THE IMPACT OF INTERNAL REVENUE CODE SECTION 162(M) ON PAY FOR PERFORMANCE: A REEXAMINATION

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A Dissertation
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Yi Ren, for the Doctor of Philosophy degree in Accountancy, presented on March 26, 2010, at Southern Illinois University Carbondale.

TITLE: THE IMPACT OF INTERNAL REVENUE CODE SECTION 162(M) ON PAY FOR PER FORMANCE: A REEXAMINATION

MAJOR PROFESSORS: Dr. Marcus D. Odom and Dr. Jake Rose

I examine the effects of Internal Revenue Code Section 162(m), which caps a public company's corporate income tax deduction at $ 1 million per year for amounts paid to each of its top five executives, on CEO compensation level, CEO compensation structure and pay for performance sensitivity. I find that the average level of CEO salary decreased after the implementation of Section 162(m) and that firms that paid their CEOs salary no less than $1 million have constrained their CEO salary growth after Section 162(m). However, the level of CEO total compensation does not follow the same trend as the level of CEO salary. In particular, the average total compensation increased after enactment of Section 162(m) and the increases in bonuses and equity-based compensation were main contributions to the upward trend of total compensation. To examine whether Section 162(m) create closer association between pay and performance, I examine whether performance sensitivity of CEO bonuses and total compensation increased after Section 162(m). I do not find evidence to support the position that pay-for-performance sensitivity has changed after Section 162 (m) compared to that before Section 162(m). I then further probe the long-term effect of Section 162(m) on pay-for-performance sensitivity. I find the firms most likely to be affected by the tax regulation showing increased sensitivity of total compensation growth to sales growth and ROA growth over the later

post-Section 162(m) period compared to the earlier post-Section162 (m) period. My finding provides evidence that firms most likely to be affected by this tax code, in order to preserve their tax deductibility, will more likely to comply with the recently adopted rules and legislation (regulations imposed after the Enron-era). Overall, my results suggest that firms that paid their CEOs salaries more than $ 1million have constrained their fixed salary growth after Section 162(m), while the average total compensation actually increased after Section 162(m). Also, such firms are more likely to alter their CEO compensation package by using more performance related compensation than using fixed salary. According to my results, there are no significant differences in pay-for-performance sensitivity before and after Section 162(m), but I document a long-term effect of Section 162(m) on pay-for-performance sensitivity.

DEDICATION

To

My husband Dong

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CHAPTER 1

INTRODUCTION

CEO pay packages have long been under both public and academic scrutiny. Public anger at "excessive" executive pay started to boil in the fall of 2008 amid the financial fallout. For example, in March 2009, American International Group (AIG), one of the first companies to get taxpayer bailout dollars, paid $220 million in "retention" bonuses to its executives. Congress, meanwhile, was working on legislation to possibly tax the money given as bonuses by bailout companies. On February 5, 2009, President Obama's administration imposed a $500,000 cap on senior executive pay for the companies taking federal bailout funds.

Of Course, government intervention in response to the public outcry over "excessive" executive pay is not new. Specifically, numerous measures proposed by the government, including pay caps on public companies, have been used since 1993 when Congress enacted Internal Revenue Code Section 162(m). It disallows a deduction for compensation in excess of $ 1 million paid to a CEO and the four highest compensated officers of a publicly traded company unless the excess is "performance-based." The congressional goal of Section 162(m) was to reduce excessive executive compensation. However, the major exemption from the million dollar limit is "performance-based compensation." In addition to reducing excessive pay, Congress intended that Section 162(m) would create closer ties between pay and corporate performance.

Given recent public rage over executive pay, especially over large salaries for executives at companies that have received bailout money, President Obama's administration is working on tougher restrictions on executive compensation. In June 2009, Treasury Secretary Timothy Geithner suggested broad guidelines for how public companies should pay executives. One of his main principles, consistent with the objectives of Section 162(m), was meant to ensure that pay reflects corporate performance. Once again, governmental intervention on how executives are paid is in the spotlight. The background of Section 162(m) is the same as what we are currently facing, that is increased public attention on over-size executive compensation.

This study provides a retrospective evaluation of the effectiveness of the change in the tax law, the real effect on CEO compensation packages. First, I examine whether the imposed $1 million dollar tax cap reduced CEO compensation growth. Firms that paid their CEOs' compensation in excess of $1 million are subject to the tax deduction limitation unless the excess is performance-based. Whether or not to preserve its tax deductibility, a firm will consider the potential costs and benefits. If it forfeits the tax deduction, a firm may face additional tax and political costs (Balsam and Yin 2005). Political costs can be triggered by criticism of shareholders or politicians. Balsam and Ryan (1996) examined the corporate response (to conform or not to conform) to the tax law and found evidence that firms respond to the political costs associated with the decision to conform. They find that firms in which managers are overpaid relative to other firms and larger firms are more likely to conform. To

investigate how different firms respond to Section 162(m) differently in regard to the changes in compensation level and structure, I categorize the full sample into Million-Dollar Firms and Non-Million-Dollar Firms. A Million-Dollar Firms is defined as a firm which paid its CEO salary no less than $1 million. I find that Million-Dollar Firms are more sensitive to the tax cap than other firms because CEOs salary growth rate is lower after Section 162(m) was passed than that before Section 162(m). Though there is evidence indicating Section 162(m) may curb increases in CEO salaries, the average level of total compensation increased after enactment of Section 162(m). This result is consistent with Perry and Zenner (2001) who argue that the regulations have not achieved the objectives of reducing CEO compensation growth.

I then examine how Section 162(m) affects CEO compensation structure. I argue that Section 162(m) may impose additional risks on CEOs because firms that are sensitive to the tax cap may need to steer their CEO compensation packages toward performance-based, but risk-averse CEOs prefer fixed salary over performance-contingent compensation. Therefore, firms may need to reward their CEOs with higher pay to compensate for the additional risk and that may lead to an increase in average compensation subsequent to Section 162(m). To find the magnitude of changes in the CEO compensation structure, I examine the changes in the ratio of performance-based compensation to fixed salary before and after Section 162(m) on Affected Firms and other firms. I define an Affected Firm as a firm that paid its CEO salary no less than $1 million and had a federal tax liability in the examined year. I first use the $1 million

salary as an indicator to indentify firms that are more likely to be affected by this million dollar cap vs. firms that are less likely to be affected by this tax code. I then use the current federal income tax liability as the second criterion to define Affected Firms (the justifications of this approach are discussed in Section 2.3.1 of Chapter 2). My evidence indicates that the ratio of performance-related compensation to fixed salary significantly increased in the post-Section 162(m) period for Affected Firms. Apparently, Affected Firms are more likely to preserve their tax deductibility by allocating more performance-based components into their CEO compensation packages.

