

Executive Compensation and Corporate Performance Implications of a Regulatory Change

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Executive Compensation and Corporate Performance

Implications of a Regulatory Change

Abstract

One primary objective of executives' regulatory acts is to moderate CEOs' irresponsible behavior towards their shareholders, specifically, managerial monitoring with a severe personal cost to the executives, such as the 2002 Sarbanes-Oxley Act (SOX), intended to create an effective shield for the shareholders. However, it may also initiate a *paradox of regulation*. On the one hand, this important major regulatory act is implemented in the shareholders' best interest; on the other hand, it violates the shareowners' optimal equity-linked compensation level. The model demonstrates that following such a regulatory act, shareholders' respond to post-regulation managerial conservatism by increasing optimal managerial stock awards. The regulatory act's negative effect on managerial incentive is then alleviated by stock award increases. Nevertheless, post-regulation corporate performance depends on which effect is the most dominant.

We empirically examine these effects on US markets between 1992 and 2014. We observe a significant, fundamental long-term change in the composition of executive compensation schemes following the SOX Act, whilst acknowledging the crucial impact of the FAS 123R complementary regulatory act. While stock awards compensation significantly increases post SOX, we notice a significant decrease in the (convex) risk-taking inducing components, such as bonuses and stock options. At the same time, we find that post SOX corporate performance diminishes significantly. Specifically, the performance effect of the (FAS 123R adjusted) managerial equity compensation is significantly lower following the 2002 SOX Act.

Key Words: Executive Compensation, Corporate Performance, Agency Problem, Corporate Governance, CEO Characteristics, Sarbanes-Oxley Act, FAS 123R, Regulation

JEL classification: G28, G30, G32, G34, G35, G38, M48

Executive Compensation and Corporate Performance Implications of a Regulatory Change

1. Introduction and Literature Review

The Enron scandal of 2001 overwhelmed the US financial markets and refueled public debate and criticism regarding the challenge of aligning the interests of corporate shareholders and the top management. Among the fundamental regulatory responses to the vast public criticism, was the Sarbanes Oxley Act of 2002 (Cohen *et al.*, 2008). This congregational regulatory act dramatically strengthened CEO and CFO personal liability to the shareholders; its aim was to generate improved corporate information transparency. Later on in 2005, the FAS 123R accounting act reform fundamentally changed corporate costs recognition of executive stock options.¹ Carter *et al.* (2007) and Hayes *et al.* (2012) find that the FAS 123R had a substantial impact on the executive compensation composition. Nevertheless, we posit that a dramatic regulatory change, such as the Sarbanes Oxley Act of 2002, is *ex-ante* expected to have a real and crucial effect on the delicate relations between principal-agent interests' alignments (Jensen and Meckling, 1976; Grossman and Hart, 1983), executive compensation, and corporate performance.

It is important to clarify that we fully acknowledge the great importance of regulatory acts and their noble intentions to act in the best interests of the public. Nevertheless, this study demonstrates, both theoretically and empirically, the regulatory act *paradox* of the fundamental Sarbanes-Oxley Act of 2002 (henceforth, SOX). The paradox arises when

¹The FAS123R reform forces firms to acknowledge the costs of managerial option grants at their fair value rather than their naive value, when the latter is negligible.

a key regulatory act is myopically enforced in the best interests of the public, i.e., the shareholders. The analytical model shows that given the substantial personal costs incurred by SOX on executives, they are inclined to implement a more conservative-underinvestment policy for the corporation. The theoretical model demonstrates that in order to alleviate this underinvestment result for the owners, they initiate a fundamental change in the composition of the executive compensation scheme, e.g., by increasing the stock grants compensation. Therefore, following a major regulatory change with a severe personal cost to managers, we conjecture observing a gradual increase in the equity-linked compensation level. This, however, raises regulators' concerns, especially when the stock options compensation component, associated with high risk-taking, is already high. In light of this, it is not surprising that the regulator reacts with a complementary regulatory act, i.e., the FAS 123R, which diminishes the risk-taking concerns by reducing the use of bonuses and stock options.²

The answer to the question regarding corporate performance post the SOX regulatory change is derived from the tradeoff between the CEO's conservative behavior (generating a negative effect on performance) and the higher level of equity-linked compensation (generating a positive effect on performance). If the post-regulatory act's managerial conservatism effect dominates the higher compensation effect, then corporate performance diminishes. Hence, we observe a regulatory paradox—in spite of the regulatory act's resulting higher equity-linked compensation, economic performance declines. Thus, we aim

² While Chen *et al.* (2006) find a positive relation between option-based compensation and managerial risk-taking in the US banking industry, others claim that options compensation does not necessarily increase managerial risk-taking (Carpenter 2000; Ross, 2004). Shaw and Zhang (2010) imply that the cash bonus structure encourages risk taking. Still, there is a common perception that associates options compensation with excessive risk-taking.

to take into account managerial incentives, compensation and performance, since they all strongly interact with one another. *Equity-linked compensation* has been widely acknowledged as an incentivizing device of managers (e.g., Holmstrom and Tirole, 1993; Grinstein and Hribar, 2004; Dicks, 2012; Akron and Benninga, 2013). Hall and Liebman (1998) document a strong relation between compensation and performance, largely because of a sharp increase in the options compensation component. Core and Guay (1999) find that firms efficiently use option grants and restricted stocks to align interests with their shareholders. In a later article (Core and Guay, 2002), they estimate pay-for-performance sensitivity, and its relation to both stock price and stock return.

The interaction between governance performance and compensation plays an important role in the literature. For instance, Grinstein and Hribar (2004) show that following M&A deals, influential board executives can earn higher bonuses. Hermalin's (2005) theoretical analysis examines the effect of board governance on the CEO, and finds that board diligence has an impact on executive compensation. Chung (2008) concludes that the optimal *pay-for-performance* (PPS) should be smaller in the presence of board monitoring for a risk-averse CEO. Monitoring is measured using outside directors as a proxy for monitoring. Dicks, (2012) shows that internal regulation should lower agency costs and can diminish incentive pay. Li and Srinivasan (2011) analyze an interesting facet of the CEO as a founder, and find in such cases higher pay-for-performance sensitivity. A macro analysis of Bebchuk *et al.* (2013) on governance indices finds that post 1999 the governance impact on abnormal returns diminished, but that governance's negative relation with per-

formance pattern remained. Moreover, Kim and Lu (2011) study CEO ownership-corporate value-external governance relations. They find that CEO ownership and external governance measures are substitute factors that mitigate agency problems.

To empirically test the long horizon impact of SOX on compensation and performance, while controlling for other interaction factors such as financial leverage (Gao, 2010) and CEO characteristics, i.e., CEO age and tenure (e.g., Gibbons and Murphy, 1992), we use a long-horizon time window. We examine the period 1992-2014, which includes economic booms and busts, technological innovations, geo-political changes in the USA and globally, and various regulatory acts aimed at addressing financial markets and institutions. The long-horizon before and after the SOX regulatory act, allows for a more accurate estimation of the real effect of the incurred substantial personal cost on CEOs. In addition, we follow the study of Banker *et al.* (2013), which recognizes the importance of the disaggregation of compensation components into a detailed resolution. Thus, the researchers are able to distinguish between past and current effects on the different components of managerial incentive instruments.

The empirical findings confirm a significant fundamental change in the real executive compensation components post SOX. We notice a significant dramatic real decrease in option compensation and an increase in stock grants, even before the 2005 FAS123R. Both risk-taking components, i.e., bonuses and options, diminish substantially, partly as a result of the FAS123R, and partly because of shareholders' acknowledgement about these compensation components' disproportionate share in the compensation package. Specifically, regarding the effect on performance measured in terms of Tobin's Q, the empirical analysis shows that *i*) bonuses and equity-linked compensation significantly and positively

direct impact performance; *ii*) the SOX *per se* significantly explains negative performance; *iii*) the indirect impact of the SOX together with equity-linked compensation significantly further diminishes performance.

This paper proceeds as follows. In Section 2, we define our theoretical model and assumptions, results and predictions regarding the compensation components evolution post SOX, and the anticipated corporate performance. Section 3 presents the hypotheses and data, while Section 4 presents the empirical analysis and discussion. Finally, Section 5 concludes the paper.

2. The model

In light of the previous literature, and in order to examine the impact of regulatory acts with personal cost for CEOs on managerial performance throughout the equity-linked compensation scheme, we consider the following conceptual model (Figure 1). The diagram illustrates the impact of managerial compensation on the CEO's decision variables, while controlling for substantial exogenous variables and the firm's various characteristic controls. Then, the corporate value and performance are realized and determine the next period's executive compensation.

2.1. The model setting

The model considers the t^{th} period in the business activity of an all-equity firm. There is one commodity, which is used for both consumption and production. In correspondence with the core literature, we consider a competitive firm.³ The events time-line is presented in Figure 2.

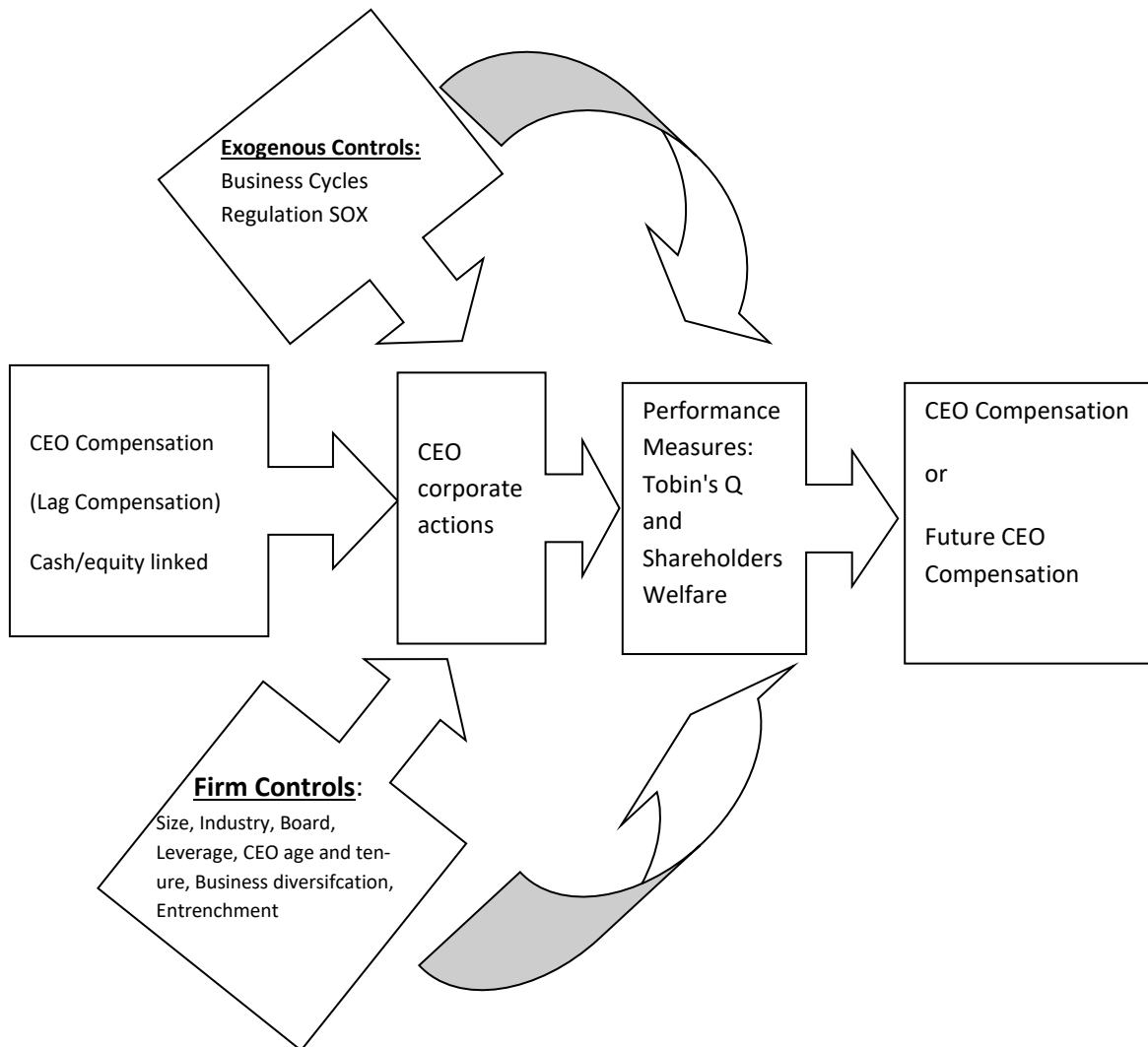


Figure1. Conceptual Model of the relations in the model's setting

³We can, however, extend the fundamental analysis to include the case of riskless firm debt and consider a non-competitive environment without any significant change in the model's essence.

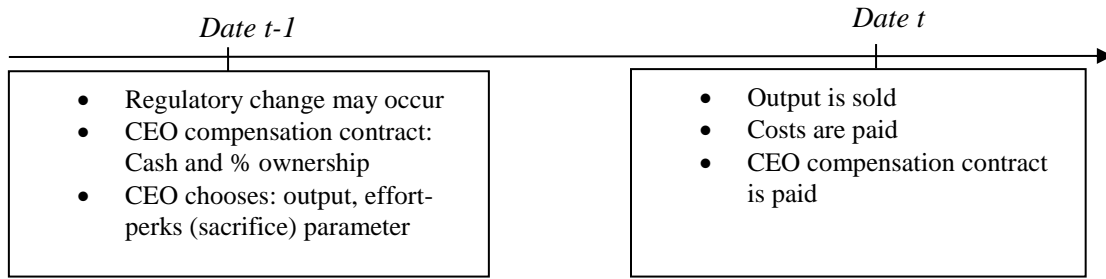


Figure 2. The Model Timeline of the representative period t

Without the loss of generality, we assume the following model setting. At date $t-1$, the manager observes the composition of her compensation contract, i.e., cash compensation, W , and an equity component in the form of ownership rate, α , out of the stochastic end of period corporate value, \tilde{V} .⁴ She then decides on the firm's fundamental parameters at date $t-1$. Hence, the manager chooses the firm's output level y , and her individual sacrifice or effort-perks level e . One source of exogenous uncertainty is the state-dependent commodity price \tilde{S} . Therefore, given the $N = 1, \dots, J$ states of date t , the firm's realized revenue in state j is given by $S_j y$ (with a respective state probability of π_j).

