about half of the firms had at least one voluntary Say on Pay vote, with the propensity to hold such vote increasing in firm size, free float and excess pay. Among firms holding the vote, dissent is higher when excess pay is higher and in firms with less concentrated ownership. Say on Pay votes appear to be followed by greater use of performance-based pay (though the levels of pay are unchanged). Overall, they conclude that firms use voluntary Say on Pay votes to get pre-approval for executive remuneration policies when ownership concentration is low.

To sum up, there are some general patterns in the Say on Pay experience across most countries: cases of failed votes are rare and dissent is generally low (but higher than on other items voted upon), but when dissent is substantial firms are pressured to respond, removing controversial pay practices and increasing the pay-for-performance sensitivity.

#### **2.4. Say on Pay Down Under: Australia's 'Two-Strike' Rule.**

Australia adopted an advisory Say on Pay vote in 2005. Clarkson, Walker and Nicholls (2011) examine ASX 200 firms and document an increase in pay for performance sensitivity around the adoption of Say on Pay. Sheehan (2012) examines voting patterns for ASX 200 firms over the period 2005-2008 and finds that (similar to other countries) voting dissent was generally low, though each year there were few cases of high dissent. Interestingly, in her qualitative analyses of compensation changes after the vote, Sheehan (2012) also finds that Australian firms seem to have made fewer changes

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<sup>15</sup>The Say on Pay vote may be demanded by certain shareholders subject to procedural and ownership requirements, or may occur as a result of a voluntary decision by the supervisory board. Proposals for a binding vote were rejected by the German Parliament in 2013.

than their UK counterparts, and that the rate of change did not seem to be higher for firms experiencing higher dissent.

Partly as a result of this (perceived) lack of responsiveness to a Say on Pay vote, in 2011 the Australia government introduced the so-called “two-strike rule”. Under this rule, after a 25% Say on Pay dissent vote (a ‘strike’) firms must explain in the subsequent remuneration reports any actions taken to address shareholder concerns. If there is a second ‘strike’ the subsequent year (another dissent vote greater than 25%), then a resolution (‘spill’ resolution) must be submitted to shareholders (at the same meeting) to determine whether all directors (other than the CEO) should stand for re-election (directors typically serve for three-year terms in Australia). If the spill resolution is approved by a majority of the eligible votes, then within 90 days the firm must hold an extraordinary general meeting (‘spill’ meeting) to re-elect all directors (except the CEO).<sup>16</sup>

An important feature of the two-strike rule is that votes cast by executives and directors are not eligible to be cast on the Say on Pay vote and on the spill resolution, making it easier for non-insider shareholders to achieve the thresholds. Effectively, this regime introduces a penalty for lack of responsiveness to Say on Pay dissent (as evidenced by two consecutive relatively high dissent votes) and thus is supposed to give more ‘teeth’ to the non-binding Say on Pay vote and empower minority shareholders.<sup>17</sup> Indeed, Van der Elst (2016) calls for similar mechanisms to be introduced in other countries with highly concentrated ownership.

Bugeia, da Silva Rosa, Shan, Walter and Yermack (2016) examine the effectiveness of the two-strike rule in a sample of over 5,000 firm-year observations over the 2011-2014 period. While dissent remains generally low, a ‘strike’ (i.e. dissent > 25%) occurs in over 6% of the firm-years. Among firms with a first strike, about 16% experience a second strike (presumably

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<sup>16</sup>Consideration of a spill resolution is allowed only at every second annual general meeting.

<sup>17</sup>Another way to look at it is that the two-strike rule effectively introduces a supermajority requirement (at 75% of eligible votes) for the approval of the Say on Pay proposal.

because not fully responsive to the first strike). Firms receiving a strike (first or second) tend to have higher excess CEO pay. The study also find a decrease in CEO pay growth rate and both total and excess CEO pay after the first strike, driven by a shift away from equity-based pay, while the effects of the second strike are unclear and vary depending on the control sample.<sup>18</sup> There is no evidence of a change in pay-for-performance sensitivity after the first strike and, perhaps surprisingly, a *decrease* after the second strike.

A spill resolution passed with a majority vote in 12 of the 51 firms with two strikes. Of those 12 firms, nine held a vote to re-elect directors<sup>19</sup>, which resulted in one firm with a significant shake-up of the board (at the other eight firms, almost all directors were re-elected). This descriptive evidence suggests that rarely shareholders fully carry out the threat of replacing directors.

The key unanswered question about the two-strike rule is whether it triggers greater responsiveness to the Say on Pay Vote, as intended by regulators. That is, are firms more likely to make compensation changes to address shareholder concerns after the ‘first’ strike than they were under a simple advisory Say on Pay vote? Does the threat of a spill resolution increase responsiveness? To address this question, future work would need to hand collect granular data on compensation changes made in response to relatively high dissent votes before and after the two-strike rule (as disclosed in firm’s remuneration reports). In turn, measuring ‘responsiveness’ requires an understanding of the specific compensation-related concerns underlying the vote. In the US Ertimur et al. (2013) use the proxy advisors’ rationale

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<sup>18</sup>Two other studies examine the two-strike rule. In contrast to Bugeia et al. (2016), Grosse, Keane and Scott (2015) do not find that that total or excess CEO pay predicts a strike or voting dissent. They also find no change in total CEO pay after a strike, except for a decline in the bonus component, but they document an increase in the length of the remuneration report (perhaps suggesting more disclosures). Monem and Ng (2013) find some evidence of a higher pay-for-performance sensitivity in first-strike firms that avoided a second strike.