In addition to curbing the excessive executive pay, another objective of this tax legislation was to encourage a closer relation between pay and performance. Few studies have examined whether the tax law has affected executive performance and the results of existing literature are inconclusive. Perry and Zenner (2001) find an increasing relation between stock returns and bonuses after 1993. However, Rose and Wolfram (2002) did not find evidence supporting an increase in pay-for-performance sensitivity after Section 162(m). In this study, I not only investigate whether pay-for-performance sensitivity has changed before-and-after Section 162(m) but also investigate whether there is long-term effect of Section 162(m) on pay-for-performance sensitivity. I employ ratio scale measurements in models to estimate the relation between pay and performance because this measurement approach allows me to compare the magnitude of percentage changes in compensation to the magnitude of percentage changes in performance at different firms. There is lack of evidence

indicating an increase in pay-for-performance sensitivity after enactment of Section 162(m). These results are consistent with Rose and Wolfram (2002) but inconsistent with Perry and Zenner (2001). However, I find that an increase in the sensitivity of pay-for-performance on Affected Firms over the later post-Section 162(m) period compared to that over the earlier post-Section 162(m) periods. I interpret the results to indicate that Affected Firms which tend to be larger firms with higher CEO wages, will need to respond to newly adopted legislation in order to comply with Section 162(m) deductibility requirements.

This study complements the existing literature in two ways: first it examines how the million dollar tax law has affected firms' behavior when constructing CEO compensation packages. Second, it extends analysis of how the million dollar tax law has affected pay-for-performance by re-examining the sensitivity of pay-for-performance before-and-after Section 162(m) and investigating whether there are long-term effects of Section 162(m) on pay-for-performance sensitivity. The findings of this paper offer some insights into the economic effects consequent to government legislation. In particular, due to current public anger over executive compensation amid today's financial crisis, the Senate is working on its own bills to raise the tax on highly compensated bankers. This study provides a retrospective evaluation of the 1993 regulatory intervention on corporate pay decisions, and extends the analysis of the effectiveness of the Section 162(m) on long-term performance. My analysis should provide suggestions and insights for the current policy intervention attempts.

The remainder of this study is organized as follows: Section 2 provides an overview of the related literature and develops the hypotheses. Section 3 discusses my sample data selection and the research design. Section 4 presents the results of the tests. Finally, Section 5 provides a summary, conclusions and limitations.

CHAPTER 2

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Internal Revenue Code Section 162(m)

In the early 1990s, the investing community expressed mounting frustration over its belief that public companies were making excessive executive compensation payments without the approval or even knowledge of their shareholders. In response, in 1993, Congress enacted Internal Revenue Code (IRC) Section 162(m), which caps a public company's corporate income tax deduction at $1 million per year for amounts paid to each of its top five executives.

Before the enactment of Section 162(m), a corporation was allowed a tax deduction for the amount of compensation paid to an employee, as long as the compensation was reasonable. The Senate Finance Committee stated its belief that excessive compensation would be reduced if the tax deduction for compensation (other than performance-based compensation) paid to the top executives of public corporations were limited to $1 million per year. Section 162(m) became effective on January 1, 1994. Therefore, Section 162(m) is the product of a highly politicized effort to "reel in" CEO pay (Bachelder 1994).

However, this tax provision included important exceptions to the Section 162(m) tax deduction limitation, which are performance-based pay plans, provided the plans are preapproved by the company's shareholders and its compensation committee (Nelson 2004). To qualify for the performance-based compensation exception, a compensation arrangement must generally satisfy all

of the following requirements: (1) the payment of the compensation must be contingent solely upon the attainment of objective, nondiscretionary performance goals; (2) the method of computing the compensation payable on satisfaction of the performance goals must be based on an objective formula; (3) a compensation committee of the company's board of directors, composed solely of two or more outside directors, must have established the performance goals; (4) the goals and other material terms of the compensation arrangement must be disclosed to the company's shareholders and approved by a majority of the shareholders in a separate vote prior to the payment of the compensation; and (5) the compensation committee must certify, prior to the payment of compensation, that the performance goals have been attained (Treasury Regulation Section 1.162-27).

Prior to the enactment of Section 162(m), performance measures, performance standards, and the structure of the pay-for-performance were substantially attributed to compensation committees' discretion (Balsam and Yin 2005). Under Section 162(m), to qualify for performance-based exception, firms must qualify the requirement of the Treasury Regulation for Code Section 162(m). Among all components of executive compensation, salary is not considered performance-based since it is not contingent on any attainment of performance goals. Virtually every for-profit company pays its top executives annual bonuses based on one or more performance goals (Murphy 1999). Thus, annual cash bonuses will qualify under the performance-based exception if the firm qualifies its bonus plan according to Section 162(m) requirements.

Compensation attributable to stock options or stock appreciation rights is deemed to satisfy performance goals and compensation formula requirements when the amount of compensation the employee receives is based solely on an increase in the value of stock after the date of the grant. This can make stock options or stock related compensation particular attractive for purpose of complying with Section 162(m).

2.2 Related Research

Following the implementation of Section 162(m), some empirical studies have attempted to examine the effects of the after-tax cost of executive pay to the corporate on compensation. For example, Balsam and Ryan (1996) identify a sample of 155 firms, of which 77 complied with the tax provision (to preserve the tax deduction) and of which 78 forfeit the deduction. In general, to comply with Section 162(m), corporations need to take steps of qualifying the compensation plans involved as performance-based plans under Section 162(m). By examining the propensity of firms to modify their compensation plans, which allows them to preserve their tax deductions while minimizing their political costs, Balsam and Ryan (1996) argue that firms are sensitive to the magnitude of the additional tax costs that would be incurred if they did not conform to the tax code. Section 162(m) was adopted in response to the perception that executive salaries were excessive and unrelated to performance. By forfeiting tax deductions, executives may face additional criticism from shareholders and/or politicians in that management is wasting corporate resources. The empirical

results of Balsam and Ryan (1996) also suggest firms in which managers are overpaid relative to other firms and larger firms are more likely to conform to the tax provision. Balsam and Yin (2005) extend the work of Balsam and Ryan (1996) by directly examining whether firms actually forfeit deductions as result of Section 162(m). They find that firms with higher re-contracting costs are more likely to forfeit the tax deduction, while firms with higher tax benefits and political costs are more likely to preserve the tax deductions. Their evidence on the willingness of firms to conform with Section 162(m) suggests that firms' responses to Section 162(m) are not uniform.