Following Akron and Benninga (2013), we assume that the firm's total costs - both production costs as well as managerial incentive-incurred costs - are not state dependent, and therefore are given by the following cost function:

$$C(y, e) = C_0 + C_1(y) + C_2(e), \quad (1)$$

⁴The theoretical model concentrates on wage and equity compensation, namely stock awards, to identify the potential equilibrium change post the regulation act. Full consideration to other parts of executive compensation, such as bonuses and options, is presented in the Empirical Analysis section.

where $C_0 > 0$ is a fixed cost, $C_1(y)$ is a convex cost function of the production level, and $C_2(e)$ is a convex function, which expresses the impact of the manager's effort on costs. Adding to the effort cost function a simple white noise factor $\tilde{\varepsilon}_e \sim (0, \sigma_\varepsilon^2)$ with zero covariance with the other stochastic variables: the spot price, \tilde{S} , $\widetilde{r e g}_1$, and $\widetilde{r e g}_2$, makes it non-verifiable. Hence, the entire cost function or the end of period corporate value is non-verifiable. Whereas the classical cost function reflects $C_1'(y) > 0$ and $C_1''(y) > 0$, we assume that the efforts impact on the cost function has the opposite properties: $C_2'(e) < 0$ and $C_2''(e) > 0$; and $C_2(e = 0) > 0$, where $\lim_{e \rightarrow \infty} [C_0 + C_2(e)] = C_0$. This means that the exerted managerial efforts decreasingly diminish costs up to a certain unavoidable level C_0 .

For simplicity, we assume risk neutrality towards state-dependent consumption for both shareholders and the manager.⁵ Therefore, the shareowners offer the manager a compensation contract, $\{W, \alpha\}$, which ex-ante maximizes their end of period corporate value, $(1 - \alpha) \cdot \tilde{V}$. The manager, on the other hand, maximizes her total expected utility from the following factors: the first, is her end of period state-dependent consumption, \tilde{c} , derived from the total executive compensation contract; the second is the subjective disutility resulting from her sacrifice or effort exerting, $D(e)$, as in Holström and Tirole (1993). The strictly convex disutility from effort function holds $D'(e) > 0$ and $D''(e) > 0$, to reflect the manager's increasing subjective disutility from her exerted efforts level, e . The third

⁵Considering the manager as risk averse will not change the core issue analysis of this study, i.e., the regulatory change and the managerial personal cost implications. Therefore, a managerial risk indifference assumption serves as a benchmark for managerial types and managerial risk aversion would only intensify the model's predictions.

factor expresses the impact of the regulatory change's personal cost on the manager's welfare, \widetilde{Reg} . This managerial disutility factor is crucial, as regulation acts, such as SOX, impose direct personal costs on executives, such as tenure termination as well possible personal litigation, i.e., personal fines and even imprisonment. We hence define the personal cost of the regulation function to the manager by:

$$\widetilde{Reg} = \widetilde{reg}_1 \cdot g(y) + \widetilde{reg}_2 \cdot h(e), \quad (2)$$

where:
$$\widetilde{reg}_1 = \begin{cases} 0 & ; P_1 \\ rc_1 & ; P_2 \end{cases} \quad \text{and} \quad \widetilde{reg}_2 = \begin{cases} 0 & ; P_1 \\ rc_2 & ; P_2 \end{cases}; \quad rc_1, rc_2 \in \mathbb{R}^{++}. \quad (3)$$

The functions, $g(y)$ and $h(e): \mathbb{R}^+ \rightarrow \mathbb{R}$, are monotonically non-decreasing functions of y and e , respectively, and P_2 is the probability of personal cost to the manager. For simplicity, define $g(y) = y$ and $h(e) = e$. We also assume that $Cov(\widetilde{reg}_1, \widetilde{reg}_2) = Cov(\tilde{S}, \widetilde{reg}_1) = Cov(\tilde{S}, \widetilde{reg}_2) = 0$. The manager's personal regulation cost function demonstrates the managerial acknowledgment that, following a major regulatory act, the manager is exposed to a regulation cost, depending on her decisions scale, meaning, on the levels of production and her efforts. We assume that monotonically increasing managerial decision variables incur a rising cost in the case of regulatory enforcement, regardless of corporate value exogenous realizations. The crux of this assumption is derived from both the financial and psychological disutility the manager would bear, in the case of regulatory enforcement. In other words, given a regulative enforcement scenario, the subjective disutility that the manager would endure, monotonically increases in the level of her subjective sacrifice or exerted efforts to the company. In addition, the executive's subjective cost might increase in the business scale of operational decision, e.g. the production level. The

latter assumption explains potential personal disutility implications resulting from managerial *empire state building* scenario, i.e., in light of personal regulation costs, mostly arbitrary from the managerial perspective.

Therefore, the manager's problem is given by:

$$\text{Max}_{\{y,e\}} E\{U(\tilde{c}) - D(e) - \widetilde{Reg}\} \quad (4)$$

s.t.

1. $U(\tilde{c}) = \tilde{c} = W + \alpha \cdot \tilde{V}$
2. $\widetilde{Reg} = \widetilde{reg}_1 \cdot y + \widetilde{reg}_2 \cdot e$
3. $\tilde{V} = \tilde{S} \cdot y - C(Y, e) - W$.

We start by solving the model in the absence of a regulatory act to get a benchmark solution for the impact of the regulation on the manager's decision variables.

2.2. The model benchmark solution before the fundamental act of regulation

In the absence of regulatory act implications, the impact of regulatory changes on the manager's welfare, \widetilde{Reg} , is omitted from equation (4). The manager hence solves:

$$\text{Max}_{\{y,e\}} E\{U(\tilde{c}) - D(e)\} \quad (5)$$

s.t.

1. $U(\tilde{c}) = \tilde{c} = W + \alpha \cdot \tilde{V}$
2. $\tilde{V} = \tilde{S} \cdot y - C(Y, e) - W$

The first order conditions of Equation (5) with respect to output, y , and exerted effort, e , are:

$$\frac{\partial \{ \}}{\partial y} = \alpha \cdot [E(\tilde{S}) - C'_1(y)] = 0 \quad (6)$$

$$\frac{\partial \{ \}}{\partial e} = \alpha \cdot [E(-C'_2(e))] - D'(e) = 0 \quad (7)$$

It is easy to see that the optimal solution for the manager would be to choose a quantity, $y_0^* > 0$, according the rule: $E(\tilde{S}) = C'_1(y)$ and to exert effort, $e_0^* > 0$, till the marginal utility from effort equals the marginal cost: $\alpha \cdot [E(-C'_2(e))] = D'(e)$.

Corollary 1: Note that the higher the equity-linked compensation level, α , is, the stronger the marginal utility (from effort) shift is to a higher level (at any level of effort). Hence, equity compensation effectively induces the manager to exert higher effort levels. Notate

Corollary 1 is as follows: $\frac{de^*(\alpha)}{d\alpha} > 0$.

We next analyze the impact of the post regulation act on the manager's decisions.

2.3. The impact of the regulation act's cost to the manager

In light of substantial regulatory acts, the manager is exposed to subjective costs diminishing her personal welfare. Hence, it is essential to consider the regulations cost function, \widetilde{Reg} , and to solve the model as it appears in equation (4). The first order conditions of Equation (4) with respect to output, y , and exerted effort, e , are:

$$\frac{\partial \{ \}}{\partial y} = \alpha \cdot [E(\tilde{S}) - C'_1(y) - E(\widetilde{reg}_1)] = 0 \quad (8)$$

$$\frac{\partial \{ \}}{\partial e} = \alpha \cdot [E(-C'_2(e))] - D'(e) - E(\widetilde{reg}_2) = 0 \quad (9)$$

Theorem 1: Following the regulatory act, the manager deviates downwards from the optimal production and diminishes her efforts.

Proof:

Following a fundamental regulatory act, the analysis of the optimal output, y , for the manager would incline her to choose a quantity, $y_1^* > 0$, lower than in the absence of the regulatory act case, $y_1^* < y_0^*$, according the rule: $E(\tilde{S}) = C'_1(y) + E(\widetilde{reg}_1)$. We can infer this

result from the analysis illustrated in Diagram 3. The diagram illustrates the benchmark situation of no substantial regulation costs, represented by the continuous marginal costs increasing line. Due to personal regulatory costs, the manager faces a higher marginal cost, which shifts the classical production marginal cost upwards into the dashed line. Thus, as a result of a major regulatory change the manager chooses a lower output level than is optimal for the firm owners.

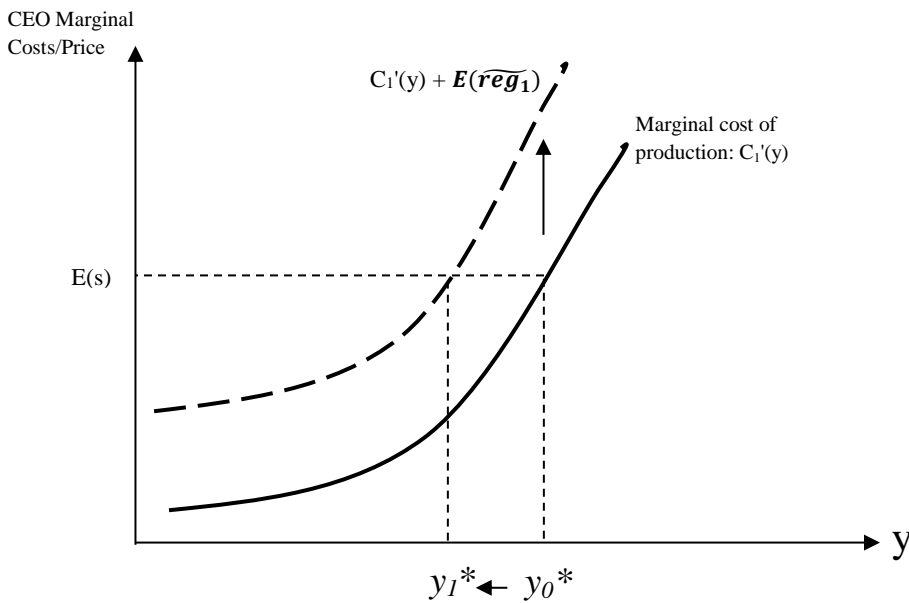


Diagram 3. The production agency following a fundamental regulatory act

The production marginal cost of regulation, $E(\overline{reg}_1)$, induces the manager to deviate from the pre-regulatory act production level, y_0 , downwards to y_1 . Hence, regulation with personal managerial cost may generate a production agency.

Furthermore, the substantial regulatory act incentivises the manager to diminish her exerted effort level, e , in comparison to the benchmark case, i.e., $e_1^* > 0$; $e_1^* < e_0^*$. To see this, examine the optimal effort rule: $\alpha \cdot [E(-C'_2(e))] = D'(e) + E(\overline{reg}_2)$. The left-hand expression, $\alpha \cdot [E(-C'_2(e))]$, represents the manager's positive diminishing marginal utility from effort exerting, i.e., the decreasing continuous line illustrated in Diagram 4. The first

component of the left-hand expression, $D'(e)$, illustrates the classical marginal cost of effort exerting, e.g., the increasing continuous line illustrated in Diagram 4. In addition, following a major regulatory act, the manager also suffers from the subjective marginal expected cost of effort exerting, $E(\widehat{r\bar{e}g_2}) > 0$. Hence, the actual marginal cost of effort shifts into the higher increasing dashed line illustrated in Diagram 4. This result is a diminished effort on the part of the manager in comparison to her efforts before the major regulatory act. ■

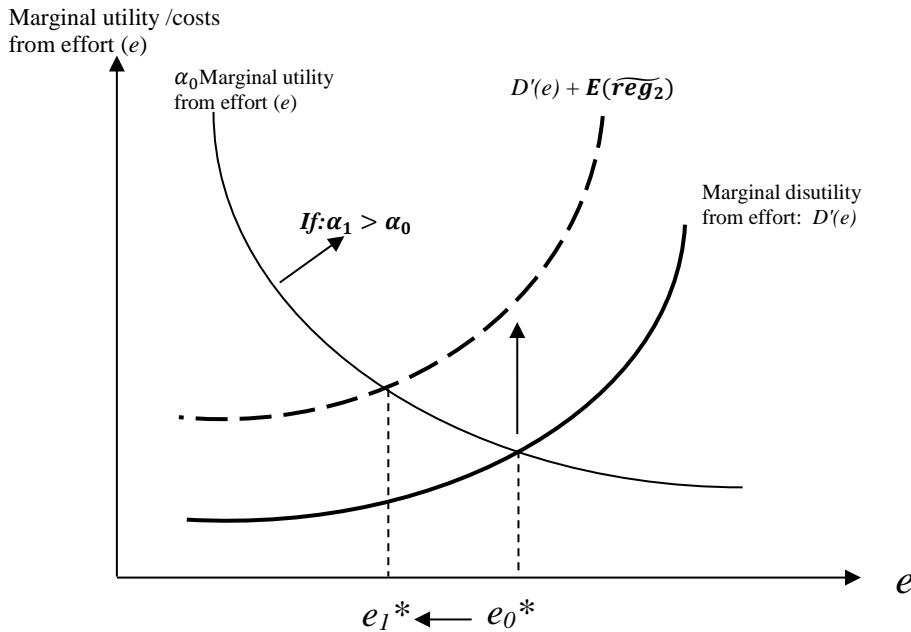


Diagram 4. The effort agency following a fundamental regulatory act

The marginal utility from effort (e) is represented by the decreasing curve at a constant level of percentage equity compensation, α_0 . Adding to the classical disutility from efforts, $D'(e)$, the marginal cost of regulation, $E(\widehat{r\bar{e}g_2})$, induces the manager to deviate from the pre-regulatory act's optimal effort level, e_0 , downwards to e_1 . Hence, regulation also generates an effort incentive agency.

Next, we examine the impact of regulation on the shareholders' optimal equity-linked compensation level and its implications.

Theorem 2: The fundamental regulatory occurrence with personal costs to the manager induces the shareholders to increase the equity-linked compensation level, α .