<sup>19</sup>Two of the other three firms were de-listed or merged; at the third one, all directors resigned after the spill resolution.

behind the recommendations to proxy for such concerns. Perhaps a similar approach may be taken for Australian firms (examining only levels and composition of pay is unlikely to capture responsiveness). Also, the two-strike rule requires firms to disclose how they addressed the first strike in the remuneration report. Thus, coding the information in such reports would allow to measure responsiveness and provide insights into the effectiveness of this regime.

Another avenue for future research may be to compare the effectiveness of the two strike rule in Australia vis-à-vis a simple advisory Say on Pay regime where proxy advisors may effectively play the role of the second strike. In the US, as noted in Section 4.2.2, ISS recommends a withhold recommendation from directors unresponsive to a dissent vote on Say on Pay greater than 30%. While this is not equivalent to a spill resolution, it is one mechanism that may give more teeth to a simple advisory vote.

### **3. The effect of advisory Say on Pay on firm value**

Our review of the evidence in Section 4.2 suggests that, in most countries, Say on Pay votes affected specific compensation practices, pay-for-performance sensitivity, and, to a lesser extent, the growth rate of CEO pay. But what was the ultimate effect on firm value? To address this question, researchers have mostly used the event study methodology, focusing on events that increased the likelihood of Say on Pay adoption at the market or firm level, and on the announcement of compensation changes driven by actual or expected Say on Pay votes.

**3.1. Event studies around the adoption of Say on Pay regulations.** As mentioned in Section 4.1, on April 20, 2007, the House of Representatives passed a Say on Pay Bill by a 2–1 margin. On the same day then-Senator Barack Obama introduced a companion Bill (S.1181) in the Senate (which was then put on hold by the Senate Banking Committee). While the Say on Pay Bill’s approval was expected (Democrats were in control of the House and supported the Bill), the 2–1 margin was unexpected, suggesting some support for Say on Pay even among Republicans.

Cai and Walkling (2011) exploit this ‘surprise’ and examine the market reaction to the House’s approval of the Bill for a sample of firms in the S&P 1500 index. They document a positive stock price reaction for firms with greater expected benefits from Say on Pay, namely firms with more severe compensation problems (e.g. firms with high abnormal CEO *cash* pay, firms with sub-optimal pay-for-performance sensitivity) and firms more likely to respond to a Say on Pay vote (e.g. firms with a history of shareholders willing to vote against compensation-related management proposals and firms with a history of responsiveness to compensation-related shareholder pressure). However, Cai and Walkling (2011) do not find a significant impact for firms with high abnormal *equity* and *total* CEO pay.

Larcker et al. (2011) also examine the market reaction to the House’s approval of the Say on Pay Bill (in addition to other regulatory events related to executive pay and other governance provisions). Similar to Cai and Walkling (2011), they fail to find a significant impact for firms with high abnormal *total* CEO pay (they do not examine the price reaction for firms with abnormal cash CEO pay or firms with lower pay-performance sensitivity).

A concern with both studies is that the House’s approval of a Bill does not guarantee passage in the Senate and approval by the White House. In fact the press at the time reported that the prospects of the Bill in the Senate were uncertain and the Bush White House openly opposed the Bill (Associated Press 2007; New York Times 2007). Thus, it is not clear the extent to which this event increased the likelihood of Say on Pay legislation (a premise of both studies). Arguably, as noted in Section 4.1, the only ‘event’ that substantially increased the likelihood of mandatory Say on Pay was the financial crisis.

Ferri and Maber (2013) argue that the announcement of the submission of Say on Pay regulation to the Parliament in the UK in June 2002 offers a more powerful setting for an event study since it was largely unexpected and increased substantially the probability of Say on Pay adoption (Parliament’s

approval was virtually guaranteed). Using this event, they document positive abnormal returns for firms with excess CEO pay combined with poor performance and for firms with pay practices perceived to weaken the penalties for poor performance (those practices were often removed in response to Say on Pay votes; see Section 4.2.2). They interpret their findings as consistent with shareholders viewing Say on Pay as a value enhancing monitoring tool for firms with *weak* pay-to-poor-performance sensitivity.

Finally, Iliev and Vitanova (2015) examine the market reaction around the announcement of the SEC final Say on Pay rule that on January 25, 2011 exempted ‘smaller reporting companies’ (i.e. firms with a public float below \$75 million) from adopting Say on Pay for two years (press reports at the time noted that the exemption could become permanent). An appealing feature of this setting is that the SEC decision was an unexpected deviation from the rule proposed in October 2010, under which no publicly traded firm would be exempted. Iliev and Vitanova (2015) document significantly more negative abnormal returns for exempted firms, suggesting a positive valuation impact from mandating Say on Pay. As noted earlier (Section 4.2.1), since exempted firms are fairly small, the magnitude of the CEO pay problem (if any) cannot explain the differential market reaction (besides, the same study finds an *increase* in CEO pay level in the first year under Say on Pay). Hence the reason for the observed price reaction remains somewhat unclear. The authors suggests it may reflect the expected value from greater communication between investors and boards under a Say on Pay regime.