The proponents of this legislation argued that this tax provision would reduce "excessive" CEO pay by raising its cost to the corporation. Using a sample of 223 firms, Harris and Livingston (2002) examine the effect of the tax legislation on firms paying their CEO less than $1 million. They find an unintended consequence, opposite to Congressional intentions for the implementation of Section 162(m). Their empirical evidence reveals that firms expected to pay their CEOs less than $1 million actually increased their CEOs' cash compensation because the implicit contracting costs of such firms fell after Congress enacted a standard for reasonable compensation. Examining the change in salary growth rate before and after the enactment of Section 162(m), Rose and Wolfram (2002) suggest that Section 162(m) has led firms near the $1million cap to restrain salary increases, and potentially increased the performance component of their pay package.

To preserve deductibility, firms in which CEOs are receiving "excessive" salaries tend to compensate their CEOs with performance-based pay. However, risk-averse CEOs do not have the same incentives as the owners. Performance-based pay is contingent upon firm performance while a fixed salary is non-contingent. To compensate CEOs in the form of performance-based pay, such as stock options or bonuses, firms must increase the level of performance-based pay above the decline in fixed salary in order to compensate CEOs for bearing additional risk, and thus, total compensation will increase subsequent to the change of the tax law. Existing research on Section 162(m) suggests that the level of total compensation indeed increased. Hall and Liebman (2000) documented that the median of total CEO compensation rose from $1.1 million to $1.8 million over the period 1993-1998. They conclude that while this tax rule affects executive salaries, most bonuses qualify as performance-based and standard stock options automatically qualify. Therefore, this tax provision gives companies with highly paid executives an incentive to give more pay in the form of bonuses and stock options.

The second congressional objective of this tax provision was to encourage a closer relation between pay and performance. Few previous empirical studies examine the impact of this tax legislation on executive performance. Although Perry and Zanner (2001) find an increasing relation between stock returns and both bonus payments and total compensation after 1993 for all firms, Rose and Wolfram (2002) cast doubt on the suggestion that Section 162(m) significantly

increased pay-for-performance sensitivities since they were unable to find statistically significant evidence.

2.3. Research Questions and Hypotheses Development

2.3.1 The effect of Section 162(m) on the level and structure of CEOs' compensation

To address the first research question, I consider how the change in tax law affected the construction, in terms of the level and structure, of executive compensation. One of the congressional goals was to put a cap on "excessive" executive pay. A CEO's salary, in addition to any other non-performance based pay, is the very component of a CEO's total compensation that is directly limited by the million dollar cap. Firms that paid their CEOs' salaries close to or over $1 million would face additional tax costs due to Section 162(m). Balsam and Ryan (1996) find evidence that firms, particularly larger firms, are sensitive to political costs associated with non-conformity of Section 162(m). Non-conformity of Section 162(m) means that a firm elects to pay non- tax- deductible compensation (e.g. salary in excess of $1million).

To preserve deductibility, firms have to constrain CEO salaries below the $1 million cap or substitute CEO salaries in excess of $1million, which is subject to Section 162(m) limitation, with some form of performance-based pay. To examine how CEO salary levels changed in respond to the change in tax law and whether the change in salary occurred differently across firms, I compare the salaries at firms that were affected by the million-dollar cap to those at firms that

were not/ or less affected by the cap. The threshold for tax deductibility is nominal $1million non-performance based compensation. Thus, I predict that there is different behavior between firms that paid their CEO salaries no less than $ 1million, called Million-Dollar Firms in this study**,** and firms that paid CEO salaries less than $1million, called Non-Million- Dollar Firms in this study. I argue that Million-Dollar Firms are expected to constrain their CEOs' salary growth to preserve the deductibility of executive pay. The above discussion leads to my first hypothesis:

H1a: Within Million-Dollar Firms, the average CEO salary is significantly lower in the post-Section 162(m) period than in the pre-Section 162(m) period.

I predict that Million-Dollar Firms and Non-Million-Dollar Firms would respond to Section 162(m) differently. And the differences may indicate that the effects of Section 162(m) are not uniform. I then examine that the effects of Section 162(m) on Non-Million Dollar Firms, in which firms paid less than $1million in their CEOs' salary. I expect that such firms are not directly at risk of losing their tax deductibility and are not sensitive to this tax provision. This leads to the second hypothesis:

H1b: Within Non-Million-Dollar Firms, there is no significant change in average CEO salary between the post-Section 162(m) period and the pre-Section 162(m) period.

Agency theory argues that managers are less inclined to risk-taking than are widely diffused shareholders (Gibbons and Murphy 1989; Baumol 1959). Accordingly, it is possible that managers will forgo some positive net present value (NVP) projects if those projects are very risky (Coles, Daniel and Naveen, 2006). Some studies of risk management suggest that the increase in equity-based compensation would potentially offset managers' risk-averse tendency. For example, Guay (1999) finds that risk-averse managers can be motivated to invest in high risk, positive NPV projects. Along the empirical work on how compensation structure affects observable managerial decisions. Coles, Daniel and Naveen (2006) examine the relation between the sensitivity of CEO wealth to stock volatility (Vega) and managerial decisions, specifically those derived from investment policy and debt policy. They find that higher sensitivity to stock price volatility in the managerial compensation scheme gives executives the incentive to both invest in riskier assets and implement more aggressive debt policy. As a result, equity incentives impose risk on the executive and the executive must be paid a premium over an acceptable level of fixed cash pay to compensate for this risk (Core, Guay and Larcker, 2003). Clearly, risk-averse managers prefer fixed salaries instead of performance-based pay. The use of performance- based compensation (e.g. stock options) is to motivate executives

to maximize shareholder wealth because executives' compensation payout is directly linked to firm performance. Consequently, compensation risk is imposed on the executives due to the attainment of performance goals. Thus, Section 162(m) imposes additional risk on executives when firms allocate their executive compensation from fixed salary to compensation that is contingent on an "objective" performance metric. I argue that the increase in performance-based pay, i.e. qualified bonus plans and/or stock options must exceed the decline in fixed salary in order to compensate the executives for bearing additional risk. Therefore, as companies face the constraints of salary level due to Section162 (m), the total compensation is expected to increase following the change in tax law. The discussion leads to the following hypotheses, stated in the alternative:

H2a: CEO compensation levels are significantly higher following the implementation of Section 162(m).

H2b: CEO compensation increase of Million-Dollar Firms is significantly higher than those of Non-Million-Dollar Firms following the implementation of Section 162(m).