Proof:

While the regulatory act enforcement incurs a personal cost on the manager, it also shields the shareholders. Therefore, we integrate a regulation benefit function for the shareowners, \widetilde{RegB} , which has a zero covariance with the model's other stochastic variables. Assuming that the lump sum cash, W , reflects the competitive reservation wage for executives, then the shareholder's problem to determine the equity-linked compensation percentage, α , is given by:

$$Max_{\{\alpha\}} E\{(1 - \alpha) \cdot \tilde{V}(\alpha) + \widetilde{RegB}\} \quad (10)$$

s.t.

1. $\tilde{V}(\alpha) = \tilde{S} \cdot y - \tilde{C}(Y, e(\alpha)) - W$
2. $\widetilde{RegB} = \begin{cases} 0 & ; P_1 \\ r_b & ; P_2 \end{cases}, r_b \in \mathbb{R}^{++}$
3. $\tilde{C}(Y, e(\alpha)) = C_0 + C_1(y) + C_2(e(\alpha)) + \tilde{\varepsilon}_e$.

The first order conditions with respect to optimal compensation, α , are not different than in the absence of a regulatory act. To characterize it as a benchmark case, we first solve the case without a regulation act and get the optimum condition for the shareholders:

$$MC(\alpha) = \alpha \cdot E(\tilde{V}) = -(1 - \alpha) \cdot C'_2(e) \cdot \frac{de(\alpha)}{d\alpha} = MU(\alpha) \quad . \quad (11)$$

The left-hand side presents the shareholders' marginal cost of percentage managerial ownership, $MC(\alpha)$, and the right-hand side expresses the shareowners' marginal utility from the granted percentage managerial ownership, $MU(\alpha)$. The corporate expected value,

$E(\tilde{V})$, is monotonically increasing in α , as by *corollary 1*, $\frac{de^*(\alpha)}{d\alpha} > 0$. Hence, the shareholders' marginal cost of percentage managerial ownership, $MC(\alpha)$, is monotonically increasing in α . Similarly, we can see that $\{-C'_2(e)\}$ is monotonically decreasing in α ; hence, the shareowners' marginal utility form percentage managerial ownership is decreasing in α . We can illustrate these optimality conditions for the owners using Diagram 5. In the benchmark case before the regulative act, we find the shareholder's optimal percentage compensation in the intersection of the marginal cost of percentage managerial ownership and its marginal utility, i.e., at α_0 percentage of ownership level.

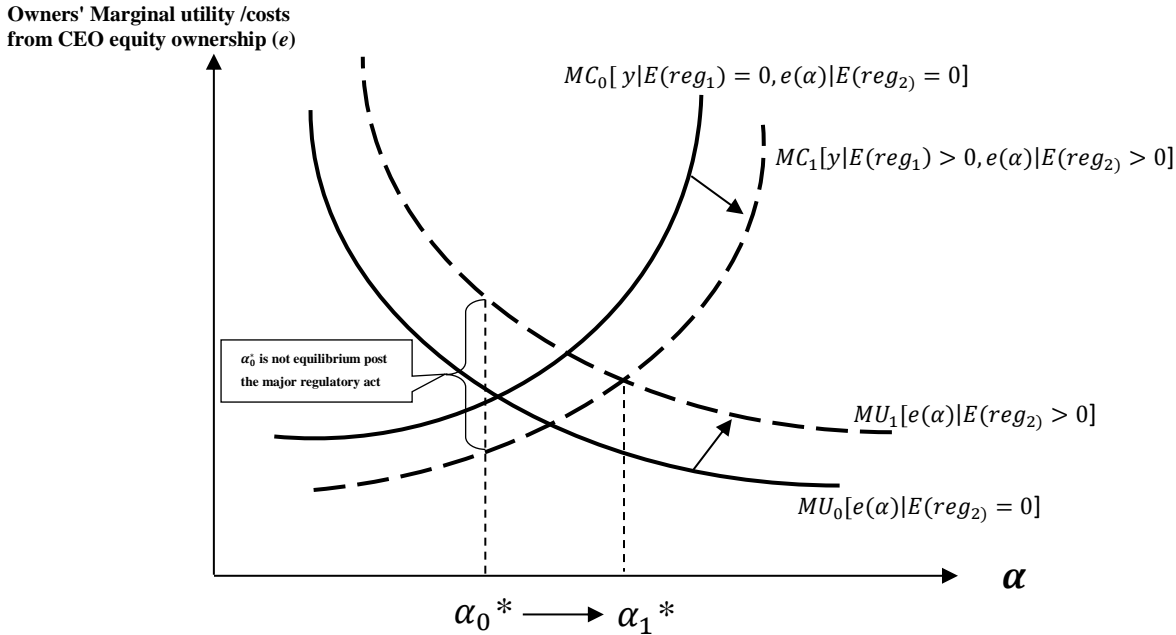


Diagram 5. Marginal utility and cost from CEO percentage ownership (α)

The regulatory act decreases the shareowners marginal cost of equity compensation and increases the marginal utility form incremental granting percentage managerial ownership. Therefore, following a major regulatory act the owners are expected to increase the equity-linked (stock awards) compensation level. The model illustrates that the regulatory change with a major personal cost to the manager would generate a fundamental change in the composition of the executive compensation scheme. It predicts that the stock awards level would increase following a regulatory change with a substantial managerial cost.

Remember that following a fundamental regulatory act, Theorem 1 suggests that at any level of managerial compensation, α , the manager diminishes her effort and product

choices. Therefore, at any α , the marginal utility of managerial percentage compensation increases, i.e., displaying an upward shift of MU_0 to MU_1 , while the marginal cost of managerial compensation decreases, i.e., displaying a downward shift of MC_0 to MC_1 . Thus, the former equity compensation level, α_0 , is no longer in a state of equilibrium, and in the new state of equilibrium the owners would tend to increase the equity-linked compensation level, α_1 . ■

We notice a *paradox of regulation*. On the one hand, we note that the major regulatory change has a positive expected value for shareowners, i.e., $E(\widetilde{RegB}) > 0$. On the other hand, the regulatory act indirectly decreases the marginal cost of equity-linked compensation for owners, and increases their marginal utility form, granting managerial ownership. This induces the owners to increase the stock awards compensation level, following a substantial regulatory act. As for other types of equity compensation schemes, i.e., convex bonuses or options-based compensation, the model's predictions regarding an increase should be more careful, as these compensation schemes may involve executives' undesirable and excessive risk-taking, compared to stock grants.

Corollary 2: A major regulatory change with a fundamental potential cost to the managers would generate a (long-term) modification in the composition of the managerial compensation scheme. According to the conducted analysis, we expect to see an increase in the yearly stock awards compensation. However, the theoretical model doesn't incorporate other specific components of equity or performance-based compensation, such as (convex) bonuses and stock options, which may have a positive and significant impact on managerial risk-taking, compared to that of stock grants. Nevertheless, with no further information

about the different compensation components, we expect to see an increase in all equity-linked compensation components after a major regulatory change.

Corollary 3: In spite of the higher equity compensation level post the regulative change, the final manager's effort level can be less, equal to or above the level noted during the pre-regulatory act period. Respectively, every outcome regarding the corporate performance measures, i.e., decrease, stability, or increase, is possible. The average performance depends on which effect has a stronger influence on firm value: the managerial regulation agency or the generated increase in the stock awards compensation level.

We can infer this outcome from a further analysis of Diagram 4. The increased equity linked-compensation level results in a shift (upwards and to the right) of the manager's marginal utility from efforts curve. Therefore, this equity-linked compensation increase raises the managers' effort level, until the owners reach the new equilibrium. However, it is still impossible to predict whether the final allocation of managerial efforts is less, equal to or above the manager's pre-regulatory change efforts level.

3. Hypotheses and Data

We start the empirical section by presenting the research hypotheses, with respect to the expected change in the managerial compensation package and performance, following the SOX. We continue by describing the data and sample construction, the mean differences of the variables of interest, and close by presenting the regression analysis.

3.1. Hypotheses

Following the theoretical analysis that discusses a dramatic regulative act with a personal cost for the CEO, we conjecture the following hypotheses:

H1: We expect to find an increase in the stock awards compensation level, following a fundamental regulatory change with personal cost to the manager. Other compensation component analyses, i.e., bonuses and stock options, are less clear, as they include high-risk-taking components, unlike stock grants.

H2: CEOs' post regulatory costs potentially creates incentive and underinvestment problems. The shareowners are expected to react by increasing CEOs' stock award levels, in order to prevent corporate performance deterioration. However, if the managerial personal regulatory cost effect is stronger than the positive corporate value incentive effect following the anticipated increase in the equity level, then corporate performance will decrease.

H3: The manager, being the head of the board and/or serving as a member the board, may positively impact the different executive compensation components.

H4: Managers' age and tenure should be perceived as important controls of both compensation and performance level post the regulatory change. As these variables may be associated with managerial risk taking, i.e., positively with regard to long tenure, and risk aversion, i.e., and positively with regard to age, they might have an impact on performance measures post the substantial regulation act.

3.2. Data and variables

We cover the entire period of 1992-2014 using the WRDS database. Executive compensation data from the EXECUCOMP database, accounting data from COMPUSTAT, and stock return data are from CRSP databases. The EXECUCOMP derived panel data set for the entire economy contained 29,867 firm-year observations, where the reported manager was the tenured CEO for the entire or most of the indicated fiscal year (Flagged CEO variable in EXECUCOMP). At the same time, whereas we present the full period descriptive statistics for the entire sample in Table 1, we acknowledge that it is crucial to concentrate the regression analysis in the non-financial and utilities firms in Table 2. This acceptable refined sample methodology is essential as, in addition to the SOX of 2002, the US financial firms passed two specific additional major industry regulations: the Gramm Leach Bliley Act of 1991 and the Dodd Frank Act of 2010; and utilities firms' financial characteristics, i.e., financial leverage, fundamentally differ from other sectors. These two fundamental financial sector regulations were different than the SOX in both their essence and as regards their potential impact on managerial compensation and performance. Therefore, our long-term analysis of the managerial personal regulation cost of the 2002 SOX on executive compensation and performance necessitates the financial and utilities firms' exclusion from the general sample.

[**Insert Table 1 about here**]

[**Insert Table 2 about here**]

Tables 1 and 2 present full descriptions of the used variables and their descriptive statistics (number of observations, mean, media, standard deviation, minimum and maximum) of All Firms and Non-financial and Utilities Firms, respectively. After excluding the financial and Utilities firms from the entire sample, we are left with 25,222 firm-year observations for the non-financial US firms. The considered variables in Tables 1 and 2 can be categorized into three main groups: 1) compensation component variables; 2) managerial characteristics variables, including CEO board interaction; and 3) firm characteristic controls. All of the fiscal variables (in \$USD thousands) are adjusted to 2002 prices (using a consumer price index deflator - CPI).

1) Compensation Variables:

Motivated by Banker *et al.* (2013), one of the unique analyses of the current study is the amplified resolution of the different components of managerial compensation, beyond the analysis of the aggregate acceptable compensation measures. We therefore examine the following:

SALARY: The dollar value of the base salary (cash and non-cash) earned by the named executive officer during the fiscal year. The salary component is often referred to as a manager's *reservation wage*.

BONUS: The dollar value of a bonus (cash and non-cash) earned by the named executive officer during the fiscal year. The bonus compensation rewards the executives for a very short performance horizon. Hence, this compensation component may induce managers to utilize earnings management and risk-taking policies.

TDC: SALARY+ BONUS (appears in EXECUCOMP as: TOTAL_CURR).

TDC1: Total compensation for the individual year, comprised of the following: Salary, Bonus, Other Annual, Total Value of Restricted Stock Granted, Total Value of Stock Options Granted (using Black-Scholes), Long-Term Incentive Payouts, and All Other

TDC2: Total compensation for the individual year comprised of the following: Salary, Bonus, Other Annual, Total Value of Restricted Stock Granted, Net Value of Stock Options Exercised, Long-Term Incentive Payouts, and All Other

Another important distinction taken into account in this study is the adaptation of the EXECUCOMP database's long-term inspection of the FAS 123R (December 2005) regulatory reporting reform of the executive compensation components. To adjust the reporting change of stock awards and stock options to the FAS 123R, we created the aggregate variables: Stock_compensation and Option_compensation, which were further aggregated into the Equity_compensation variable. These variables are extremely important when it comes to correctly reflecting the long horizon trends of the different compensation variables - each with its respective incentive, risk-taking and performance implications.

2) *Executive and governance controls:*

CEO Age: Age of the executive, as reported in the annual proxy statement as well as *Short and long career concerns* are two factors that influence managerial behavior and firms' compensation policies. Gibbons and Murphy (1992) show that the older the CEOs are, the more firms increase their equity-linked compensation. Therefore, we consider *CEO age* as

a control for the manager's horizon problem. Moreover, a CEO's age may also be associated with her reputation, career horizon perspective, and risk attitude characteristics, as pointed out by Bulmash (2010, 2012).

CEO Tenure: Tenure may be associated with CEOs' risk appetite, reputation and wealth (Chava et al., 2010). *CEO Tenure* is measured as the time gap between the observed fiscal year-end and the day the executive became CEO, following Brookman and Thistle (2009), Bulmash (2010, 2012) and Bulmash and Sah (2013).

EXEDIR: Dummy variable that controls for the CEO's board of directors attendance in the observed fiscal year. *EXEDIR* equals 1 if the manager served on the board. This important governance variable may shed light on the manager's opportunities to influence her different compensation components.

3) *Firm Characteristics:*

SALES and *SALESCHG*: Sales and the year-to-year percentage change in sales, respectively. The sales change may shed light on the average yearly performance; the sales variable serves as an important scaling variable.

AT and *ASSETCHG*: Total assets and the year-to-year percentage in sales, respectively. The assets change may shed light on the average yearly performance; the total assets variable serves as an important scaling variable.

Cash measures: *CHE*: Hall and Liebman (1998) identify the corporate cash balances as a generator of substitution between cash payments (i.e., salary and bonus) and equity compensation components. With respect to performance, this variable may also indicate a source of agency for managers. In addition to the absolute cash measure, *CHE*, we control using *Cash_Adj* for size-adjusted corporate cash balances (the ratio of cash and short-term investment over the firm's total assets). For similar reasons, we also examine the firm's free cash flow: *FCF*.

R&D or *R&D change*: This managerial decision variable may express managerial long-term business decisions that reflect risk-taking incentives. In addition to the absolute cash measure, *R&D*, we control for Size measure and compute: *R&D_Adj*, the Sales-adjusted R&D expenses (the ratio of R&D over the firm's Sales). For similar reasons, we also examine the firm's capital expenditures: *CAPX*.