**3.2. Event studies around shareholder proposals to adopt Say on Pay.** As noted in Section 4.1, in 2006 shareholder activists led by union pension funds began to submit non-binding shareholder proposals to adopt Say on Pay. Two studies exploit this setting to infer the perceived value implications of Say on Pay.

Cai and Walkling (2011) examine the market reaction to proxy filings and annual meetings of 113 firms targeted by shareholder proposals to adopt Say on Pay between 2006 and 2008. On average, they find insignificant returns around both the submission of the proposal (proxy filing date) and

the vote (annual meeting date). However, they also find that when the proposals are filed by union pension funds, the (insignificant) abnormal returns are more negative than when filed by other activists and that when the proposal is defeated, the (insignificant) abnormal returns are more positive than when the proposal is passed (it is not clear whether this result is driven by union-sponsored proposals). They interpret these findings as evidence that the market views Say on Pay proposals filed by union pension funds as driven by special interests rather than value maximization.<sup>20</sup>

However, caution is required in interpreting this evidence. First, in the context of Say on Pay proposals the distinction between union and non-union proponents is overstated, because virtually all proponents were coordinated by a group of investors (mostly union pension funds), which made publicly available a template for Say on Pay proposals and a list of potential target firms (Ferri and Weber 2009). Second, the list of target firms was publicly available months before the proxy filing dates, so it is not clear whether the proxy statements contained any new information. Similarly, the voting outcome of the Say on Pay proposals may largely be anticipated (based on the composition of institutional owners, proxy advisors' recommendations, etc.). Finally, the analyses do not control for other (potentially new) information contained in proxy statements (e.g. executive compensation report, other items up for a vote at the annual meeting) or other events occurring at the annual meeting (e.g. shareholder votes on other items).

Cuñat et al. (2016) also examine the market reaction to the voting outcome of non-binding shareholder proposals to adopt Say on Pay, but to alleviate the concerns outlined above they employ a 'fuzzy' regression discontinuity (RD) design, essentially comparing the stock price reaction to

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<sup>20</sup>Consistent with this interpretation, the authors also find that Say on Pay proposals generally targeted larger firms, rather than firms with excessive pay or lower pay-performance sensitivity. However, as noted by Ferri and Sandino (2009), activists typically submit shareholder proposals aimed at promoting policy reforms at a broad sample of large firms rather than the firms that would most benefit from the proposals, because they believe that showing widespread support for the proposal across all types of firms enhances its credibility with policy makers.

proposals that pass by a small margin to the reaction to proposals that fail by a small margin (a methodology introduced by Cuñat, Gine and Guadalupe 2012). The underlying idea is that firms around the threshold are likely to have similar characteristics (as the study confirms) but differ in the likelihood of implementation, which is substantially higher for proposals passing the threshold (Thomas and Cotter 2007; Ertimur et al. 2010). Indeed, the authors show that the likelihood of subsequently adopting Say on Pay is 40-50 percent higher when the Say on Pay proposal passes by a small margin relative to when it fails by a small margin. Because in these close-call situations the voting outcome is uncertain, the resolution of this uncertainty (i.e. a pass or fail outcome) is likely to convey new information about the likelihood of Say on Pay adoption, making close-call proposals more suitable to an event study.<sup>21</sup>

Using this RD design, Cuñat et al. (2016) find that on the day of the vote a Say on Pay proposal that passes by a small margin yields an abnormal return of 1.8-2.7 percent relative to one that fails (after controlling for other proposals voted upon at the same meeting), and estimate the ‘full’ value of Say on Pay at about 5 percent (after taking into account the increase in the probability of implementing Say on Pay).<sup>22</sup> Aside from the issues discussed in Section 4.2.1 (i.e. ability to generalize the findings to other firms), this estimate seems too large to reflect the present value of future reductions in excess CEO pay, especially taking into account that (i) the authors find no evidence of subsequent changes in levels and composition of CEO pay for the subset of firms implementing Say on Pay (see Section 4.2.1), and (ii) the sample firms do not appear to be characterized by excess CEO pay in the first place. However, the authors report some evidence of significant improvements in subsequent operating performance and efficiency as a result of passing Say on Pay proposals. They thus conjecture that the Say on

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<sup>21</sup>Consistent with this observation, the authors find no market reaction to the voting outcome of Say on Pay proposals away from the threshold.

<sup>22</sup>Since the outcome of the vote is not binding, the 1.8-2.7 percent market reaction only reflects the expected increase in the *probability* of Say on Pay adoption and thus understates the value of the Say on Pay provision.