I then look at the changes of the CEO compensation structure. I predict the responses to Section 162(m) will be different across firms. To capture the differences, I categorize firms that are more likely to be affected by the million dollar tax provision versus firms that are less likely to be affected by this tax provision by considering both criteria of their CEO salary levels and their tax

status to classify firms as Affected Firms or other firms. It is reasonable to argue that firms that paid CEO salaries no less than $1million will be more sensitive to Section 162(m) than firms that paid CEO salaries below the cap because Section 162(m) caps a nominal $1 million non-performance pay. Different approaches on defining what firms are affected by the cap have been used in the literature. Perry and Zenner (2001) used a $900,000 salary from the preceding year as a benchmark because such firms are close to being subject to the tax deduction cap. I argue that the $900,000 benchmark was arbitrary since firms paid their CEOs close to $1 million are not necessarily affected by Section 162(m). For example, a firm paid its CEO $980,000 salary in year t-1(assuming only salary is non-performance based pay for this firm), which will not be subject to the cap of tax deductibility at year t-1. Then, in year t, this firm still pays its CEO $980,000 in salary that still does not exceed the $1million cap. This firm, though it paid more than $900,000 in salary, may not be sensitive to Section 162(m) limitation. On the other hand, Rose and Wolfram (2002) used $1 million predicted cash compensation as a benchmark. Their measure of the predicted cash compensation captures the inflation influence. However, the $1 million cap is nominal which does not change from year to year. Next, I expect that a firm's tax status will also influence the decision of the compensation committee when structuring CEO compensation packages. For example, firms (e.g. younger firms) may not have federal tax liabilities for years due to large net operating losses (NOL). Such firms are not as sensitive as other firms are to the tax deduction limitation of Section162 (m). I therefore define Affected Firms as firms

that paid their CEO salaries no less than $1 million in year t and have a federal tax liability in year t.

Previous literature has documented that firms are sensitive to additional tax costs and political constraints, such as negative press coverage and political costs (Balsam and Ryan 1996; Balsam and Yin 2005). For Section162 (m) purposes, some forms of compensation are considered to be inherently performance-based. Compensation attributable to stock options or stock appreciation rights (SARs) is deemed to satisfy the performance goal and compensation formula requirements. This may make stock options particularly attractive. Also, bonuses paid for meeting clear performance goals which are approved by shareholders are not affected by this tax code. It is apparent that, although CEO salaries are directly affected by the million dollar cap, qualified cash bonus, stock options and other long-term incentive plans are qualified as performance-based and thus, will be exempt from the deductibility limitation. Performance-based pays such as qualified bonuses and stock option are contingent on firm performance and also serve as incentive compensation to align management interests with those of investors. Therefore, I expect firms that are more sensitive to preserving their deductibility of CEO compensation are more likely to alter their CEO compensation structure by increasing the proportion of incentive compensation and maintaining or decreasing the fixed compensation. These arguments lead me to test the following hypotheses:

H3a: The ratio of incentive compensation to fixed compensation is significantly higher for Affected Firms following the implementation of Section 162(m).

H3b: The ratio of incentive compensation to fixed compensation is not significantly higher for other firms following the implementation of Section 162(m).

2.3.2 The effect of Section 162(m) on pay-for-performance sensitivity

Section 162(m) contains two major congressional objectives: (1) To slow what was perceived as the excessive growth of executive compensation (Ringle 1995); and (2) To promote a closer tie between compensation and performance since this tax code provides a "qualified performance-based pay" exemption from the million-dollar cap (Treasury Regulation Section 1.162-27(e)(1)). In the preceding section 2.3.1, I discussed the expected outcomes of the first objective and in this section, I probe next important research question: Has Section 162(m) affected pay-for-performance sensitivity?

As discussed in the previous sections, this tax provision may have affected CEO compensation levels and compensation structures. In particular, I argue that AFFECTED firms are more likely to steer their CEOs' pay away from non-deductible compensation (e.g. salary) toward deductible compensation (e.g. performance-based). Various studies document that among the companies that increased executive compensation over the period 1992-1997, the largest increase came from stock option grants (Hall and Liebman 2000). Will

compensation structure changes create a closer tie between pay and performance? In other words, if firms responding to Section 162(m) alter their CEO compensation structure by increasing the proportion of deductible compensation while maintaining or reducing non-deductible compensation, will this behavior increase pay-for-performance sensitivity? Few researchers have examined the effectiveness of Section 162(m) on pay-for-performance sensitivity. However, Perry and Zenner (2001) find an increasing relation between stock returns and both CEO bonus payments and total compensation after Section162 (m) for all firms and this increased association is more pronounced for firms more likely to be affected by the million dollar cap. On the other hand, Rose and Wolfram (2002) were unable to find evidence that Section 162(m) significantly increased pay-for-performance sensitivities. To date, existing literature shows inconclusive evidence on whether Section 162(m) has affected pay-for-performance sensitivity.

Moreover, the recent uproar over the lack of pay-for-performance raises questions about so called “performance-based pay.” There are a number of reasons why performance-based pay fails to produce the intended results. CEOs are too powerful and board directors too passive. Boards and compensation committees have even been described as rubber-stamping resolutions proposed by management (Charan, 2005). Charan (2005) claims that when the tax deductibility of salaries was capped at $1million in 1993, some boards began to award “guaranteed” bonuses to pay CEOs higher cash compensation. In this situation, bonus awards of such companies may not reflect their firms’

performance. Many pay-for-performance schemes fall short because boards make the mistake of setting objectives for which the CEO will be rewarded. For example, many boards put their trust in a single objective, e.g. earnings per share (EPS) as a proxy for their CEO's performance. Single objectives create room for people to game the system. A study by Reitenga, Buchheit, Yin and Baker (2002) finds evidence that Section 162(m) has indirectly affected the quality of reported earnings. For example, firms with qualified bonus plans exhibit smoother earnings relative to firms without qualified bonus plans.

Agency theory also suggests that, in imperfect labor and capital markets, managers will seek to maximize their own utility at the expense of shareholders. There is increasing evidence documenting the managerial behavior does not serve the interest of investors. For example, Yermack (1997) documents that CEOs receive stock option awards shortly before favorable corporate news. Aboody and Kasznik (2000) also provide evidence that firms delay disclosures of good news and accelerate the release of bad news prior to stock option award periods. In the last ten years, stock options have been viewed as one of the favorable pay forms to align CEOs' interest with the interest of investors. But, an explosion in the use of stock option has led to concerns about how executives could be awarded because of stock price appreciation during a strong bull market regardless of the economic performance. Another significant issue of the appropriateness of using stock option to compensation executives is stock option re-pricing. Stock option re-pricing is a practice of resetting the exercise price (i.e. reducing the price that CEOs must pay to exercise their options) of previously

granted options that are significantly out-of-the-money or underwater (i.e., options that give CEOs the right to purchase shares at a price above the current market price of the stock). Brenner et al. (2000) and Chance et al. (2000) provide evidence that re-pricings reflect governance problems and that re-pricing follows poor firm-specific performance.