Firm Size is represented by *MVE*: According to Baker and Hall (2004), firm size is found to be a significant generator of executive incentives. To control for this corporate size effect, we consider *firm size* as the natural logarithm of the firm's equity market value, *MVE*.

Leverage ratio: The relation of leverage ratio (the book-value ratio of long-term debt over total assets) to managerial incentive, executive risk-taking and corporate value is well documented in the financial economics literature, starting with the seminal papers of Modigliani and Miller (1958). On the one hand, aligning interests with the shareholders would require managers to increase debt and business risk. On the other hand, such leverage would result in an increase of debt cost capital and bankruptcy risks. Many studies such

as that of John and John (1993) propose a negative relation between leverage and executive incentive and performance.

Market-to-Book ratio (M/B): While high growth opportunities are desirable for firm owners, this often imposes difficulties for the shareholders in regard to evaluating managerial decisions and their derived corporate performance (Yermack, 1995). The implicit implication would be to expect a higher level of equity-linked compensation for high growth opportunities, measured by the M/B ratio.

Tobin's Q or TQ: In line with the literature, i.e., Bebchuk *et al.* (2013), we use *Tobin's Q* as our main dependent variable to measure corporate performance over long horizons. *Tobin's Q* is computed as the market value of assets to their book value.

ROE or ROA and the firm's stock return, TRSIYR: Studies, such as those of Core and Guay (1999); Banker *et al.* (2013); and Shaw and Zhang (2010), document the increasing use of performance-based and equity-linked compensation, with respect to both past and contemporaneous performance measures, i.e., accounting (*ROE, ROA*) and stock-based (past stock returns to the shareholders, *TRSIYR*). In light of Banker *et al.*'s (2013) results, we expect lagged accounting-based performance measures to have a negative impact on bonuses and equity-linked compensation. In other words, these short-term performance measures are exposed to managerial manipulations, i.e., earnings management, and thus might be perceived as generating short-term managerial risk taking. In contrast, stock return is perceived as a measure of past and contemporaneous performance, when it is less subjected to managerial manipulations. We therefore expect to observe a positive impact of stock returns on bonuses and stock-linked compensation. While *ROE* or *ROA* are the standard

return on equity or assets, respectively, we follow Sloan (1993) and examine the annual stock return for shareholders at the end of the fiscal year.

Firm total risk or *BS_VOLATILITY*: Following Banker and Datar (1989) and Gao (2010), we examine the interaction between providing incentives and risk sharing between executives and shareholders. Volatility of returns is used to estimate for stock price performance, unrelated to managerial compensation. The firm's risk is computed from the CRSP using the stock return standard deviation, based on the firm's monthly returns of the past 5 years (see Gao, 2010).

Earnings, Price to Earnings ratio *PE* or *PE change* and *PEG* ratio (equal to $[PE]$ divided by EPS_Growth): are all measures of short-term performance, often publicly related in the assessment of managerial compensation and corporate performance.

4. Empirical Analysis and Discussion

Analysis of the compensation variables (price-adjusted to the prices of 2002) in Tables 1 and 2 show that, over the entire research period (1992-2014), the All Firms sample average bonus is larger by about USD \$52,000 than that of the Non-Financial and Utilities Firms sample. We also notice a similarity in the entire sample's average total compensation (TDC1) and average option exercise effect (TDC2). Conversely, the entire sample's equity

compensation (stock grants and options) is lower by about USD \$70,000 (see the Equity_comp. difference between Tables 1 and 2), compared with the Non-Financial and Utilities Firms sample.

While there are no substantial differences in the managerial type and governance variables between the All Firms Sample and the Non-Financial and Utilities Firms' sample, we observe a substantially higher average total assets and their market value (AT and similar MVA, respectively) of about USD \$7,404,000, higher average cash balances (CHE) of USD \$846,000, and a higher leverage (leverage ratio) of 0.01, compared to the Non-Financial and Utilities Firms sample. In addition, the equity market to book ratio (M_B_Equity) in the Non-Financial and Utilities firms is higher by 0.38, and its average Tobin's Q ratio performance measure (TQ) is higher by 0.16, in comparison to the All Firms sample.

Next, we extend the descriptive analysis presented in Tables 1 and 2, according to a horizon division of the period before (1992-2002, SOX=0) and after the SOX Act (2003-2014, SOX=1). The results are presented for the All Firms sample and the Non-Financial and Utilities Firms in Tables 3 and 4, respectively. In addition, a visual description of the average yearly executive compensation components, i.e., salary, bonus, stock grants, stock options, and total equity compensation (the sum of stock grants and stock options) over the sample period (1992-2014) is presented in Figure 3, with respect to the SOX of 2002 and the FAS 123R of 2005. Figure 3 shows a dramatic decrease in the stock options value after the *2001-2002 bubble burst* and SOX. Aligned with the theoretical model conjecture even after the FAS 123R drop adjustment in the level of stock option the level of stock grants compensation continuously and monotonically increases.

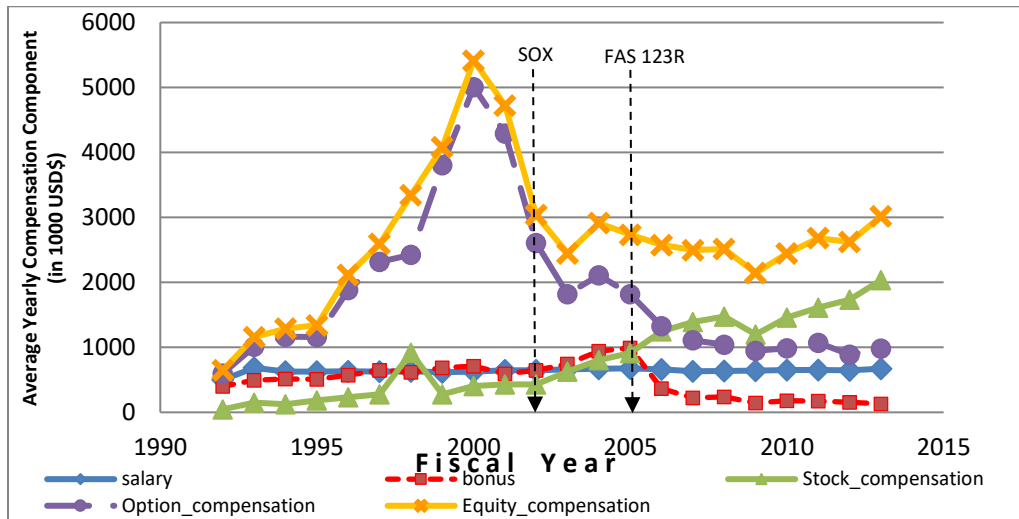


Figure 3. Real (2002 Prices adjusted) Yearly Average Compensation Components (2002 Prices adjusted) US 1992-2014

4.1. Descriptive Statistics and mean difference t- test before vs. after the SOX

In addition to each variable's descriptive statistics by SOX periods, we present, in the most-right hand columns of the tables, its size change, sign change, and the *p-value* significance level of the different variables' mean difference procedure (located in the last five right-hand columns of Tables 3 and 4) before versus after the SOX. The results for the Non-Financial and Utilities Firms show that, in the period after the SOX, there was a significant increase of USD \$19,250 in the SALARY component (in the All Firms sample, there was an increase of USD \$7,420); and a significant substantial decrease of USD \$232,370 in the BONUS variable (in the All Firms sample, there was a decrease of USD \$285,340). While in the All Firms sample, the total compensation variable (TDC1) decreases insignificantly (USD \$136,810), it insignificantly increases (USD \$102,680) in the

Non-Financial and Utilities sample post SOX. In both samples post SOX, we see a dramatic increase in the TDC2, in spite of the high drop in the yearly average exercise of stock options, i.e., USD \$1,835,220 in the Non-Financial and Utilities sample (and an increase of USD \$1,673,860 in the All Firms sample). However, a more careful inspection of the equity components shows that the aggregate *Stock_compensation* variable (long-term adjusted to FAS 123R reporting) significantly increases post SOX. The yearly average CEO stock awards compensation shows a significant increase of USD \$971,090 in the Non-Financial and Utilities Firms (and in the All Firms sample an increase of USD \$993,520). As for the executive stock options compensation, we notice that the aggregate *Option_compensation* variable (long-term adjusted to FAS 123R reporting) significantly diminishes post SOX. The yearly average CEO option awards compensation in the Non-Financial and Utilities Firms post SOX shows a decrease of USD \$1,428,990 (the All Firms sample shows a decrease of USD \$1,397,900).

[**Insert Table 3 about here**]

[**Insert Table 4 about here**]

Hence, we identify that the ongoing public criticism against certain excessive compensation components that induce managerial risk-taking at the shareholders' expense, i.e., bonuses and stock options, was realized in a fundamental change in the compensation schemes. While the shareholders acknowledge that they should increase the level of managerial stock awards compensation to align interests with their executives post SOX, they

simultaneously reduce the high risk-inducing, short performance-based - bonus compensation, and the long horizon - option awards compensation.

Managerial type controls indicate an insignificant decrease in managerial AGE, and a significant decrease of executives' Tenure and presence on the board, post SOX (in the Non-Financial and Utilities Firms sample). At the same time, it seems that financial performance variables post SOX, i.e., sales change or assets change, are negative and statistically significant. We identify a significant increase in the yearly average cash holdings (USD \$382,880 for the Non-Financial and Utilities Firms and USD \$727,810 for the All Firms sample), as well as in the yearly average free cash flows (USD \$196,570 for the Non-Financial and Utilities Firms and USD \$335,150 for the All Firms sample). This finding could be interpreted as a conservative managerial response to SOX-generated personal costs by creating cash flow sources of hedging opportunities (Disatnik *et al.*, 2013). While the yearly average absolute R&D change increased post SOX, its yearly sales adjusted average insignificantly decreased (-0.04 for the Non-Financial and Utilities Firms and -0.03 for the All Firms sample).

As for the business activity risk indicator, we observe that the financial leverage ratio significantly decreased post SOX (-0.02 for the Non-Financial and Utilities Firms sample and -0.01 for the All Firms sample). Moreover, our main corporate performance variable, Tobin's Q, shows a statistically significant decrease after the SOX Act of 2002 (-0.34 for the Non-Financial and Utilities Firms sample and -0.30 for the All Firms sample). Part of these performance results may be associated with the US recession of 2007-2009; therefore, we include a control variable for the state of the economy in the Regression Analysis section.

We next analyze the described regulatory act compensation and performance relations using regression analysis.

4.2. Regression Analysis

Given the importance of the incentive differences of the various compensation components, Salary, Bonus, and the aggregate Equity Compensation, we run the following set of compensation component regressions:

$$\ln(\text{Salary}) = \alpha_0 + \alpha_1 \text{ROE}_{it-1} + \alpha_2 \text{ROE}_{it} + \alpha_3 \text{RET}_{it-1} + \alpha_4 \text{RET}_{it} + \alpha_5 \ln(\text{MVE})_{it-1} + \alpha_6 \text{Cash}_{it-1} + \alpha_7 \text{Leverage}_{it-1} + \alpha_8 \text{M/B}_{it-1} + \alpha_9 \text{SOX} + \alpha_{10} \text{Crisis} + \alpha_{11} \text{Age}_{it} + \alpha_{12} \text{Tenure}_{it} + \alpha_{13} \text{EXEDIR} + \text{Industry Dummy} \text{ or Firm Fixed Effects} + e_{it} \quad (\text{R1})$$

$$\ln(\text{Bonus}) = \beta_0 + \beta_1 \text{ROE}_{it-1} + \beta_2 \text{ROE}_{it} + \beta_3 \text{RET}_{it-1} + \beta_4 \text{RET}_{it} + \beta_5 \ln(\text{MVE})_{it-1} + \beta_6 \text{Cash}_{it-1} + \beta_7 \text{Leverage}_{it-1} + \beta_8 \text{M/B}_{it-1} + \beta_9 \text{SOX} + \beta_{10} \text{Crisis} + \beta_{11} \text{Age}_{it} + \beta_{12} \text{Tenure}_{it} + \beta_{13} \text{EXEDIR} + \text{Industry Dummy} \text{ or Firm Fixed Effects} + e_{it} \quad (\text{R2})$$

$$\ln(\text{Equity_compensation}) = \gamma_0 + \gamma_1 \text{ROE}_{it-1} + \gamma_2 \text{ROE}_{it} + \gamma_3 \text{RET}_{it-1} + \gamma_4 \text{RET}_{it} + \gamma_5 \ln(\text{MVE})_{it-1} + \gamma_6 \text{Cash}_{it-1} + \gamma_7 \text{Leverage}_{it-1} + \gamma_8 \text{M/B}_{it-1} + \gamma_9 \text{SOX} + \gamma_{10} \text{Crisis} + \gamma_{11} \text{Age}_{it} + \gamma_{12} \text{Tenure}_{it} + \gamma_{13} \text{EXEDIR} + \text{Industry Dummy} \text{ or Firm Fixed Effects} + e_{it} \quad (\text{R3})$$

We measure each regression using three accepted models: the standard OLS where, in this case, we also control for economic crisis impact using the Crisis variable, and two additional panel regressions in which one controls *fixed effect of year and firm identity* and the other controls *fixed effects of year and Fama and French (1997) 48 industries*.