Pay vote is viewed as a tool to express a vote of confidence in management performance rather than as a tool to influence compensation practices, and that the large, positive market reaction perhaps reflects expected performance improvements under this tighter monitoring regime. While this is an intriguing idea, it is unclear what additional ‘teeth’ a Say on Pay vote would provide over other existing voting mechanisms available to express lack of confidence in management, such as votes on director elections (Cai et al. 2009).<sup>23</sup>

**3.3. Event studies around compensation changes induced by Say on Pay.** Two studies examine announcements of changes to compensation plans related to Say on Pay as a way to infer its impact on firm value. Larcker et al. (2015) examine the market reaction to (non-contaminated) compensation changes disclosed in 8-K filings by Russell 3000 firms in the US during the year *before* the first Say on Pay vote. They find that compensation changes that appear to be made to avoid a negative proxy advisor’s recommendation, and thus a negative Say on Pay vote, are associated with a negative abnormal return of  $-0.44$  percent, whereas other compensation changes are not associated with a significant stock price reaction. Ertimur et al. (2013) perform a similar analysis, focusing, however, on compensation changes made *after* the first Say on Pay vote (and explicitly in response to the vote) by firms receiving a negative recommendation and a high voting dissent in 2011. They fail to find significant abnormal returns, even for the subset of compensation changes that resulted in a positive recommendation and low dissent in 2012 (and, thus, were presumably perceived to be adequate and material by proxy advisors and voting shareholders). Combined, these studies fail to find evidence that investors perceive Say on Pay-induced compensation changes as value-increasing.

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<sup>23</sup>Outside the US, an event study of interest is in Trottier (2012), who document a positive stock price reaction around the announcement of “voluntary” adoption of Say on Pay by seven Canadian banks in 2009, largely in response to (or, in some cases in anticipation of) a majority vote in favor of shareholder proposals to adopt Say on Pay presented at the annual meeting.

**3.4. Non-event studies approaches: effect of Say on Pay on Tobin's Q.** An alternative approach to examine the impact of Say on Pay on firm value is to examine the change in firm value before and after the adoption of Say on Pay.

As noted in Section 4.2.1, in their cross-country study Correa and Lel (2013) find that following the adoption of Say on Pay laws: (i) pay-for-performance sensitivity increases, (ii) CEO pay growth rates decline and (iii) there is relative decrease in the CEO pay slice. In the same study, they also examine the change in Tobin's Q and report a 2.4 percent increase in firm value following the adoption of the Say on Pay laws (relative to non-Say on Pay adopting countries). They acknowledge that this increase in firm value is too large to be justified by the relative decrease in CEO pay growth rate (besides, they find that the effect on firm value is not more pronounced for firms with high CEO pay). Thus, they make two conjectures about potential reasons for the value increase. The first (untested) is that the increase in firm value reflects better alignment of pay and performance. The second is that it captures the benefits of reduced pay inequality among the top management team. Consistent with this hypothesis, they find that the firm value increase is higher when the relative decrease in CEO pay results in a lower pay differential between CEO and other top managers.

A concern is that higher valuation in countries with Say on Pay laws may reflect other governance changes introduced at the same time. While the study controls for other compensation-related laws there may be other non-compensation regulations introduced with Say on Pay and with a potentially larger impact on firm value.

#### **4. Binding Say on Pay: preliminary evidence**

Theory suggests that a binding say on pay regime may reduce agency costs, but accentuates hold-up problems. On the one hand, binding Say on Pay provides shareholders with an enhanced ability to ensure alignment. On the other hand, when shareholders can (partially) set pay ex post, this may distort ex ante managerial effort incentives and undermine the propensity

to undertake value-enhancing firm-specific investments. The question of the impact of a binding pay regime is not only interesting from a theoretical perspective but also of practical relevance, as more countries adopt a binding regime or elements of a binding regime.<sup>24</sup> Here we review the (fairly) limited empirical evidence on binding Say on Pay.

Wagner and Wenk (2017) examine the adoption of binding Say on Pay in Switzerland, where in March 2013 almost 70% of Swiss voters approved a constitutional referendum to introduce a binding retroactive (ex post) Say on Pay vote on the compensation amounts (i.e. shareholders would cast a binding vote on the compensation amounts paid during the previous year). Importantly, the law implementing this binding Say on Pay regime (introduced in June 2013 and approved in November 2013) allowed also for a prospective (ex-ante) approach where shareholders would vote on a bonus budget for the upcoming year. The authors report that over 98% of the companies opted for a fully or partially prospective voting system. In particular, about 75% of these companies vote on all compensation elements in a prospective manner (sometimes combined with an advisory vote on the compensation report in the following year), while 25% vote prospectively on base and long-term compensation and ex-post on the short-term incentives (Wagner and Wenk 2017). These findings suggest that the firms were anticipating that a retroactive vote on the amount of executive compensation could bear the risk of distorting the incentives set by the initial compensation contract.

Wagner and Wenk (2017) also perform an event study around the legislative events described earlier. Consistent with the predictions of our theoretical model in Section 3 and experimental evidence provided by Göx et al.

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<sup>24</sup>According to Wagner and Wenk (2017), Belgium, the Czech Republic, Denmark, Finland, France, Hungary, Latvia, the Netherlands, Norway, Portugal, and Sweden have introduced laws on Say on Pay with partially binding elements. The revised EU Shareholder Rights Directive, approved by the European Parliament in March 2017, introduces a Say on Pay vote on the remuneration policy for the board of directors and the executive management, leaving to each member country discretion as to the advisory or binding nature of the vote.