To examine the effect of Section 162(m) on pay-for-performance sensitivity, I still categorize the representative sample firms into Affected Firms and other firms. Although Perry and Zenner (2001) examined CEO compensation over the period 1992-1997, my study covers the period of 1992-2005. In this study, I define the period 1992-1997 as "the period surrounding Section 162(m)." I predict that pay-for-performance sensitivity is not significantly different before-and-after Section 162(m).

In 2003, the IRS launched a pilot program involving 24 companies in various industries with open corporate tax return audits and found that violations of various requirements were surprisingly common. In particular, the IRS found that failure to administer bonus plans in compliance with the requirements for exemption from Section 162(m) was widespread among the 24 companies that were audited under the program. In 2005, the IRS posted on its websites Section 162(m) Audit Technique Guidelines (ATGs). The ATGs provide IRS agent road map to detect violations when a firm claimed CEO's compensation above $1 million as pay for performance compensation while evidence suggests a disconnected between pay and performance. Moreover, there is some evidence that the change in boardrooms today has brought some positive influence on

corporate governance (Yermack 2004; Klein 2002). In particular, the Sarbanes-Oxley Act 2002 represents a set of aggressive provisions including to reform accounting industry and to securitize financial reporting. I argue that Affected Firms, in order to qualify their CEO compensation as performance-based, will need to respond to the recent rules and requirements proposed by the SEC, and therefore lead to an increase in the sensitivity of pay-for–performance in later sample periods. The discussion leads me to test the following hypotheses:

H4a: The association between CEO bonuses and firm performance is not significantly different immediately after the implementation of Section 162(m) compare to the period of pre-Section 162(m).

H4b: The association between CEO total compensation and firm performance is not significantly different immediately after the implementation of Section 162(m) compare to the period of pre-Section 162(m).

H4c: The sensitivity of pay-for-performance has increased in the later post-Section 162(m) period compared to the earlier post-Section 162(m) period for Affected Firms.

CHAPTER 3

DATA AND METHODOLOGY

3.1 Data

My sample consists of firms from the set of S&P 500 industrial companies per ExecuComp database from 1992 to 2005. I collect components of CEO compensation from ExecuComp. Total compensation (Comp) consists of all seven components reported in the proxy statement, including salary, bonus, other annual compensation, restricted stock granted (RST), options, long-term incentive payouts (LITP), and all other total. I retrieve all performance measures and accounting data from both of ExecuComp and Compustat databases.

To examine the "before and after" Section 162(m) effect, I identify the pre-Section 162(m) period and the post-Section 162(m) period with dummy variables. Because the compensation data from ExecuComp database originated in year 1992, I only have 1992 and 1993 compensation data that related to the pre-Section 162(m) period. This data limitation may affect the power of some tests in my study. However, other studies that tested the before-and-after Section 162(m) effectiveness also encountered with this data limitation (e.g. Perry and Zenner 2001; Rose and Wolfram 2002).

3.2 Methodology

3.2.1 Measuring the effect of Section 162(m) on the change in CEO salary

I test whether the level of CEO salary has changed after the enactment of Section 162(m) by using different approaches. First, I use graphic figures to examine how the average level of CEO salary changed from 1992 to 2005 on Million-Dollar Firms (companies paid CEO salaries no less than $1million). The graphic figures reported in Chapter 4 present a picture of the change in CEO salary during the sample period. Then, I test whether there is an immediate change in salary growth by examining the difference of salary growth right before (the period 1992-1993) and right after (the period 1994-1995) Section 162(m). I employ simple tests of differences and ordinary least squares regression analysis to test Hypotheses 1a and b. It is now a common practice to report the yearly salary level without thinking of inflation. However, from monetary economics it is clear that, other things remaining the same, the higher the inflation rate, the lower the real economic value of salary (or the lower the salary purchase power). To reflect how Section 162(m) affects the real economic outcome upon a change in CEO salary, I adjust salary to the constant 1992 dollar according to Consumer Price Index (CPI). I also use the unadjusted salary for robustness check purposes. If the changes of CEO salary are different between the two groups, the Million-Dollar Firms vs. the Non-Million-Dollar Firms, it suggests that firms respond to Section 162(m) differently. The regression takes the form (the base model, where control variables are not included) as following:

$$Ln(AdjSalary_{it}) = \beta_0 + \beta_{1\text{-}13}Year\text{-}dummies + \varepsilon_{it} \quad (1)$$

where

Dependent variable:

Ln(AdjSalary$_{it}$): The natural logarithm of firm i's CEO salary (**SALARY** in ExecuComp) in year t, where salary is adjusted in 1992 constant dollar according to Consumer Price Index (CPI).

Independent variables:

Year-dummies: Dummy variables serving as indicators of respective years from 1992 to 2005, equal 1 if the observation is for the said year and equal zero otherwise.

I test H1a and H1b directly from estimating model (1) since it only includes the year dummies for capturing the trend of salary level. In the field of social science study, control variables are often overly utilized in multiple regression models. A Consequence of including many control variables is to boost R^2 adding variables to the model will improve R^2. However, Gujarati (2006) recommends that "it is a good practice to find the adjusted R^2 value because it explicitly takes into account the number of variables included in the model." Therefore, reporting adjusted R^2 has become standard. An over-fitted model (such as including all possible control variables) leads to loss in the efficiency of

the estimator and may also lead to spurious conclusions. I follow the golden rule of including explanatory variables (also control variables) only for variables that are theoretically grounded, that directly influence the dependent variable and that are not accounted for by other included variables (Intriligator 1978).

As suggested by existing literature, compensation increases with firm size. Murphy (1985) finds that holding the value of a firm constant, a firm whose sales grow by 10 percent will increase the salary and bonus of its CEO between 2% and 3%. This finding suggests that the size/pay relation is causal and that CEOs can increase their pay by increasing firm size. Economists have long argued that larger firms may employ better qualified and better paid CEOs. Murphy (1999) states that "company size is at best an imperfect proxy for managerial skill requirements, job complexity and span of control." Size is traditionally measured by using company sales revenues. Therefore, I add a control for size (ln(sales)) into the base regression model. In addition, the CEO's pay will depend on "performance." Although there is subjective preference in literature, firm performance often includes a variety of financial and non-financial performance measures. Almost all companies rely on some measures of accounting profits. Similar to Rose and Wolfram (2002), I use return on assets (ROA) and stock return to control for performance. Regarding other important controls of firm value and firm growth, I use Tobin's Q as proxy for serving both purposes.