In order to estimate corporate performance over time, with respect to the SOX regulation act and its implication on compensation and performance, we use the following equation for the Tobin's Q corporate performance measure:

$$\begin{aligned}
\text{Tobin's_}Q_{it} = & \delta_0 + \delta_1 \ln(\text{Salary}_{it-1}) + \delta_2 \ln(\text{Bonus}_{it-1}) + \delta_3 \ln(\text{Equity_Comp}_{it-1}) + \delta_4 \ln(\text{Salary}_{it-1}) \\
& \times \text{SOX} + \delta_5 \ln(\text{Bonus}_{it-1}) \times \text{SOX} + \delta_6 \ln(\text{Equity_Comp}_{it-1}) \times \text{SOX} + \delta_7 \ln(\text{MVE})_{it-1} + \delta_8 \text{Leverage}_{it-1} \\
& + \delta_9 \text{SOX} + \delta_{10} \text{Crisis} + \delta_{11} \text{R\&D}_{it-1} + \delta_{12} \text{Age}_{it} + \delta_{13} \text{Tenure}_{it} + \delta_{14} \text{EXEDIR} + \text{Industry Dummy} \text{ or} \\
& \text{FirmFixed Effects} + e_{it}
\end{aligned} \tag{R4}$$

To alleviate endogeneity concerns, we estimate equations (R1), (R2), (R3) and (R4) simultaneously as a system in Seemingly Unrelated linear equations. The problem of the limited number of observations available for estimation, together with the potential for omitted variables, suggests the use of a Seemingly Unrelated Regression (SUR), (Griffiths et al., 1993). Changes in board size across firms, the proportion of inside directors on boards, CEO ability, etc. may be correlated; therefore, we estimate the models using Zellner's (1962) Seemingly Unrelated Regression (SUR) technique. This technique allows for contemporaneous covariances of residuals across equations, and provides unbiased standard errors for the t-tests on the parameters. With SUR, if the impact of an omitted variable is consistent across a set of regressions, thus the model estimators is improved by the incorporation of information captured by the covariance of the error terms across the set of regressions.⁶ The SUR method requires an initial OLS regression to compute residuals; the OLS residuals are then used to estimate the cross-equation covariance matrix. We hence use the system estimation without the fixed effects with the control, Crisis, to control for the state of the economy.

⁶ Furthermore, using the SUR technique allows us to correct concerns over correlation of the error terms. The SUR method assumes that all the regressors are independent variables, but uses the correlation among the errors in different equations to improve the regression estimates. The error terms are assumed to be serially independent, but they are allowed to be cross-sectionally dependent. SUR, therefore, allows for interdependence among the firms. The SUR method requires an initial OLS regression to compute residuals; the OLS residuals are then used to estimate the cross-equation covariance matrix.

The estimation results of the compensation components' regression equations, Salary (R1), Bonus (R2), and Equity compensation (R3), are presented in Table 5, Table 6, and Table 7, respectively.

[**Insert Table 5 about here**]

[**Insert Table 6 about here**]

[**Insert Table 7 about here**]

The regression estimated through fixed-effects of firm identity and year had the highest R-squared (and adjusted R-squared). While the Salary variable analyzed in Table 5 is not affected by ROE, it is significantly and positively influenced by the concurrent stock return. The firm size effect on Salary is significantly positive, and we confirm former studies' findings about the negative substitution between size adjusted firm cash and managerial Salary. The impact of the SOX on Salary compensation was significant and positive (in the OLS and Firm fixed-effect models). The Age of the executive has a positive impact on her cash compensation in the OLS and industry-fixed effect models. In agreement with our hypothesis, the presence of the CEO on the board has a positive and highly significant impact on her Salary compensation.

Bonus compensation analysis, presented in Table 6, on the other hand, is significantly and negatively affected by the lagged ROE. In line with former findings, Bonus compensation is also significantly and positively related to the concurrent stock return. As in the case of Salary, we identify the negative substitution between size-adjusted firm cash and managerial Bonus. The SOX's impact on Bonus compensation was significantly negative, and we notice that the positive, significant impact of the CEO being a director on her bonus diminished in the Firm and Industry fixed-effect models.

Aggregate equity compensation analysis (adjusted to the FAS 123R reporting figures reform) is presented in Table 7. Equity compensation is significantly and negatively influenced by the lagged ROE, and significantly and positively related to the concurrent stock return. Equity compensation significantly increases with firm size, and the SOX's effect on equity compensation is highly significant and positive in all the models. In the case of equity compensation, we also notice a significantly negative impact of manager's age and tenure. This coincides with managerial risk-taking incentives and the personal cost incurred on managers post SOX. Not surprisingly, the attendance of executives on boards has a highly significant and positive impact on their equity compensation. Finally, while the Crisis impact on short-term compensation, i.e., Salary and Bonus, is significantly negative, it is significantly positive on equity compensation. This finding illustrates the substitution of short vs. longer horizon compensation components in times of crisis.

The performance measure analysis of Tobin's Q is presented in Table 8.

[**Insert Table 8 about here**]

The analysis demonstrates that the general long-term impact of Salary on performance is significantly negative, while Bonus effect on performance is partially significantly positive. Moreover, we notice a highly significant and positive (in all models) impact of equity compensation on performance, as corporate finance theory implies. The SOX variable's direct impact *per-se* on performance is significantly negative. However, in an indirect way, the SOX seems to significantly increase Salary's impact on performance. The SOX's direct negative impact on corporate performance is vastly amplified indirectly, through the highly significant and negative Equity Compensation interaction with the SOX (in all models). This finding expresses the *paradox of regulation* discussed in the Theoretical Analysis

section. It seems that the severe personal price executives undertake post SOX dominates the increase in equity compensation, which tries to compensate as a managerial incentive mechanism post SOX. The relative diminishment in the yearly average risk, inducing bonuses and stock options, only enhances this general trend.

Finally, we note that corporate performance is significantly and positive influenced by firm size and, in agreement with the literature, significantly and negatively affected by the leverage ratio (in all models). Likewise, the long-term analysis shows that impact of *managers' age* on corporate performance is significantly negative and in relation to manager's tenure significantly positive. Estimating the equations as a SUR system for robustness checks against endogeneity concerns doesn't substantially change the above analysis. The results are presented in Table 9.

[**Insert Table 9 about here**]

5. Conclusions

In this paper, we present a long horizon study of a major regulatory act (the SOX of 2002) with a personal cost to executives, which is strongly associated with the FAS 123R 2005 regulatory act. We suggest this long horizon observation properly reflects the existing crucial implications on executive compensation components, as well as managerial and corporate performance. The theoretical model shows a potential *paradox of regulation*. There is no doubt that the intention of the SOX 2002 regulation was to operate in the best interests of the public and to shield shareholders against managerial agencies. However, due to the acute personal cost for the manager, we anticipate a sharp increase in the stock awards

level, intended to serve as incentives to CEOs to diminish their conservative behavior. In terms of corporate performance, we cannot overrule that this stock grant increase does not offset the diminished managerial incentives agency—hence, resulting in a decrease in overall performance. We conclude that post SOX 2002 the regulator anticipates the necessity to increase the equity linked compensation components, hence motivating CEO to deviate from conservative decisions. In order to cope with concerns regarding high risk-taking compensation component, e.g., stock options, the regulator initiates a complementary accounting regulatory act, i.e., the FAS 123R. This complementary regulatory act's result further amplifies the necessity to increase managerial incentive using a stock grants component.

The empirical analysis conducted on Non-financial and Utilities firms confirms most of our hypotheses. We notice an ongoing real increase in the equity linked compensation in the decade following the SOX Act of 2002. The impact of the FAS 123R generates a decrease in option compensation, but obliges shareholders to dramatically and continuously increase stock awards compensation. Aligned with agency theory, equity compensation's impact on performance is found to be positive and highly significant. Interestingly, in addition to the SOX's *per se* significantly negative effect on performance, the interaction of the SOX with total equity compensation also significantly lowers corporate performance. Hence, we also empirically confirm our theoretical long-horizon prediction regarding the *paradox of regulation* resulting from the great personal cost to executives. The implications of this study for regulators is dramatic. The study demonstrates that the long-term analysis implications of compensation and performance are crucial for the success of regulatory changes with fundamental costs to the CEO. Failing to acknowledge

these implications could result in sub-optimum allocations that would drag the entire economy into a recession.

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Tables

Table 1: All Firms Sample Descriptive Statistics 1992-2014 (Entire period)

Table 1 presents the detailed depiction and descriptive statistics for the 1992-2014 All Firms sample variables. The ExecuComp, Compustat and CRSP variables can be categorized into three main groups: 1) compensation components variables: Salary, Bonus, acceptable aggregate compensation sizes (i.e., TDC1, TDC2), stock awards and option awards and their equity aggregation. Special attention is given to long-run aggregate compensation variables that were adjusted to the FAS 123 R reporting reform (starting December 2005); 2) managerial characteristics and governance variables including Age, Tenure and CEO board interaction; and 3) firm characteristic controls: accounting or accounting reporting derived performance and risk measures, market-based performance and risk measures, and firm size measures. All the dollar-value variables (USD\$ in thousands) are adjusted to 2002 prices (denoted by: pa) using the consumer price index deflator (CPI).

Variable	Description	N	Mean	Median	Std Dev	Minimum	Maximum
Compensation Characteristics							
salary_pa	Lump Sum cash	33,441	649.42	599.78	351.20	0.00	7,026.75
bonus_pa	Short term performance based compensation	33,441	525.45	106.96	1,584.44	0.00	116,980.78
TDC_pa	Salary+Bonus	33,441	1,174.87	796.39	1,706.94	0.00	117,478.00
TDC1_pa	Total yearly compensation where the options are: granted options in their B&S Fair Value	33,270	4,606.22	2,503.56	9,615.22	0.00	723,221.32
TDC2_pa	Total yearly compensation where the options are: exercised options in their exercise value	33,400	4,909.83	2,069.84	20,879.49	0.00	2,548,185.31
RSTKGRNT_pa	Stock Awards before FASB123 in day of grant values	18,942	509.26	0.00	5,579.09	0.00	718,106.02
STOCK_AWARDS_FV_pa	Stock Awards adjusted to FASB123 in day of grant values	14,479	1,558.47	584.91	2,919.04	0.00	105,544.44
Shown_excl_opts_pa	Value of Total Shares Owned when Options are Excluded	32,429	2,329.75	227.71	25,287.35	0.00	1,377,614.64
OPTION_AWARDS_BLK_VALUE_p	Option Awards before FASB123 in day of grant values B&S Fair Value	18,817	2,380.94	630.09	9,307.06	0.00	627,122.84
OPTION_AWARDS_FV_pa	Options Granted adjusted to FASB123 in day of grant values Fair Value	14,468	948.05	95.63	2,446.36	0.00	72,527.51
Stock_compensation_1_pa	Fasb123 adj Stock Awards: (RSTKGRNT_pa+STOCK_AWARDS_FV_pa)	33,441	963.24	0.00	4,646.53	0.00	718,106.02
Option_compensation_1_pa	Fasb123 adj Option Awards: (OPTION_AWARDS_BLK_VALUE_pa-OPTION_AWARDS_FV_pa)	33,441	1,749.91	412.74	7,200.40	0.00	627,122.84
Equity_compensation_1_pa	Fasb123 adj Stock and Option Awards: (Stock_compensation_1_pa+Option_compensation_1_pa)	33,441	2,713.14	1,022.55	8,688.79	0.00	718,106.02
Managerial Characteristics							
AGE	Executive's Age	33,441	55.44	55.00	7.36	27.00	96.00
Tenure	Executive's Tenure	33,441	8.19	6.00	7.30	1.00	62.00
EXECDIR	A dummy that equals 1 in case the Executive served as a director during the fiscal year	33,441	0.98	1.00	0.14	0.00	1.00
Financial, Performance, and Risk Characteristics							
Sale_pa	Sales 1 Year	33,284	4,873.46	1,175.67	14,582.49	-3,673.40	360,749.06
SALECHG	Sales 1 Year Percentage Change	33,176	15.74	7.71	228.71	-482.51	37,891.30
AT_pa	Total Assets	33,302	13,098.65	1,594.77	75,619.96	0.00	2,657,482.51
ASSETCHG	Assets 1 Year Percentage Change	33,268	135.79	6.65	21,926.06	-99.43	3,999,199.81
CHE_pa	Cash and Short-Term Investments	33,295	1,375.48	109.98	10,724.08	-0.77	466,300.53
Cash_Adj	Cash and Short-Term Investments adjusted by Total Assets	33,295	0.14	0.07	0.17	0.00	1.00
CAPX_pa	Capital Expenditures	32,244	301.22	45.46	1,154.55	-276.64	36,569.99
FCF_pa	Free Cash Flow	32,460	87.08	18.32	7,308.78	-219,970.03	442,381.28
Earnings_pa	Earning	33,441	479.13	81.62	2,490.92	-82,692.65	102,149.01
RnD_pa	Research and Development (R&D) Expenditures	33,441	93.00	0.00	480.81	0.00	11,908.88
RnD_Sales	Research and Development (R&D) adjusted by Sales	33,229	0.12	0.00	3.20	0.00	305.40
MVE_pa	Market value of Equity	32,996	6,527.01	1,377.88	20,942.62	0.00	548,843.31
MVA_pa	Market Value of Assets	32,994	17,257.92	2,664.21	81,338.75	-2.72	2,750,782.69
Leverage	Leverage	32,859	0.16	0.13	0.16	0.00	0.96
M_B_Equity	Market value of Equity to Equity Book Value	32,992	3.44	2.11	53.74	-1,256.25	6,600.23
TQ	Tobin's Q	32,994	1.97	1.46	2.29	-0.99	147.35
TRS1YR	1 Yr Return to Shareholders (Div Reinv)	32,707	73.30	10.86	3,781.84	-99.40	531,566.66
ROA	Return on Assets	32,403	0.12	0.12	0.30	-32.00	1.39
ROE	Return on Equity	33,296	0.08	0.11	9.38	-790.61	1,156.00

Table 2: The Non-Financial /Utilities Firms Sample Descriptive Statistics 1992-2014 (Entire period)

Table 2 presents the detailed depiction and descriptive statistics for the 1992-2014 Non-financial/Utilities Firms variables. The ExecuComp, Compustat and CRSP variables can be categorized into three main groups: 1) compensation components variables: Salary, Bonus, acceptable aggregate compensation sizes (TDC1, TDC2), stock awards and option awards and their equity aggregation. Special attention is given to long-run aggregate compensation variables that were adjusted to the FAS 123R reporting reform (starting December 2005); 2) managerial characteristics and governance variables including Age, Tenure and CEO board interaction; and 3) firm characteristic controls: accounting or accounting reporting derived performance and risk measures, market-based performance and risk measures, and firm size measures. All the dollar-value variables (USD\$ in thousands) are adjusted to 2002 prices (denoted by: pa) using the consumer price index deflator (CPI).