(2014), they find a negative price reaction around the referendum in favor of a binding retroactive Say on Pay, especially in the subset of firms more subject to the potential hold-up problem (e.g. firms with younger CEOs, firms with greater cash bonuses). These same firms experience a more positive reaction to the passage of the law with the prospective option, consistent with this option ameliorating the hold-up problem. Wagner and Wenk also find evidence of relatively more positive price reaction in firms more likely to benefit from shareholders' intervention in executive pay (i.e. firms with poor performance, firms without a large blockholder).

In 2013 the UK complemented its existing advisory Say on Pay regime with a binding prospective vote on the remuneration *policies* (not amounts) to be held at least every three years. Some preliminary evidence in Gerner-Beuerle and Kirchmaier (2016) suggests that both the advisory votes (on the compensation report) and the binding votes (on the forward looking policy) appear to be largely driven by the same factor, i.e. the level of (past or expected) pay, casting doubts on shareholders' ability to distinguish the nature of the item voted upon and/or on the usefulness of the additional binding vote. In particular, specific features of the remuneration policy do not appear to drive the binding vote. More work is needed to assess the impact of the additional binding vote in the UK on pay practices and firm value.

## 5. Other evidence on Say on Pay

While most Say on Pay studies investigate the effect on compensation or firms value, a few studies have addressed other research questions related to Say on Pay, such as the frequency of the vote, the director labor market effects and the impact on CEO turnover.

**5.1. Frequency of the Say on Pay Vote.** The Dodd-Frank Act mandated not only a Say on Pay vote but also a non-binding shareholder vote on the frequency of subsequent Say on Pay votes, with a choice between annual, biennial or triennial frequency. In a sample of S&P 1500 firms which held

such vote in 2011, Ferri and Oesch (2016) report that management recommended the annual frequency in about 61% of the firms, and the triennial frequency in most of the remaining cases.<sup>25</sup> Interestingly, in the first part of the proxy season management recommended the annual frequency only at 40% firms, suggesting management's preference for a less frequent vote. As the proxy season progressed and shareholders' support for an annual vote became apparent, management shifted to recommending the annual frequency at most firms.

The annual frequency received, on average, 75% of the votes cast and won the most votes in 90% of the firms. Despite the non-binding nature of the vote, virtually all firms adopted the frequency that won the most votes. Ferri and Oesch (2016) also find that, compared to firms adopting an annual frequency, firms following management's recommendation to adopt a triennial frequency were significantly less likely to change their compensation practices in response to high dissent on the Say on Pay vote, consistent with the notion that a less frequent vote results in lower management accountability (the main rationale for shareholders' support for an annual vote).

The Dodd-Frank Act also states that the vote on the frequency of future Say on Pay votes must be held every six years. Hence, US firms held such vote again in 2017. Among the 319 Russell 3000 firms that adopted a triennial frequency in 2011, 146 firms switched to annual frequency as a result of the vote, with 127 firms continuing to opt for a triennial frequency, even though shareholders voted in favor of annual frequency at 37 of these firms (the remaining 46 firms did not have a frequency vote yet; Business Wire 2017).

**5.2. Say on Pay and director labor market.** Brunarski, Campbell, Harman and Thompson (2016) examine the director labor market consequences of adverse Say on Pay votes. They find that directors of firms with large (>30%) voting dissent on Say on Pay in 2011 are more likely to lose

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<sup>25</sup>Ferri and Oesch (2016) also estimate that a management recommendations move about 25% of the votes, with the effect increasing in various proxies for management credibility.

directorships and compensation committee positions at interlocking firms and (if they did not lose their seat) more likely to receive less votes when up for re-election at these firms, suggesting *ex post* settling up in the labor market for directors and potentially explaining why boards are responsive to Say on Pay votes in spite of their non-binding nature.<sup>26</sup>

Brunarski et al. (2016) also find that interlocking firms experience a negative stock price reaction on the day of the vote at the focal firm (i.e. the firm experiencing the large voting dissent), are more likely to adopt an annual Say on Pay frequency and experience greater dissent in subsequent Say on Pay votes. Collectively, the authors interpret this evidence as suggesting that shareholders of interlocking firms re-assess the interlocked director’s monitoring ability (in view of the large dissent at the focal firm) with respect to compensation (the negative stock price reaction) and increase their own monitoring (by selecting a more frequent vote and scrutinizing carefully the subsequent Say on Pay proposals).

There is limited evidence of director labor market effects of Say on Pay votes in other countries. One exception is Bugeia et al. (2016) who find no evidence of loss in outside directorships after the first or second “strike” in Australia.

**5.3. Say on Pay and CEO turnover.** After the “resignation” of Citigroup’s CEO Vikram Pandit in October 2012, many observers noted that Pandit’s troubles began with a ‘failed’ Say on Pay vote in April 2012, where 55% of the votes were cast ‘against’ the Say on Pay proposal (Stendahl, 2012). This type of anecdotal evidence raises the question of whether an adverse Say on Pay vote increases the likelihood of CEO turnover. In a sample of FTSE 350 UK firms between 2003 and 2012, Alissa (2015) finds that higher voting dissent predicts CEO turnover.<sup>27</sup> This evidence does

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<sup>26</sup>Brunarski et al. (2016) focus on a 30% dissent threshold because of the ISS policy to issue a negative recommendation in 2012 on the Say on Pay proposal and on the election of compensation committee members at firms failing to ‘adequately’ respond to Say on Pay voting dissent above 30 percent in 2011 (see Section 4.2.2).