Then, I estimate the modified model of model (1) that includes control variables as the following:

$$\text{Ln}(\text{AdjSalary}_{it}) = \beta_0 + \beta_{1\text{-}13}\text{Year-dummies} + \beta_{14}\,\text{Ln}(\text{Sales}_{it}) + \beta_{15}\,\text{ROA}_{it} + \beta_{16}\,\text{Return}_{it} + \beta_6\,\text{Tobin's Q}_{it} + \varepsilon_{it} \quad (2)$$

where

Dependent variable:

$\text{Ln}(\text{AdjSalary}_{it})$: The natural logarithm of firm i's CEO salary (**SALARY** in ExecuComp) in year t, where salary is adjusted in 1992 constant dollar according to the Consumer Price Index (CPI).

Independent variables:

Year-dummies: Dummy variables serving as indicator of respective year from 1992 to 2005, are equal 1 if the observation is for the said year and equal to zero otherwise.

$\text{Ln}(\text{Sales}_{it})$: The natural logarithm of firm i's sales (**SALES** in ExecuComp) in year t.

ROA: The net income before extraordinary items and discontinued operations divided by total assets (**ROA** in ExecuComp).

Return: The 1 year total return to shareholders, including the monthly reinvestment of dividends (**TRS1YR** in ExecuComp).

Tobin's Q: The ratio of the market value of assets to the book value of assets. Following Coles, et. al. (2008), I calculate the market value of assets as the book assets (**ASSETS** in ExecuComp) minus book equity (**COMMEQ** in ExecuComp) plus market value of the equity (**MKTVAL** in ExecuComp, calculated as the close price for the fiscal year multiplied by the company's common shares outstanding).

3.2.2 Measuring the effect of Section 162(m) on change of CEO total compensation

To examine how CEO total compensation level has changed during the test period, I use graphic figures to find how the average level of CEO compensation and other main components of compensation have changed from 1992 to 2005 on MILLION-DOLLAR FIRMS. However, the graphic figures cannot tell us how Section 162(m) affects CEO compensation but instead shows the general trend of CEO compensation over the period 1992-2005. To analyze the possible Section 162(m) effect on CEO compensation, I need to control fixed effects other than Section 162(m), e.g. market influence, firm performance etc. Thus, I employ regression models including fixed effects that may affect compensation levels other than Section 162(m), and two dummy variables to indicate Million-Dollar Firms vs. Non-Million-Dollar Firms, and to indicate the period of pre-Section 162(m) vs. the period of post-Section 162(m). The

dependent variables of the regression models are “CEO compensation” without inflation adjustment and with inflation adjustment according to the Consumer Price Index (CPI).

I test H2a and H2b on the following regression models:

$$Ln(Comp_{it}) = \beta_0 + \beta_1 \times D162 + \beta_2 \times D162 \times \text{Million-Dollar-Firms} + \beta_3 \times Ln(Sales_{it}) + \beta_4 \times ROA_{it} + \beta_5 \times Return_{it} + \varepsilon_{it} \quad (3)$$

$$Ln(AdjComp_{it}) = \beta_0 + \beta_1 \times D162 + \beta_2 \times D162 \times \text{Million-Dollar-Firms} + \beta_3 \times Ln(Sales_{it}) + \beta_4 \times ROA_{it} + \beta_5 \times Return_{it} + \varepsilon_{it} \quad (4)$$

where

Dependent variables:

$Ln(Comp_{it})$: The natural logarithm of firm i’s CEO total compensation in year t. Total compensation (**TDC1** in ExecuComp) comprised of Salary, Bonus, Other Annual, Restricted Stock Granted, Stock Option Granted, Long-Term Incentive Payouts, and All Other Total.

$Ln(AdjComp_{it})$: The natural logarithm of firm i’s CEO total compensation in year t that is adjusted for inflation (in 1992 constant dollar).

Independent variables:

D162: A dummy variable equals 1 for observations in year 1994-2005 and equal to 0 for 1992 and 1993.

Million-Dollar-Firms: A dummy variable equals 1 if a firm paid its CEO salary no less than $1million and 0 otherwise.

Ln(Sales $_{it}$): The natural logarithm of firm i's sales (**SALES** in ExecuComp) in year t.

ROA: The net income before extraordinary items and discontinued operations divided by total assets (**ROA** in ExecuComp).

Return: The 1 year total return to shareholders, including the monthly reinvestment of dividends (**TRS1YR** in ExecuComp).

I perform Ordinary Least Squares (OLS) regression analysis and median regression analysis for equation (3) and (4). OLS estimators are well-known to be highly sensitive to outliers in the data (or skewed data set), and compensation data are typically skewed. I use median regression approach as robust analysis for OLS regression analysis to leverage possible influential outliers. Median regression, the sum of the least absolute deviation as criterion to be minimized, sometimes called least absolute value (LAV) regression which is less influenced by outliers, is one of those approaches that is used for robust regression analysis (Rousseeuw, 1993).

3.2.3 Measuring the effect of Section 162(m) on the change in CEO compensation structure

I next investigate how CEO compensation structure changed before and after Section 162(m) and how changes in CEO compensation structure differ between Affected Firms and other firms. As stated in Hypothesis 3a and 3b, I predict that Affected Firms are more likely to steer their CEO compensation from fixed salary to performance-based compensation than other firms. The justifications of how to categorize Affected Firms are discussed in Chapter 2. I employ the following regression model to estimate the Section 162(m) effect on CEO compensation structure:

$$Mix_{it} = \beta_0 + \beta_1 \times D162 + \beta_2 \times Return_{it} + \beta_3 \times ROA_{it} + \beta_4 \times Ln(sales_{it}) + \beta_5 \times TIME + \varepsilon_{it} \quad (5)$$

where

Dependent variable:

Mix: The ratio of the Black-Scholes value of option grants (**OPTION_AWARDS_BLK_VALUE** in ExecuComp) plus bonus (**BONUS** in ExecuComp) to the salary (**SALARY** in ExecuComp) of the CEO.

Independent variables:

D162: A dummy variable equals 1 for observations in year 1994-2005 and equal 0 for 1992 and 1993.

Ln(Sales $_{it}$): The natural logarithm of firm i's sales (**SALES** in ExecuComp) in year t.

ROA: The net income before extraordinary items and discontinued operations divided by total assets (**ROA** in ExecuComp).