Variable	Description	N	Mean	Median	Std Dev	Minimum	Maximum
Compensation Characteristics							
salary_pa	Lump Sum cash	26,614	645.02	587.59	361.56	0.00	7,026.75
bonus_pa	Short term performance based compensation	26,614	473.04	95.21	1,293.51	0.00	64,300.26
TDC_pa	Salary+Bonus	26,614	1,118.05	781.77	1,451.16	0.00	65,114.97
TDC1_pa	Total yearly compensation where the options are: granted options in their B&S Fair Value	26,479	4,591.57	2,494.38	10,105.22	0.00	723,221.32
TDC2_pa	Total yearly compensation where the options are: exercised options in their exercise value	26,577	4,889.56	1,999.86	22,879.38	0.00	2,548,185.31
RSTKGRNT_pa	Stock Awards before FASB123 in day of grant values	15,393	467.59	0.00	6,082.37	0.00	718,106.02
STOCK_AWARDS_FV_pa	Stock Awards adjusted to FASB123 in day of grant values	11,202	1,527.81	549.76	2,802.25	0.00	62,919.17
Shown_excl_opts_pa	Value of Total Shares Owned when Options are Excluded	25,843	2,593.48	228.68	28,069.79	0.00	1,377,614.64
OPTION_AWARDS_BLK_VALUE_pa	Option Awards before FASB123 in day of grant values B&S Fair Value	15,298	2,490.42	670.59	9,942.92	0.00	627,122.84
OPTION_AWARDS_FV_pa	Options Granted adjusted to FASB123 in day of grant values Fair Value	11,196	1,042.25	254.10	2,592.23	0.00	72,527.51
Stock_compensation_1_pa	Fasb123 adj Stock Awards: (RSTKGRNT_pa+STOCK_AWARDS_FV_pa)	26,614	913.51	0.00	4,997.62	0.00	718,106.02
Option_compensation_1_pa	Fasb123 adj Option Awards: (OPTION_AWARDS_BLK_VALUE_pa+OPTION_AWARDS_FV_pa)	26,614	1,869.97	487.83	7,757.39	0.00	627,122.84
Equity_compensation_1_pa	Fasb123 adj Stock and Option Awards: (Stock_compensation_1_pa+Option_compensation_1_pa)	26,614	2,783.48	1,057.23	9,331.45	0.00	718,106.02
Managerial Characteristics							
AGE	Executive's Age	26,614	55.28	55.00	7.50	27.00	96.00
Tenure	Executive's Tenure	26,614	8.26	6.00	7.46	1.00	62.00
EXECDIR	A dummy that equals 1 in case the Executive served as a director during the fiscal year	26,614	0.98	1.00	0.14	0.00	1.00
Financial, Performance, and Risk Characteristics							
Sale_pa	Sales 1 Year	26,485	4,871.73	1,137.32	15,364.38	0.00	360,749.06
SALECHG	Sales 1 Year Percentage Change	26,400	15.15	8.06	87.55	-100.00	6,001.53
AT_pa	Total Assets	26,496	5,694.62	1,120.52	22,757.92	0.00	714,557.71
ASSETCHG	Assets 1 Year Percentage Change	26,470	16.27	6.71	81.71	-99.43	6,389.02
CHE_pa	Cash and Short-Term Investments	26,489	529.15	92.88	2,377.81	-0.16	70,301.25
Cash_Adj	Cash and Short-Term Investments adjusted by Total Assets	26,489	0.15	0.09	0.18	0.00	1.00
CAPX_pa	Capital Expenditures	26,323	310.61	48.04	1,242.12	-276.64	36,569.99
FCF_pa	Free Cash Flow	26,466	155.51	19.74	1,529.75	-45,568.12	56,660.70
Earnings_pa	Earning	26,614	369.30	65.63	1,708.42	-57,415.48	40,666.67
RnD_pa	Research and Development (R&D) Expenditures	26,614	116.67	1.57	536.40	0.00	11,908.88
RnD_Sales	Research and Development (R&D) adjusted by Sales	26,442	0.15	0.00	3.58	0.00	305.40
MVE_pa	Market value of Equity	26,254	6,438.48	1,194.34	21,906.52	0.00	548,843.31
MVA_pa	Market Value of Assets	26,253	10,132.14	1,943.58	35,230.92	0.07	976,938.45
Leverage	Leverage	26,154	0.15	0.12	0.15	0.00	0.88
M_B_Equity	Market value of Equity to Equity Book Value	26,251	3.82	2.29	59.67	-996.93	6,600.23
TQ	Tobin's Q	26,253	2.13	1.61	2.43	0.35	147.35
TRS1YR	1 Yr Return to Shareholders (Div Reinv)	26,020	79.62	10.42	4,091.64	-99.40	531,566.66
ROA	Return on Assets	26,426	0.13	0.14	0.33	-32.00	1.39
ROE	Return on Equity	26,493	0.08	0.11	10.49	-790.61	1,156.00

Table 3: All Firms Sample Descriptive Statistics before SOX (1992-2002) and after SOX (2003-2014) and their Mean Difference T-tests

Table 3 presents the detailed depiction and descriptive statistics for All Firms sample variables according to a period division of the variables before SOX (1992-2002) and after SOX (2003-2014). The ExecuComp, Compustat and CRSP variables can be categorized into three main groups: 1) compensation components variables: Salary, Bonus, acceptable aggregate compensation sizes (i.e., TDC1, TDC2), stock awards and option awards and their equity aggregation. Special attention is given to long-run aggregate compensation variables that were adjusted to the FAS 123R reporting reform (starting December 2005); 2) managerial characteristics and governance variables including Age, Tenure and CEO board interaction; and 3) the firm characteristic controls: accounting or accounting reporting derived performance and risk measures, market-based performance and risk measures, and firm size measures. All the dollar-value variables (USD\$, in thousands) are adjusted to 2002 prices (denoted by: pa) using the consumer price index deflator (CPI). We can observe the regulatory change of the FAS 123R's implications on the ExecuComp stock and options variables. For instance, the Stock_Awards and Option_Awards exist only after 2002, and gradually replace RSTKGRNT (restricted stock grants) and OPTION_AWARDS_FV (option awards at their market value), respectively. This recognition is crucial when considering a long-run horizon aggregate variable for stock awards (Stock_Compensation) and option awards (Option_Compensation) before and after SOX, and furthermore to correctly calculate an aggregate equity compensation variable (Equity_Compensation). In addition, in the last five columns of the table we present the before SOX (1992-2002) versus after SOX (2003-2014) mean difference t-tests for each of the considered variables. We present the p-values of the t-test as well as a summary of the post SOX change size, direction and significance level. The notations ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Before SOX (sox=0) 1992-2002						After SOX (sox=1) 2003-2014						Pr > t		Mean	SOX	
	N	Mean	Median	Std Dev	Minimum	Maximum	N	Mean	Median	Std Dev	Minimum	Maximum	Equal (Var)	Unequal (Var)	Difference	Sig.	chan.
Compensation Characteristics																	
salary_pa	13,943	645.09	585.48	352.14	0.00	5,378.80	19,498	652.51	609.89	350.50	0.00	7,026.75	0.06	0.06	7.42	*	-
bonus_pa	13,943	691.82	350.00	1,749.39	0.00	116,980.78	19,498	406.48	0.00	1,443.40	0.00	64,300.26	<0.001	<0.001	-285.34	***	-
TDC_pa	13,943	1,336.91	954.40	1,874.94	0.00	117,478.00	19,498	1,058.99	729.95	1,565.66	0.00	65,114.97	<0.001	<0.001	-277.92	***	-
TDC1_pa	13,858	4,686.05	2,100.12	13,211.24	0.00	723,221.32	19,412	4,549.24	2,847.99	5,818.22	0.00	123,019.06	0.20	0.25	-136.81	-	-
TDC2_pa	13,943	3,934.73	1,477.09	14,040.24	0.00	737,612.80	19,457	5,608.59	2,650.72	24,615.97	0.00	2,548,185.31	<0.001	<0.001	1,673.86	***	+
RSTKGRNT_pa	13,943	383.96	0.00	6,300.09	0.00	718,106.02	4,999	858.76	0.00	2,659.78	0.00	73,068.13	<0.001	<0.001	474.80	***	+
STOCK_AWARDS_FV_pa	0	-	-	-	-	-	14,479	1,558.47	584.91	2,919.04	0.00	105,544.44	-	-	Post FASB123	-	-
Shown_excl_opts_pa	13,380	2,466.87	220.18	25,045.10	0.00	1,377,614.64	19,049	2,233.43	232.97	25,456.35	0.00	1,230,028.64	0.41	0.41	-233.44	-	-
OPTION_AWARDS_BLK_VALUE_pa	13,858	2,580.69	619.82	10,575.04	0.00	627,122.84	4,959	1,822.74	660.81	3,969.49	0.00	113,736.69	<0.001	<0.001	-757.95	***	-
OPTION_AWARDS_FV_pa	0	-	-	-	-	-	14,468	948.05	95.63	2,446.36	0.00	72,527.51	-	-	Post FASB123	+	-
Stock_compensation_1_pa	13,943	383.96	0.00	6,300.09	0.00	718,106.02	19,498	1,377.48	363.14	2,869.86	0.00	105,544.44	<0.001	<0.001	993.52	***	+
Option_compensation_1_pa	13,943	2,564.96	609.03	10,544.67	0.00	627,122.84	19,498	1,167.06	259.00	2,932.15	0.00	113,736.69	<0.001	<0.001	-1,397.90	***	-
Equity_compensation_1_pa	13,943	2,948.92	752.30	12,447.14	0.00	718,106.02	19,498	2,544.54	1,254.88	4,315.92	0.00	113,736.69	<0.001	0.00	-404.38	***	-
Managerial Characteristics																	
AGE	13,943	55.38	55.00	7.51	28.00	88.00	19,498	55.48	55.00	7.25	27.00	96.00	0.21	0.21	0.10	-	-
Tenure	13,943	8.24	6.00	7.54	1.00	55.00	19,498	8.15	6.00	7.13	1.00	62.00	0.26	0.27	-0.09	-	-
EXECDIR	13,943	1.00	1.00	0.05	0.00	1.00	19,498	0.97	1.00	0.18	0.00	1.00	<0.001	<0.001	-0.03	***	-
Financial Performance and Risk Characteristics																	
Sale_pa	13,908	4,337.54	1,171.37	11,701.22	0.00	218,529.00	19,376	5,258.15	1,179.11	16,329.83	-3,673.40	360,749.06	<0.001	<0.001	920.61	***	+
SALECHG	13,881	18.67	8.80	88.64	-100.00	6,001.53	19,295	13.64	7.08	290.30	-482.51	37,891.30	0.05	0.02	-5.03	**	-
AT_pa	13,916	10,318.91	1,377.93	42,776.05	3.60	1,097,190.00	19,386	15,094.05	1,778.54	92,197.96	0.00	2,657,482.51	<0.001	<0.001	4,775.14	***	+
ASSETCHG	13,917	22.15	8.21	109.75	-89.95	6,389.02	19,351	217.51	5.81	28,748.85	-99.43	3,999,199.81	0.42	0.34	195.36	+	-
CHE_pa	13,911	951.76	72.27	6,001.42	-0.77	154,811.00	19,384	1,679.57	147.21	13,094.89	0.00	466,500.53	<0.001	<0.001	727.81	***	+
Cash_Adj	13,911	0.12	0.05	0.17	0.00	0.95	19,384	0.16	0.09	0.17	0.00	1.00	<0.001	<0.001	0.04	***	+
CAPX_pa	12,988	313.85	58.24	1,186.48	0.00	36,569.99	19,256	292.70	37.53	1,132.46	-276.64	29,328.22	0.11	0.11	-21.15	-	-
FCF_pa	13,176	-112.03	6.97	3,113.73	-126,223.78	23,924.00	19,284	223.12	29.56	9,124.08	-219,970.03	442,381.28	<0.001	<0.001	335.15	***	+
Earnings_pa	13,943	414.84	77.87	1,950.08	-57,415.48	47,693.07	19,498	525.11	84.99	2,813.80	-82,692.65	102,149.01	<0.001	<0.001	110.27	***	+
RnD_pa	13,943	36.94	0.00	442.08	0.00	10,205.63	19,498	97.33	0.00	506.65	0.00	11,908.88	0.05	0.05	10.39	*	+
RnD_Sales	13,896	0.14	0.00	3.53	0.00	299.30	19,333	0.11	0.00	2.94	0.00	305.40	0.35	0.36	-0.03	-	-
MVE_pa	13,884	6,241.55	1,268.77	21,138.71	0.16	548,843.31	19,112	6,734.39	1,460.28	20,797.11	0.00	490,839.55	0.03	0.04	492.84	**	+
MVA_pa	13,884	14,709.28	2,374.17	52,030.84	2.08	1,251,339.91	19,110	19,109.58	2,867.89	97,200.74	-2.72	2,750,782.69	<0.001	<0.001	4,400.30	***	+
Leverage	13,827	0.17	0.14	0.16	0.00	0.93	19,032	0.16	0.12	0.16	0.00	0.96	<0.001	<0.001	-0.01	***	-
M_B_Equity	13,883	3.83	2.25	59.97	-876.94	6,600.23	19,109	3.15	2.03	48.73	-1,256.25	5,603.07	0.25	0.27	-0.68	-	-
TQ	13,884	2.14	1.48	2.85	0.40	105.09	19,110	1.84	1.45	1.75	-0.99	147.35	<0.001	<0.001	-0.30	***	-
TR51YR	13,758	21.45	8.00	260.33	-99.13	24,828.66	18,949	110.95	12.87	4,963.31	-99.40	531,566.66	0.03	0.01	89.50	**	+
ROA	13,725	0.13	0.13	0.13	-2.53	0.97	18,678	0.11	0.12	0.38	-32.00	1.39	<0.001	<0.001	-0.02	***	-
ROE	13,915	0.08	0.12	5.75	-240.62	579.28	19,381	0.07	0.11	11.29	-790.61	1,156.00	0.98	0.98	-0.01	-	-

Table 4: The Non-Financial /Utilities Firms Sample Descriptive Statistics before SOX (1992-2002) and after SOX (2003-2014) and their mean difference T-tests