<sup>27</sup>Bugeia et al. (2016) report a similar finding in Australia (but only after the first “strike”, not the second one). In contrast, in their study of close-call shareholder proposals

not imply that the vote caused CEO turnover. Most likely, other factors (e.g. shareholder dissatisfaction with the CEO performance) caused both the high dissent and CEO turnover. It does suggest, however, that Say on Pay votes may reflect not only concerns with compensation packages but also shareholders' perceptions of management performance.

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to adopt Say On Pay, Cuñat et al. (2016) find no evidence of higher CEO turnover at firms where the proposals passed by a small margin.

## CHAPTER 5

### Final thoughts and suggestions

#### 1. Lessons learned

Giving shareholders a Say on Pay has been long advocated by those who regard executive pay as a manifestation of, rather than a solution to, the agency problem. Legitimated by public concerns about spectacular cases of apparent excess pay, regulators around the globe have adopted several versions of Say on Pay along with other regulatory measures intended to improve the pay setting process and the alignment of executive pay with shareholder interests.

Yet, it is far from being clear whether the intensified regulation of executive pay has achieved its asserted objectives or if it rather represents a symbolic (over-)reaction to some widely discussed corporate scandals bearing unintended consequences for the shareholders of the average firm affected by the regulation. Answering this question is challenging because there is no unique method of measuring the efficiency of executive compensation arrangements. Even from a purely theoretical perspective it is difficult to come up with a clear benchmark defining how the level and the structure of executive pay should be optimized from a shareholder perspective. The main reason is that the key input data determining the optimal compensation contract, such as the CEO's productivity, his or her talent, the risk of the firm's business model, as well as the functional relation among these variables and the relevant performance measures are highly individual- or firm-specific.<sup>1</sup> Moreover, the analysis of Chapter 2 shows that the question of how a 'poor' corporate governance shapes the structure of compensation

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<sup>1</sup>In addition, these variables are often either unobservable or difficult to measure. This problem makes the identification of good empirical proxies of efficient (as well as inefficient) pay practices a challenging task.

contracts not only depends on the specific parameters of the contracting problem but also on the relevant set of constraints faced by the firm. More fundamentally, it is even not obvious that a management-friendly compensation policy is always associated with a net loss for the firm's shareholders because a management-friendly board or compensation committee can often provide benefits that a shareholder-friendly board cannot deliver.

The ambiguity in evaluating the efficiency of compensation arrangements has important consequences for the analysis of Say on Pay. If shareholders can clearly identify inefficient compensation policies, Say on Pay bears the potential of providing a net benefit to shareholders. Otherwise, even the threat of an advisory Say on Pay proposal can lead a shareholder-friendly board to deviate from the shareholder value maximizing compensation plan in order to avoid the adverse consequences of the shareholder verdict against its compensation policy. If the vote on the Say on Pay proposal is binding and takes place after the CEO has decided on potentially value-increasing activities, Say on Pay can even undermine the CEO's incentives to create shareholder value if he anticipates that the shareholders might use the Say on Pay proposal to enforce a retroactive pay cut.

With respect to the empirical evidence, our review of the literature identifies a set of key findings. First, across all countries, cases of failed votes or high voting dissent do happen, suggesting that enough shareholders are willing to vote against a compensation plan perceived as sub-optimal. At the same time, such votes are fairly infrequent, indicating that shareholders, in aggregate, do not believe that abusive compensation practices are a systemic problem. One interpretation of this evidence is that concerns with executive pay practices have been overstated, due to a few 'bad apples'. Another one is that most of the effect of Say on Pay occurs *ex ante*, with firms reforming practices ahead of the vote (there is indeed evidence of increasing engagement with institutional investors prior to the vote). Or, maybe, by the time Say on Pay was introduced (more than a decade after the Enron-type scandals that led to calls for greater shareholder voice),

most compensation abuses had been already addressed via other mechanisms (hedge fund activism, monitoring by institutional investors, vote-no campaigns against compensation committee members, SEC-mandated pay disclosures).

Second, there is robust evidence that boards respond to Say on Pay votes: when shareholders choose to use it, *their* ‘voice’ is heard. Not only firms failing to win the Say on Pay vote, but also firms facing substantial dissent (20–30 percent of the votes against) make changes to their compensation plans, often in consultation with institutional investors and proxy advisors. Hence, the Say on Pay tool can be effective. Third, institutional investors appear to use the power of Say on Pay votes to pressure firms into strengthening the perceived link between pay and performance (by removing or adding specific contract provisions), rather than to pressure firms to reduce target levels of pay. Consistent with the above, most studies examining the aggregate effect of Say on Pay on CEO pay find some increase in pay-performance sensitivity, but no effect on the level of CEO pay (and only some modest reduction in the growth rate of CEO pay). Combined, these findings reveal that institutional investors are generally reluctant to ‘regulate’ executive pay levels, maybe because they ‘trust’ that the labor market is properly setting such levels, at least on average.