Return: The 1 year total return to shareholders, including the monthly reinvestment of dividends (**TRS1YR** in ExecuComp).

TIME: The calendar year minus 1992. The variable captures the trend over time in the corresponding dependent variable.

In equation (5), the dependent variable, Mix, measures the magnitude of performance related compensation to non-performance related compensation in CEO pay. The greater the Mix, the bigger proportion goes to performance-based pay. Independent variables are firm-year characteristics, measured by sales, market return, and return on assets. The dummy variable, D162, indicates "before-and-after" Section 162(m). The year-dummies, TIME, capture the trend over time in the corresponding dependent variable. I use "TIME" in the sense that the compensation structure changes over time because of certain effects (e.g., changes in the stock market, changes in government regulations and other

external effects). Such time effects can be easily accounted for if we introduce time dummies, one for each year (Gujarati, 2007).

To investigate whether the ratio of CEO performance-based pay to fixed pay differs between Affected Firms and other firms, I estimate Model (5) separately on Affected Firms and other firms. I do not choose to estimate Model (5) on the full sample by adding another dummy variable to control for group of firms and test interaction effects. In fact, these are equivalent approaches. However, by estimating separate regressions within subgroups (i.e., one regression for Affected Firms and a second regression for all other firms), we can test for each group whether a given independent variable has a significant effect (Hardy, 1993). Ordinary least squares (OLS) analysis is applied to equation (5), and then the median regression approach is performed as a robustness check.

3.2.4 Measuring the effect of Section 162(m) on pay-for-performance sensitivity

To examine whether Section 162(m) has promoted pay-for-performance sensitivity, I first test regression models in which bonus and total compensation are a linear function of performance. The testing period is from 1992 to 1997(the period surrounding Section 162(m)), the same period as Perry and Zenner (2001) and Rose and Wolfram (2002).

Following Core, Holthausen and Larcker (1999) and Rose and Wolfram (2002), I use sales, return on assets (ROA) and market return (Return) as performance measurements. A dummy variable indicates the “before and after”

Section 162(m) periods. Dependent variables are measured by CEO bonuses and total compensation. Murphy (1999) states that "virtually every for-profit company offers an annual bonus plan covering its top executives and paid annually based on a single-year's performance." After Section 162(m), qualified bonus payout will be qualified as performance-based pay. It is important to see how the association changed between bonus payout and performance before-and-after Section 162(m). If there is increased association between bonus and performance after Section 162(m) period compared to that of the prior Section 162(m) period, it may suggest possible Section 162(m) effect. The same concept will apply when examining whether the association between total CEO compensation has changed before-and-after Section 162(m).

I model CEO pay as a function of firm size and firm performance, CEO and year specific effects to estimate the association between pay and performance "before-and-after" Section 162(m). The models are estimated on Affected Firms and other firms, respectively. The regression models are as following:

$$\begin{aligned} Ln(Bonus_{it}) = {} & \beta_0 + \beta_1 \times Ln(Sales_{it}) + \beta_2 \times Return_{it} + \beta_3 \times ROA_{it} + \beta_4 \times D162 \\ & + \beta_5 \times D162 \times Ln(Sales_{it}) + \beta_6 \times D162 \times Return_{it} \\ & + \beta_7 \times D162 \times ROA_{it} + \beta_8 Ln(Age_{it}) + \beta_9 \times TIME + \varepsilon_{it} \end{aligned} \quad (6)$$

$$Ln(Comp_{it}) = \beta_0 + \beta_1 \times Ln(Sales_{it}) + \beta_2 \times Return_{it} + \beta_3 \times ROA_{it} + \beta_4 \times D162 + \beta_5 \times D162 \times Ln(Sales_{it}) + \beta_6 \times D162 \times Return_{it} + \beta_7 \times D162 \times ROA_{it} + \beta_8 \times Ln(Age_{it}) + \beta_{10} \times TIME + \varepsilon_{it} \quad (7)$$

where

Dependent variables:

$Ln(Bonus_{it})$: The natural logarithm of firm i's CEO Bonus (**BONUS** in ExecuComp) in year t.

$Ln(Comp_{it})$: The natural logarithm of firm i's CEO total compensation in year t. Total compensation (**TDC1** in ExecuComp) comprised of Salary, Bonus, Other Annual, Restricted Stock Granted, Stock Option Granted, Long-Term Incentive Payouts, and All Other Total.

Independent variables:

$Ln(Sales_{it})$: The natural logarithm of firm i's sales (**SALES** in ExecuComp) in year t.

ROA: The net income before extraordinary items and discontinued operations divided by total assets (**ROA** in ExecuComp).

Return: The 1 year total return to shareholders, including the monthly reinvestment of dividends (**TRS1YR** in ExecuComp).

D162: A dummy variable equals 1 for observations in 1994, 1995, 1996 and 1997, and equal 0 for 1992 and 1993.

Interaction variables: Include interaction variables between the three performance measures and post-Section 162(m) dummy variable.

Ln(Age): The natural logarithm of CEO's age, a proxy for CEO's tenure.

TIME: The calendar year minus 1992. The variable captures the trend over time in the corresponding dependent variable.

It is worth noting, in this approach (refer to Model 6 and 7), all compensation figures are in dollars. The drawback of examining the correlation between firm performance and the dollar value of CEO compensation is that linking firm performance with dollar amounts of CEO compensation could mis-specify the model. For example, a CEO of company A received $5 million compensation last year, and receives $ 7million this year because company A's stock price outperformed market-wide stocks; another CEO of company B received $8 million last year, and receives $8.5 million this year on average market performance this year. From this example, one cannot find the pay and

performance correlation one is looking for. However, if one is looking for association between the change in compensation and the change in firms' performance from current year to last year, one will find it. Unfortunately, compensation data, such as salary, bonus, option, etc., are not available prior to 1992. Thus, using the change of compensation as a dependent variable will lose year 1992 and reduce the statistical power because the pre-Section 162(m) period will be only for 1993 while year 1994, 1995, 1996 and1997 will be treated as a post-Section 162(m) period. This data limitation is also stressed by Perry and Zenner (2001) and Rose and Wolfram (2002). Nevertheless, the above approach still holds its ground for testing Hypotheses 4a and 4b.