Table 4 presents the detailed depiction and descriptive statistics for The Non-Financial /Utilities Firms sample variables according to a period division of the variables before SOX (1992-2002) and after SOX (2003-2014). The ExecuComp, Compustat and CRSP variables can be categorized into three main groups: 1) compensation components variables: Salary, Bonus, acceptable aggregate compensation sizes (i.e., TDC1, TDC2), stock awards and option awards and their equity aggregation. Special attention is given to long-run aggregate compensation variables that were adjusted to the FAS 123R reporting reform (starting December 2005); 2) the managerial characteristics and governance variables including Age, Tenure and CEO board interaction; and 3) the firm characteristic controls: accounting or accounting reporting derived performance and risk measures, market-based performance and risk measures, and firm size measures. All the dollar-value variables (USD\$ in thousands) are adjusted to 2002 prices (denoted by: pa) using the consumer price index deflator (CPI). We can observe the regulatory change of FAS 123R's implications on ExecuComp stock and options variables. For instance, the Stock_Awards and Option_Awards exist only after 2002 and gradually replace RSTKGRNT (restricted stock grants) and OPTION_AWARDS_FV (option awards at their market value), respectively. This recognition is crucial when considering a long-run horizon aggregate variable for stock awards (Stock_Compensation) and option awards (Option_Compensation) before and after SOX, and furthermore to correctly calculate an aggregate equity compensation variable (Equity_Compensation). In addition, in the last five columns of the table we present the before SOX (1992-2002) versus after SOX (2003-2014) mean difference t-tests for each of the considered variables. We present the p-values of the t-test as well as a summary of the post SOX change size, direction and significance levels. The notations ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Before SOX (sox=0) 1992-2002						After SOX (sox=1) 2003-2014						Pr > t		Mean	SOX		
	N	Mean	Median	Std Dev	Minimum	Maximum	N	Mean	Median	Std Dev	Minimum	Maximum	Equal (Var)	Unequal (Var)	Difference	Sig.	chan.	
Compensation Characteristics																		
salary_pa	11,344	633.97	566.84	363.29	0.00	5,378.80	15,270	653.22	605.80	360.05	0.00	7,026.75	<.0001	<.0001	19.25	***	-	
bonus_pa	11,344	606.36	331.02	1,080.48	0.00	44,207.72	15,270	373.99	0.00	1,423.36	0.00	64,300.26	<.0001	<.0001	-232.37	***	-	
TDC_pa	11,344	1,240.33	913.85	1,284.92	0.00	44,207.72	15,270	1,027.22	721.26	1,557.10	0.00	65,114.97	<.0001	<.0001	-213.11	***	-	
TDC1_pa	11,276	4,650.53	2,081.90	13,932.65	0.00	723,221.32	15,203	4,547.85	2,888.63	5,820.73	0.00	123,019.06	0.41	0.46	-102.68	-	-	
TDC2_pa	11,344	3,837.67	1,402.24	14,817.87	0.00	737,612.80	15,233	5,672.89	2,611.97	27,356.33	0.00	2,548,185.31	<.0001	<.0001	1,835.22	***	+	
RSTKGRNT_pa	11,344	356.34	0.00	6,923.02	0.00	718,106.02	4,049	779.27	0.00	2,497.43	0.00	73,068.13	<.0001	0.00	422.93	***	+	
STOCK_AWARDS_FV_pa	0						11,202	1,527.81	549.76	2,802.25	0.00	62,919.17			Post FASB123		-	
Shown_excl_opts_pa	10,900	2,734.94	231.86	27,603.06	0.00	1,377,614.64	14,943	2,490.29	226.65	28,405.87	0.00	1,230,028.64	0.49	0.49	-244.65	-	-	
OPTION_AWARDS_BLK_VALUE_pa	11,276	2,706.09	650.43	11,311.69	0.00	627,122.84	4,022	1,885.79	753.22	4,100.45	0.00	113,736.69	<.0001	<.0001	-820.30	***	-	
OPTION_AWARDS_FV_pa	0						11,196	1,042.25	254.10	2,592.23	0.00	72,527.51			Post FASB123		+	
Stock_compensation_1_pa	11,344	356.34	0.00	6,923.02	0.00	718,106.02	15,270	1,327.43	302.85	2,743.24	0.00	73,068.13	<.0001	<.0001	971.09	***	+	
Option_compensation_1_pa	11,344	2,689.87	638.77	11,279.67	0.00	627,122.84	15,270	1,260.88	379.46	3,081.86	0.00	113,736.69	<.0001	<.0001	-1,428.99	***	-	
Equity_compensation_1_pa	11,344	3,046.21	767.50	13,367.01	0.00	718,106.02	15,270	2,588.30	1,320.64	4,352.46	0.00	113,736.69	<.0001	0.00	-457.91	***	-	
Managerial Characteristics																		
AGE	11,344	55.20	55.00	7.77	28.00	88.00	15,270	55.34	55.00	7.29	27.00	96.00	0.13	0.14	0.14		+	
Tenure	11,344	8.36	8.00	7.73	1.00	55.00	15,270	8.19	6.00	7.25	1.00	62.00	0.06	0.06	-0.17	*	-	
EXECDIR	11,344	1.00	1.00	0.05	0.00	1.00	15,270	0.97	1.00	0.17	0.00	1.00	<.0001	<.0001	-0.03	***	-	
Financial Performance, and Risk Characteristics																		
Sale_pa	11,320	4,224.42	1,055.76	12,290.61	0.00	218,529.00	15,165	5,354.91	1,201.86	17,291.18	0.00	360,749.06	<.0001	<.0001	1,130.49	***	+	
SALECHG	11,300	19.38	8.86	96.45	-100.00	6,001.53	15,100	11.98	7.60	80.10	-100.00	5,809.39	<.0001	<.0001	-7.40	***	-	
AT_pa	11,325	4,866.86	978.39	19,067.19	3.60	575,244.00	15,171	6,312.53	1,263.38	25,145.44	0.00	714,557.71	<.0001	<.0001	1,445.67	***	+	
ASSETCHG	11,327	23.33	8.34	117.83	-87.86	6,389.02	15,143	10.98	5.85	34.91	-89.43	858.95	<.0001	<.0001	-12.35	***	-	
CHE_pa	11,320	309.89	59.60	1,279.34	-0.16	38,652.00	15,169	692.77	129.65	2,930.80	0.00	70,301.25	<.0001	<.0001	382.88	***	+	
Cash_Adj	11,320	0.13	0.05	0.17	0.00	0.95	15,169	0.17	0.11	0.18	0.00	1.00	<.0001	<.0001	0.04	***	+	
CAPX_pa	11,170	317.42	55.26	1,255.34	0.00	36,569.99	15,153	305.60	43.36	1,232.30	-276.64	29,328.22	0.11	0.11	-11.82	-	-	
FCF_pa	11,306	-42.92	6.74	1,189.96	-32,461.00	20,514.90	15,160	239.49	32.44	1,735.79	-45,568.12	56,680.70	<.0001	<.0001	196.57	***	+	
Earnings_pa	11,344	297.96	60.08	1,473.20	-57,415.48	55,155.43	15,270	422.29	70.30	1,862.33	-24,619.65	40,666.67	<.0001	<.0001	124.33	***	+	
RnD_pa	11,344	106.75	1.43	487.96	0.00	10,205.63	15,270	124.03	1.62	569.63	0.00	11,908.88	0.01	0.01	17.28	***	+	
RnD_Sales	11,311	0.17	0.00	3.91	0.00	299.30	15,131	0.13	0.00	3.32	0.00	305.40	0.41	0.43	-0.04	-	-	
MVE_pa	11,296	6,142.92	1,083.60	22,185.20	0.16	548,843.31	14,958	6,661.67	1,297.32	21,691.77	0.00	490,839.55	0.06	0.06	518.75	*	+	
MVA_pa	11,296	9,421.09	1,758.72	33,178.64	2.08	940,388.96	14,957	10,669.15	2,107.96	36,696.85	0.07	976,938.45	0.00	0.00	1,248.06	***	+	
Leverage	11,257	0.16	0.12	0.15	0.00	0.86	14,897	0.14	0.11	0.15	0.00	0.88	<.0001	<.0001	-0.02	***	-	
M_B_Equity	11,295	4.19	2.41	66.45	-876.94	6,600.23	14,956	3.53	2.20	53.99	-996.93	5,603.07	0.38	0.39	-0.66	-	-	
TQ	11,296	2.32	1.64	2.97	0.40	105.09	14,957	1.98	1.59	1.92	0.35	147.35	<.0001	<.0001	-0.34	***	-	
TR51YR	11,192	-22.46	6.89	287.92	-99.12	24,828.66	14,828	122.76	13.10	5,414.04	-99.40	531,566.66	0.05	0.02	100.30	*	+	
ROA	11,272	0.14	0.15	0.14	-2.53	0.97	15,154	0.12	0.13	0.42	-32.00	1.39	0.00	<.0001	<.0001	-0.02	***	-
ROE	11,324	0.07	0.12	6.37	-240.62	579.28	15,169	0.08	0.11	12.73	-790.61	1,156.00	0.92	0.91	0.01		+	

Table 5: The Salary Regression analysis for the Non-Financial/Utilities Firms Sample (1992-2014)

Table 5 describes the regression analysis for the natural log of the Salary compensation component: $\ln(\text{Salary}) = \alpha_0 + \alpha_1 \text{ROE}_{t-1} + \alpha_2 \text{ROE}_t + \alpha_3 \text{RET}_{t-1} + \alpha_4 \text{RET}_t + \alpha_5 \ln(\text{MVE})_{t-1} + \alpha_6 \text{Cash}_{t-1} + \alpha_7 \text{Leverage}_{t-1} + \alpha_8 \text{M/B}_{t-1} + \alpha_9 \text{SOX} + \alpha_{10} \text{Crisis} + \alpha_{11} \text{Age}_t + \alpha_{12} \text{Tenure}_t + \alpha_{13} \text{EXEDIR} + \text{Industry Dummy}$ or Firm Fixed Effects + $e_{it}(\text{R1})$. The independents are the lagged and the current return on equity (ROE), the lagged and the current total yearly return to the shareholders (TRS1YR), the natural log of the 2002 price-adjusted market value of equity (MVE_pa, that measures firm Size), lagged Cash adjusted to assets, lagged Leverage, and lagged market to book (M/B). SOX is a dummy variable that receives a value of 1 after 2002 and 0 otherwise, Age is the executive's age and Tenure represents her tenure. If we do not control for fixed effects, we control for Crisis year (according to the Federal Reserve's definition of crisis years during the study period) using a dummy that gets a value of 1 in the years 2000, 2001, 2002, 2008 and 2009, and 0 otherwise. In the additional two panel regressions, we control for firm identity fixed effects and for industry fixed effects using Fama and French's (1997) 48 industries. The notations ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable: $\ln(\text{salary_pa})$ Non-Financial/Utilities Firms Sample(1992-2014)			
Independent Variables	(R1) <i>OLS</i>	(R1) <i>Fixed Effect I</i>	(R1) <i>Fixed Effect II</i>
Intercept	4.6676*** [0.0001]	6.065760694*** [0.0001]	4.254735144*** [0.0001]
ROE _t	0.00016573 [0.7079]	0.000123063 [0.7331]	0.000049553 [0.9099]
ROE _{t-1}	-0.00026721 [0.7568]	0.000082545 [0.9013]	-0.000537654 [0.5297]
TRS1YR _t	0.00000332*** [0.0036]	0.000000221 [0.7987]	0.000003028*** [0.0074]
TRS1YR _{t-1}	0.00000153 [0.1929]	-0.000000761 [0.3898]	0.000001182 [0.3102]
$\ln(\text{MVE_pa})_{t-1}$	0.16078*** [0.0001]	0.103815880*** [0.0001]	0.161890109*** [0.0001]
Cash_Adj _{t-1}	-0.62978*** [0.0001]	-0.279496144*** [0.0001]	-0.612879356*** [0.0001]
Leverage _{t-1}	0.60388*** [0.0001]	0.331892800*** [0.0001]	0.661806774*** [0.0001]
(M/B) _{t-1}	-0.00011792 [0.4173]	-0.000065455 [0.5547]	-0.000183088 [0.2043]
SOX	0.05890*** [0.0001]	0.100826785*** [0.0001]	0.063056102 [0.3624]
CRISIS	-0.03289*** [0.0038]	0.001150855 [0.8956]	-0.032721065*** [0.0037]
AGE	0.00616*** [0.0001]	-0.003015491*** [0.0009]	0.005177497*** [0.0001]
Tenure	-0.00038593 [0.5974]	0.007792881*** [0.0001]	0.000258242 [0.7244]
EXECDIR	0.12849*** [0.0009]	0.159707016*** [0.0001]	0.135780096** [0.0004]
Fixed Effects	No	Firm	Industry
N	23,308	23,308	23,301
Adj R-Square	0.1604	0.292	0.0301
F-Statistic	343.54 ***	13.12 ***	92.94***

Table 6: The Bonus Regression Analysis for the Non-Financial/Utilities Firms Sample (1992-2014)