Finally, the evidence on the effect of Say on Pay on firm value is mixed. On one hand, a number of studies report a positive stock price reaction to events announcing the future adoption of Say on Pay (at the country- or firm-level). Also, Correa and Lel (2016) report reliable evidence of an increase in Tobin’s Q after the adoption of Say on Pay laws. On the other hand, many of these studies acknowledge that the effect on CEO pay (if any) is too small to justify the documented price impact. Also, studies examining actual Say on Pay-induced compensation changes find either a negative or insignificant stock price reaction. One potential explanation for these apparently conflicting findings is that investors’ (positive) expectations about the effects of Say on Pay have not materialized. Another explanation is that

those expectations were not driven by anticipated improvements to compensation contracts but other anticipated effect of Say on Pay (e.g. greater pressure on management to perform well to avoid an adverse vote; better communication between boards and management).

What is the overall lesson from this evidence? Say on Pay has had some, but modest impact on pay practices and firm value. While some observers may interpret the lack of an effect on CEO pay levels as evidence of the failure of Say on Pay, one should note that Say on Pay per se is a neutral tool. Its impact depends on what investors choose to say on pay! From this perspective, perhaps the greatest ‘disappointment’ about Say on Pay is that, by and large, it has failed to promote novel ideas about the design of optimal compensation packages. In many countries governance codes and associations of institutional investors have promoted a set of best practices and guidelines. But it is fair to say that these efforts have had limited success and new models of compensation have not emerged. Investors have used Say on Pay mostly as a means to ‘veto’ compensation arrangements with some problematic features or send a ‘warning’ message to unresponsive boards, rather than to promote a new model of executive pay. This is not surprising. After all, as discussed earlier, the design of compensation plans is extremely complex and, importantly, there is no obvious way to measure, even ex post, whether a compensation plan “works” (other than by observing firm performance).

Was the adoption of Say on Pay an ‘optimal’ choice from a social welfare point of view? This is a difficult question to answer given the challenges of identifying and measuring all the potential costs and benefits associated with Say on Pay (likely to change over time and differ across countries). Perhaps the most positive view of Say on Pay is that its introduction prevented the adoption of other more radical and intrusive regulatory measures (e.g. CEO pay caps). In that sense, it may be viewed as an ‘optimal’ answer (i.e. the lesser of two evils) to the political pressure to reform executive pay during the financial crisis. Also, it may have served a positive role in restoring

investors' confidence in capital markets after a decade of corporate scandals and financial crises.

## 2. The road ahead

There are several opportunities for further research on Say on Pay. On the theoretical side, this research could contribute to a broader understanding of its economic consequences, its cost and benefits from a shareholder perspective, and provide testable hypotheses for future empirical research. First of all, it seems interesting to study the consequences of a management-friendly compensation policy in different contracting environments. The model in Chapter 2 seeks to answer this question in the context of a simple moral hazard problem with a risk neutral agent protected by limited liability. Risk sharing considerations and other important determinants of compensation contracts such as adverse selection problems or career concerns could be fruitfully integrated into the model to arrive at a richer set of predictions regarding the consequences of a 'poor' governance quality for the level and structure of executive pay.

A second issue that arises quite naturally in this context are potential interactions among different regulatory measures and the governance structure of the firm. In our model, we take the governance structure as fixed and study the consequences of Say on Pay independent of the existing regulation. However, it seems natural to ask whether and how Say on Pay interacts with other regulatory reforms such as compensation disclosure rules or independence requirements of board and committee members and to study if these measures are complements or substitutes. Likewise, it is interesting to study to what extent the presence of Say on Pay and other regulatory measures renders it optimal for firms to adjust the composition of its board and/or committees (e.g. Göx 2016). Last but not least, it seems promising to provide a theoretical study of the relation between institutional investors and proxy advisors and their incentives to produce well informed recommendations for shareholder votes on Say on Pay proposals.

In terms of further empirical research, we believe there may be three fruitful avenues of research. The first is to develop more reliable ways to assess the ex ante effect of Say on Pay. After all, most of the action may occur prior to the vote and studies to date have only partially captured this possibility. The second is to investigate more directly potential side (non-compensation) effects of the Say on Pay regime. Does the threat of a highly publicized vote of no-confidence (as reflected in the Say on Pay vote) motivate boards and managers to perform better? The third is to exploit the variation in ‘shades’ of Say on Pay across countries with different institutional arrangements. Finally, and perhaps most importantly, we hope our review encourages empirical researchers to ground their work in the theory highlighted in Chapter 2 and Chapter 3, so as to develop more nuanced and powerful predictions that take into account the governance structure and other institutional arrangements.

## APPENDIX A

### Proofs

0.0.1. ***Proof of Proposition 1.*** With the simplified objective function in (2.7), the board's maximization problem can be expressed by the Lagrangian

$$(A.1) \quad L = (1 + l_2) \cdot \Pi(a) + (\delta + l_1) \cdot U(a),$$

where  $l_1$  and  $l_2$  are the Lagrangian multipliers for the agent's and the principal's participation constraints in (2.9) and (2.14), respectively. Using the fact that  $b = c'(a)$  from the agent's incentive constraint (2.10), the optimal solution must satisfy the following first-order conditions for the optimal choice of  $a$  and  $w$

$$(A.2) \quad \begin{aligned} (1 + l_2) \cdot [x'(a) - c'(a)] + (\delta + l_1 - 1 - l_2) \cdot a \cdot c''(a) &= 0 \\ \delta + l_1 - 1 - l_2 &= 0. \end{aligned}$$

Since only one of the two participation constraints can be binding, the program has two solutions. If  $\delta = \lambda/(1 - \lambda) \leq 1$ , the board's objective function is monotonically decreasing in  $w$ . Thus, the agent's participation constraint must be binding and it holds that  $w = c(a) - a \cdot c'(a)$ ,  $l_1 = 1 - \delta$ , and  $l_2 = 0$ . If  $\delta > 1$ , the board's objective function is monotonically increasing in  $w$ . Thus, the principal's participation constraint must be binding and it holds that  $w = x(a) - a \cdot c'(a)$ ,  $l_2 = \delta - 1$ , and  $l_1 = 0$ . In both cases, the optimal effort level satisfies  $x'(a) = c'(a)$ .

If the CEO's compensation is determined by Nash bargaining, the optimal contract maximizes the Nash product in (2.8). Considering the agent's

incentive constraint, and maximizing  $\ln(N(a))$  yields the first-order conditions for the optimal choice of  $a$  and  $w$

$$(A.3) \quad \begin{aligned} \lambda \cdot \Pi(a) \cdot U'(a) + (1 - \lambda) \cdot U(a) \cdot \Pi'(a) &= 0 \\ \lambda \cdot \Pi(a) - (1 - \lambda) \cdot U(a) &= 0. \end{aligned}$$

Solving these equations for  $w$  and  $a$  yields the first-best effort level and the salary in (2.13).

### Proof of Proposition 2

To solve the problem with the agent's limited liability constraint, note first that the agent's participation constraint in (2.9) cannot be binding because with a strictly concave cost function, the lease payment in (2.11) is strictly negative. Accordingly, the Lagrangian of the board's maximization problem takes the form

$$(A.4) \quad L = (1 + l_2) \cdot \Pi(a) + \delta \cdot U(a) + l_3 \cdot (w - \underline{w}),$$

where  $l_2$  and  $l_3$  are the Lagrangian multipliers for the principal's participation constraint and the limited liability constraint, respectively. The optimal choice of  $a$  and  $w$  must satisfy the first-order condition in (A.2) and

$$\delta + l_3 - 1 - l_2 = 0$$

This problem has two solutions. If  $\delta \leq 1$ , it holds that  $l_2 = 0$  and  $l_3 = 1 - \delta$ . The salary is determined by the limited liability constraint and the optimal bonus in (2.17) solves (A.2). If  $\delta > 1$ , the board implements the same contract as in *Proposition 1*. Clearly, this solution is only feasible if  $w = x(a) - a \cdot x'(a) \geq \underline{w}$  which we assume.

If the CEO's compensation is determined by Nash bargaining, the optimal bonus in (2.18) is determined by (A.3) as long as  $\lambda \cdot x(a) + (1 - \lambda) \cdot c(a) - a \cdot x'(a) \leq \underline{w}$ . Otherwise, the board implements the same contract as in *Proposition 1*.

### Proof of Proposition 7

Suppose that the shareholders can freely choose the composition of the board before the agent undertakes his search effort. To determine the optimal value of  $\delta$ , the shareholder's maximize their expected profit in 2.31 anticipating the equilibrium level  $a(\delta)$  implemented by the board at the contracting stage and the fact that the agent's optimal choice of  $e$  must maximize his expected utility in 2.32. The Lagrangian of the board's maximization problem takes the form

$$(A.5) \quad L = e \cdot \Pi(a(\delta)) + l \cdot (U(a(\delta)) - k'(e)),$$

where  $l$  is the Lagrangian multiplier for the incentive constraint regarding the agent's choice of  $e$ . The optimal choice of  $\delta$  and  $e$  must satisfy the incentive constraint and the first-order conditions

$$(A.6) \quad \Pi(a(\delta)) - l \cdot k''(e) = 0$$

$$(A.7) \quad [e \cdot \Pi'(a(\delta)) + l \cdot U'(a(\delta))] \cdot \frac{da}{d\delta} = 0,$$

where  $a(\delta)$  is defined by the first-order condition in (A.2) for the weighted utilities approach and by (A.3) if the bonus is determined by Nash bargaining.

Consider first the solution of the weighted utilities approach. Since  $\Pi(a(1)) = 0$ , it must be that  $\delta < 1$ . Using the fact that  $\Pi'(a(\delta)) = -\delta \cdot U'(a(\delta))$  for  $l_2 = 0$  from (A.2), condition (A.7) can be rewritten as

$$[l - e \cdot \delta] \cdot U'(a(\delta)) \cdot \frac{da}{d\delta}.$$

Since this expression is positive if  $\delta = 0$ , it must be that  $\delta \in (0, 1)$ . Solving (A.6) for  $l$  yields the expression in (2.33). The proof for the Nash bargaining case is similar but since  $\Pi(a(1)) > 0$ , the optimal value of  $\delta$  is positive but not necessarily smaller than 1.



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