Table 6 describes the regression analysis for the natural log of the Bonus compensation component: $\ln(\text{Bonus}) = \beta_0 + \beta_1 \text{ROE}_{it-1} + \beta_2 \text{ROE}_{it} + \beta_3 \text{RET}_{it-1} + \beta_4 \text{RET}_{it} + \beta_5 \ln(\text{MVE})_{it-1} + \beta_6 \text{Cash}_{it-1} + \beta_7 \text{Leverage}_{it-1} + \beta_8 \text{M/B}_{it-1} + \beta_9 \text{SOX} + \beta_{10} \text{Crisis} + \beta_{11} \text{Age}_{it} + \beta_{12} \text{Tenure}_{it} + \beta_{13} \text{EXECDIR} + \text{Industry Dummy}$ or Firm Fixed Effects + ϵ_{it} (R2). The independents are the lagged and the current return on equity (ROE), the lagged and the current total yearly return to the shareholders (TRS1YR), the natural log of the 2002 price-adjusted market value of equity (MVE_pa, that measures firm Size), lagged Cash adjusted to assets, lagged Leverage, and lagged market to book (M/B). SOX is a dummy variable that receives a value of 1 after 2002 and 0 otherwise, Age is the executive's age and Tenure represents her tenure. If we do not control for fixed effects, we control for Crisis year (according to the Federal Reserve's definition of crisis years during the study period) using a dummy that gets a value of 1 in the years 2000, 2001, 2002, 2008 and 2009, and 0 otherwise. In the additional two panel regressions, we control for firm identity fixed effects and for industry fixed effects using Fama and French's (1997) 48 industries. The notations ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable: $\ln(\text{bonus_pa})$ Non-Financial/Utilities Firms Sample (1992-2014)			
Independent Variables	(R2) <i>OLS</i>	(R2) <i>Fixed Effect I</i>	(R2) <i>Fixed Effect II</i>
Intercept	2.39213*** [0.0001]	6.247853703*** [0.0001]	2.035232871*** [0.0001]
ROE _t	0.00156 [0.3532]	0.001875615 [0.2735]	0.001491025 [0.3722]
ROE _{t-1}	-0.00812** [0.0131]	-0.004307527 [0.1724]	-0.008204776** [0.0120]
TRS1YR _t	0.00001838*** [0.0001]	0.000007153* [0.0813]	0.000017787*** [0.0001]
TRS1YR _{t-1}	0.00000680 [0.1277]	0.000004596 [0.2738]	0.000006622 [0.1364]
$\ln(\text{MVE_pa})_{t-1}$	0.26942*** [0.0001]	-0.290541186*** [0.0001]	0.251225193*** [0.0001]
Cash_Adj _{t-1}	-0.82332*** [0.0001]	-0.227820260 [0.2713]	-0.611594489*** [0.0001]
Leverage _{t-1}	0.31420** [0.0287]	-1.747731504*** [0.0001]	0.142328788 [0.3444]
(M/B) _{t-1}	-0.00068917 [0.2117]	-0.000085646 [0.8706]	-0.000712921 [0.1953]
SOX	-2.68192*** [0.0001]	-2.500220454*** [0.0001]	-2.678866662*** [0.0001]
CRISIS	-0.85459*** [0.0001]	-0.806237510*** [0.0001]	-0.848246333*** [0.0001]
AGE	0.00198 [0.4843]	-0.010733668** [0.0127]	0.000762126 [0.7913]
Tenure	-0.00652** [0.0188]	-0.004911277 [0.2720]	-0.006109541** [0.0289]
EXECDIR	0.84223*** [0.0001]	1.066978892*** [0.0001]	0.880173397*** [0.0001]
Fixed Effects	No	Firm	Industry
N	23,308	23,308	23,301
Adj R-Square	0.1970	0.0702	0.0405
F-Statistic	440.95 ***	5.94 ***	110.31 ***

Table 7: The Equity Compensation Regression Analysis for the Non-Financial/Utilities Firms Sample (1992-2014)

Table 7 describes the regression analysis for the natural log of the aggregate equity compensation FAS 123R adjusted component: $\ln(\text{Equity_compensation}) = \gamma_0 + \gamma_1 \text{ROE}_{it-1} + \gamma_2 \text{ROE}_{it} + \gamma_3 \text{RET}_{it-1} + \gamma_4 \text{RET}_{it} + \gamma_5 \ln(\text{MVE})_{it-1} + \gamma_6 \text{Cash}_{it-1} + \gamma_7 \text{Leverage}_{it-1} + \gamma_8 \text{M/B}_{it-1} + \gamma_9 \text{SOX} + \gamma_{10} \text{Crisis} + \gamma_{11} \text{Age}_{it} + \gamma_{12} \text{Tenure}_{it} + \gamma_{13} \text{EXEDIR} + \text{Industry Dummy}$ or Firm Fixed Effects $+e_{it}(\text{R3})$. The independents are the lagged and the current return on equity (ROE), the lagged and the current total yearly return to the shareholders (TRS1YR), the natural log of the 2002 price-adjusted market value of equity (MVE_pa, that measures firm Size), lagged Cash adjusted to assets, lagged Leverage, and lagged market to book (M/B). SOX is a dummy variable that gets a value of 1 after 2002 and 0 otherwise, Age is the executive's age and Tenure represents her tenure. If we do not control for fixed effects, we control for Crisis year (according to the Federal Reserve's definition of crisis years during the study period) by using a dummy that gets the value of 1 in the years 2000, 2001, 2002, 2008 and 2009, and 0 otherwise. In the additional in other two panel regressions, we control for firm identity fixed effects and for industry fixed effects using Fama and French's (1997) 48 industries. The notations ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable: $\ln(\text{Equitycompensation_pa})$ Non-Financial/Utilities Firms Sample (1992-2014)			
Independent Variables	(R3) <i>OLS</i>	(R3) <i>Fixed Effect I</i>	(R3) <i>Fixed Effect II</i>
Intercept	0.87525*** [0.0001]	-5.15454393*** [0.0033]	-0.433255466 [0.1107]
ROE _t	-0.00102 [0.5362]	-0.00156429 [0.3308]	-0.001171782 [0.4752]
ROE _{t-1}	-0.00643** [0.0466]	-0.01102166*** [0.0002]	-0.005554136* [0.0833]
TRS1YR _t	0.00001146*** [0.0073]	0.00000687* [0.0744]	0.000011960*** [0.0048]
TRS1YR _{t-1}	0.00000686 [0.1189]	-0.00000962** [0.0147]	-0.000006421 [0.1414]
$\ln(\text{MVE_pa})_{t-1}$	0.71400*** [0.0001]	0.62728994*** [0.0001]	0.710751276*** [0.0001]
Cash_Adj _{t-1}	0.36794*** [0.0020]	-0.38718709** [0.0465]	-0.020691070 [0.8756]
Leverage _{t-1}	1.00699*** [0.0001]	0.06082014 [0.7813]	1.293312130*** [0.0001]
(M/B) _{t-1}	-0.00049290 [0.3650]	-0.00105626** [0.0324]	-0.000399973 [0.4595]
SOX	0.50956*** [0.0001]	0.49867904*** [0.0001]	0.503482653*** [0.0001]
CRISIS	0.15390*** [0.0003]	0.16189186*** [0.0001]	0.134661955*** [0.0014]
AGE	-0.01753*** [0.0001]	-0.02292295*** [0.0001]	-0.018921482*** [0.0001]
Tenure	-0.05471*** [0.0001]	-0.03267951*** [0.0001]	-0.052442806*** [0.0001]
EXECDIR	0.83314*** [0.0001]	0.43404429** [0.0140]	0.770547843*** [0.0001]
Fixed Effects	No	Firm	Industry
N	23,308	23,308	23,301
Adj R-Square	0.1769	0.1101	0.0351
F-Statistic	386.40***	7.03***	101.41***

Table 8: The Tobin's Q Regression Analysis for the Non-Financial/Utilities Firms Sample (1992-2014)

Table 8 describes the regression analysis for the Tobin's Q that measures long-run corporate performance: $Tobin's_Q_{it} = \delta_0 + \delta_1 \ln(\text{Salary}_{it-1}) + \delta_2 \ln(\text{Bonus}_{it-1}) + \delta_3 \ln(\text{Equity_Comp}_{it-1}) + \delta_4 \ln(\text{Salary}_{it-1}) \times \text{SOX} + \delta_5 \ln(\text{Bonus}_{it-1}) \times \text{SOX} + \delta_6 \ln(\text{Equity_Comp}_{it-1}) \times \text{SOX} + \delta_7 \ln(\text{MVE}_{it-1}) + \delta_8 \text{Leverage}_{it-1} + \delta_9 \text{SOX} + \delta_{10} \text{Crisis} + \delta_{11} \text{R\&D}_{it-1} + \delta_{12} \text{Age}_{it} + \delta_{13} \text{Tenure}_{it} + \delta_{14} \text{EXEDIR} + \text{Industry Dummy}$ or Firm Fixed Effects + $e_{it}(R4)$. The independents are the lagged natural log of Salary, Bonus, and aggregate Equity Compensation and their interaction with the SOX dummy variable, which receives a value of 1 after 2002 and 0 otherwise. We also control for performance to the lagged natural log of 2002 price-adjusted market value of equity (MVE_pa, that measures firm Size), lagged Leverage, and R&D, and the size-adjusted research and development expenditure costs. If we do not control for fixed effects, we control for Crisis year (according to the Federal Reserve's definition of crisis years during the study period) by using a dummy that gets a value of 1 in the years 2000, 2001, 2002, 2008 and 2009, and 0 otherwise. Managerial controls and governance are considered using Age, the executive's age, and Tenure, which represents her tenure in years. In the additional two panel regressions, we control for firm identity fixed effects and for industry fixed effects using Fama and French's (1997) 48 industries. The notations ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable: Tobin's Q Non-Financial/Utilities Firms Sample (1992-2014)			
Independent Variables	(R4) OLS	(R4) Fixed Effect I	(R4) Fixed Effect II
Intercept	4.31011*** [0.0001]	4.94825096*** [0.0055]	3.497012048*** [0.0001]
$\ln(\text{Salary_pa})_{t-1}$	-0.30104*** [0.0001]	-0.16157126*** [0.0001]	-0.308321082*** [0.0001]
$\ln(\text{Bonus_pa})_{t-1}$	0.01047 [0.2039]	0.03589042*** [0.0001]	0.020349100** [0.0123]
$\ln(\text{Equity_compensation_pa})_{t-1}$	0.02985*** [0.0001]	0.01633372** [0.0108]	0.026171793*** [0.0001]
Salary× SOX	0.09387** [0.0051]	0.08997043*** [0.0086]	0.096537967*** [0.0034]
Bonus× SOX	-0.00030898 [0.9746]	-0.01146808 [0.2257]	-0.007906040 [0.4073]
Equity_Comp×SOX	-0.05354*** [0.0001]	-0.04049752*** [0.0001]	-0.053600185*** [0.0001]
$\ln(\text{MVE_pa})_{t-1}$	0.13921*** [0.0001]	0.07896453*** [0.0001]	0.161025656*** [0.0001]
Leverage _{t-1}	-2.56940*** [0.0001]	-0.41448568*** [0.0050]	-2.006903293*** [0.0001]
SOX	-0.53376*** [0.0081]	-0.57702079*** [0.0058]	-0.527217913*** [0.0078]
CRISIS	-0.10862*** [0.0002]	-0.17707243*** [0.0001]	-0.128356559*** [0.0001]
$\ln(\text{R\&D_pa})_{t-1}$	0.05257*** [0.0001]	-0.45449514*** [0.0001]	-0.000123677 [0.9886]
AGE	-0.02138*** [0.0001]	-0.01013305*** [0.0002]	-0.018132107*** [0.0001]
Tenure	0.01769*** [0.0001]	0.01541874*** [0.0001]	0.015467296*** [0.0001]
EXECDIR	-0.08330 [0.3922]	-0.05522495 [0.6410]	-0.036669139 [0.7020]
Fixed Effects	No	Firm	Industry
N	23,570	23,570	23,563
Adj R-Square	0.0856	0.0599	0.0151
F-Statistic	158.69***	5.66***	0.1361

Table 9: The Seemingly Unrelated Regression (SUR) Analysis for the Non-Financial/Utilities Firms Sample (1992-2014)

Table 9 describes the regression analysis regression equations (R1), (R2), (R3) and (R4) as a system of linear Seemingly Unrelated equations. The system dependents and independents are the current and lagged natural log of Salary, Bonus, and aggregate Equity Compensation and their interaction with the SOX dummy variable, which receives a value of 1 after 2002 and 0 otherwise, the lagged and the current return on equity (ROE), and the lagged and the current total yearly return to the shareholders (TRS1YR). We also control for performance to the lagged natural log of 2002 price-adjusted market value of equity (MVE_pa, that measures firm Size), lagged Cash adjusted to assets, lagged Leverage, and R&D, and size-adjusted research and development expenditures costs. As we do not control for fixed effects in the SUR system estimation, we control for Crisis year (according to the Federal Reserve's definition of crisis years during the study period) by using a dummy that gets a value of 1 in the years 2000, 2001, 2002, 2008 and 2009, and 0 otherwise. Managerial controls and governance are considered using Age, the executive's age, and Tenure, which represents her tenure in years. The notations ***, **, and * denotes statistical significance at the 1%, 5%, and 10% levels, respectively.

Seemingly Unrelated OLS Regressions analysis			Non-Financial/Utilities Firms Sample (1992-2014)		
Dependent Variables:	Salary	Bonus	Equity Compensation	Tobin's Q (measure of Performance)	
Independent Variables	(R1)	(R2)	(R3)	Independent Variables	(R4)
Intercept	4.686533*** [0.0001]	1.360285*** [0.0001]	1.434398*** [0.0001]	Intercept	4.013672*** [0.0001]
ROE _t	0.000180 [0.6827]	0.0022850 [0.1822]	-0.00120 [0.48]	ln(Salary_pa) _{t-1}	-0.27392*** [0.0001]
ROE _{t-1}	-0.000290 [0.7527]	-0.00694** [0.0487]	-0.00685** [0.0491]	ln(Bonus_pa) _{t-1}	-0.000780 [0.9233]
TRS1YR _t	0.000003352*** [0.0031]	0.000018*** [0.0001]	0.000011** [0.0104]	ln(Equity_compensation_pa) _{t-1}	0.033438*** [0.0001]
TRS1YR _{t-1}	0.0000015540 [0.1827]	0.0000060820 [0.1806]	-0.00000580 [0.1963]	Salary× SOX	0.0538580 [0.1127]
ln(MVE_pa) _{t-1}	0.159487*** [0.0001]	0.295984*** [0.0001]	0.696501*** [0.0001]	Bonus× SOX	0.0091540 [0.3433]
Cash_Adj _{t-1}	-0.62705*** [0.0001]	-0.99575*** [0.0001]	0.432075*** [0.0007]	Equity_Comp×SOX	-0.06031*** [0.0001]
Leverage _{t-1}	0.479387*** [0.0001]	0.0919530 [0.5383]	0.348995** [0.018]	ln(MVE_pa) _{t-1}	0.124947*** [0.0001]
(M/B) _{t-1}	-0.000110 [0.4604]	-0.000520 [0.3866]	-0.000450 [0.446]	Leverage _{t-1}	-2.69516*** [0.0001]
SOX	0.071604*** [0.0001]	-2.2326*** [0.0001]	0.468943*** [0.0001]	SOX	-0.258580 [0.2073]
CRISIS	0.006167*** [0.0001]	0.005219* [0.0829]	-0.02284*** [0.0001]	CRISIS	0.066282*** [0.0001]
AGE	0.0004460 [0.5578]	-0.00504* [0.0896]	-0.04838*** [0.0001]	ln(R&D_pa) _{t-1}	-0.01911*** [0.0001]
Tenure	0.105404*** [0.0098]	1.210798*** [0.0001]	0.685876*** [0.0001]	AGE	0.018481*** [0.0001]
				Tenure	-0.040530 [0.7000]
System Weighted R-Square	0.1347				
N	21962				