In order to address the problem in Model (6) and (7), I conduct a second test to detect the possible long-term effect of Section 162(m) on pay-for-performance sensitivity (to test Hypothesis 4c). I estimate the linear relation between the compensation increase rate and the performance growth rate. As I describe in the above example, a problem can arise when directly comparing two CEOs' compensation in dollar amount with their companies' performances. Rose and Wolfram (2002) advocate a "difference-in-differences" (e.g. $\Delta Y_t = \beta \Delta X_t + \varepsilon_t$) model that allows compensation at high-paying firms to differ from that at lower-paying firms and believe that using a difference-in-differences estimator may mitigate certain firm- and CEO-specific fixed effects. I believe that the "difference-in-differences" model is an appropriate approach for investigating the association between pay and performance. However, there is still a potential problem when using the "difference-in-differences" model because it cannot

precisely measure the magnitude of difference in differences. For example, the CEO of company A received $5 million compensation last year and receives $ 7million this year while another CEO of company B received $10 million last year and receives $12 million this year. The differences of both compensations from last year to this year are the same amount, $2 million. But one still could not get a clear picture of the magnitude of changes in both CEOs' compensation from last year to this year. Using ratio measurement shows that company A's CEO pay increased 40% while company B's CEO pay increased 20%, and the problem is solved.

Moreover, certain determinants of CEO compensation, such as CEO's education, experience, and reputation etc. are hard to quantify. Normally, most of the CEO compensation, in forms of salary, bonus, option etc. is closely linked to the previous year. And the most direct factor that could influence CEO compensation should be the previous compensation. Thus, the use of CEO compensation increase rate as the dependant variable, instead of CEO total compensation may avoid including many variables that influence CEO compensation at the current year, such as the CEO education, experience, etc. since we may say all of those factors are already reflected by the CEO compensation in the previous year. Therefore, building the association between compensation increase rate (the same concept as change ratio) and performance growth rate is an appropriate approach. Not only will this approach eliminate many unnecessary control variables, but also will mitigate mulitcollearnrity and autocorrelation.

To investigate the possible long-term effect of Section 162(m) on pay-for-performance sensitivity, I divide the full sample into two set of firms: Affected Firms vs. other firms. I expect that Affected Firms are more sensitive to new regulations and rules subsequent to the implementation of Section 162(m) than other firms. Affected Firms as discussed in Section 3.2.2 and 3.2.3 are more likely to qualify their compensation plans as performance-based and therefore, are more sensitive to the newly enacted regulations. I model compensation increase rate as a function performance growth rate, and an indicator variable for whether the compensation falls in the earlier period of post-Section 162(m) or in the later period of post-Section 162(m). If there is an increase in sensitivity of compensation to performance from period 1(the period of 1995-1997) to period 2 (the period 2003-2005), it suggests that such firms respond to recent new rules and requirements in order to comply Section 162(m). The models are estimated on Affected Firms and other firms, respectively. The regression models are given by:

$$\text{RofG Bonus}_{it} = \beta_0 + \beta_1 \times \text{RofG Sales}_{it} + \beta_2 \times \text{Return}_{it} + \beta_3 \times \text{RofG ROA}_{it} + \beta_4 \times \text{Period2} + \beta_5 \times \text{Period2} \times \text{RofG sales}_{it} + \beta_6 \times \text{Period2} \times \text{Return}_{it} + \beta_7 \times \text{Period2} \times \text{RofG ROA}_{it} + \varepsilon_{it} \quad (8)$$

$$\text{RofG Comp}_{it} = \beta_0 + \beta_1 \times \text{RofG Sales}_{it} + \beta_2 \times \text{Return}_{it} + \beta_3 \times \text{RofG ROA}_{it} + \beta_4 \times \text{Period2} + \beta_5 \times \text{Period2} \times \text{RofG sales}_{it}$$

$$+ \beta_6 \times \text{Period2} \times \text{Return}_{it} + \beta_7 \times \text{Period2} \times \text{RofG ROA}_{it} + \varepsilon_{it} \quad (9)$$

where

Dependent variables:

RofG Bonus$_{it}$: The increase rate of firm i's CEO Bonus in year t. It is calculated as (Bonus$_t$ – Bonus$_{t-1}$)/Bonus$_{t-1}$.

RofG Comp $_{it}$: The increase rate of firm i's CEO total compensation in year t. It is calculated as (Comp$_t$ – Comp$_{t-1}$)/Comp$_{t-1}$.

Independent variables:

RofG Sales $_{it}$: The rate of growth of firm i's sales in year t. It is calculated as (Sales$_t$ – Sales$_{t-1}$)/Sales$_{t-1}$.

Return$_{it}$: The 1 year total return to shareholders, including the monthly reinvestment of dividends (**TRS1YR** in ExecuComp).

RofG ROA $_{it}$: The rate of growth of firm i's ROA in year t. It is calculated as (ROA$_t$ – ROA$_{t-1}$)/Sales$_{t-1}$.

Period2: A dummy variable equals 1 for observation in the period of 2003-2005 and equal to 0 in the period of 1995-1997.

Interaction variables: Include interaction variables between the three performance measures and period dummy.

In model (8) and (9), both dependent and independent variables are using the “ratio scale” measurements. The preceding discussion has indicated the advantages of using ratio scale. The variable “Return” is not labeled as “rate of growth” of Return because the variable “Return” is total shareholder return and is calculated as:

Total Shareholder Return= (Share Price End Of Period - Share Price Begin Of Period) + Dividends) / Share Price Begin Of Period

Therefore, the variable itself is already represented as change ratio and can be easily compared from company to company, and benchmarked against industry or market returns, without having to worry about size bias.

Ordinary least squares (OLS) analysis is applied to equations (8) and (9), and then the median regression approach is performed for a robustness check. The next section discusses the results of the hypotheses tested.

CHAPTER 4

RESULTS

4.1 The Effect of Section 162(m) on CEO Compensation Levels

4.1.1 Change of salary

Figure 1 shows the average level of CEO salary on Million-Dollar Firms among all S&P 500 companies over the period 1992 to 2005. I choose only Million-Dollar Firms because they are more likely to be affected by the million dollar cap due to the change of the tax law. Salary is adjusted to the 1992 constant dollar (inflation adjusted). As the figure indicates, CEO average salary increases from 1992 to 1994, even after the inflation adjustment. The upward trend from 1992 to 1994 suggests that the true value of CEO salary increased until 1994. Then, after 1994, the CEO average salary decreased. We know that 1994 was a key year because Section 162(m) became effective, and the continuation of a downward trend in salary strongly suggests that the growth of CEO salary might be constrained by Section 162(m). Note that after year 2002, the average CEO salary after inflation adjustment turns out to be less than $1milllion.

It is also interesting to find how the ratio of salary to total compensation has changed from 1992 to 2005. Figure 2 shows the average ratio of the CEO salary to CEO total compensation during the period of 1992-2005. I still use Million-Dollar Firms and CEO total compensation is also adjusted to 1992 constant dollar. The ratio of salary to total compensation was greater than 25%

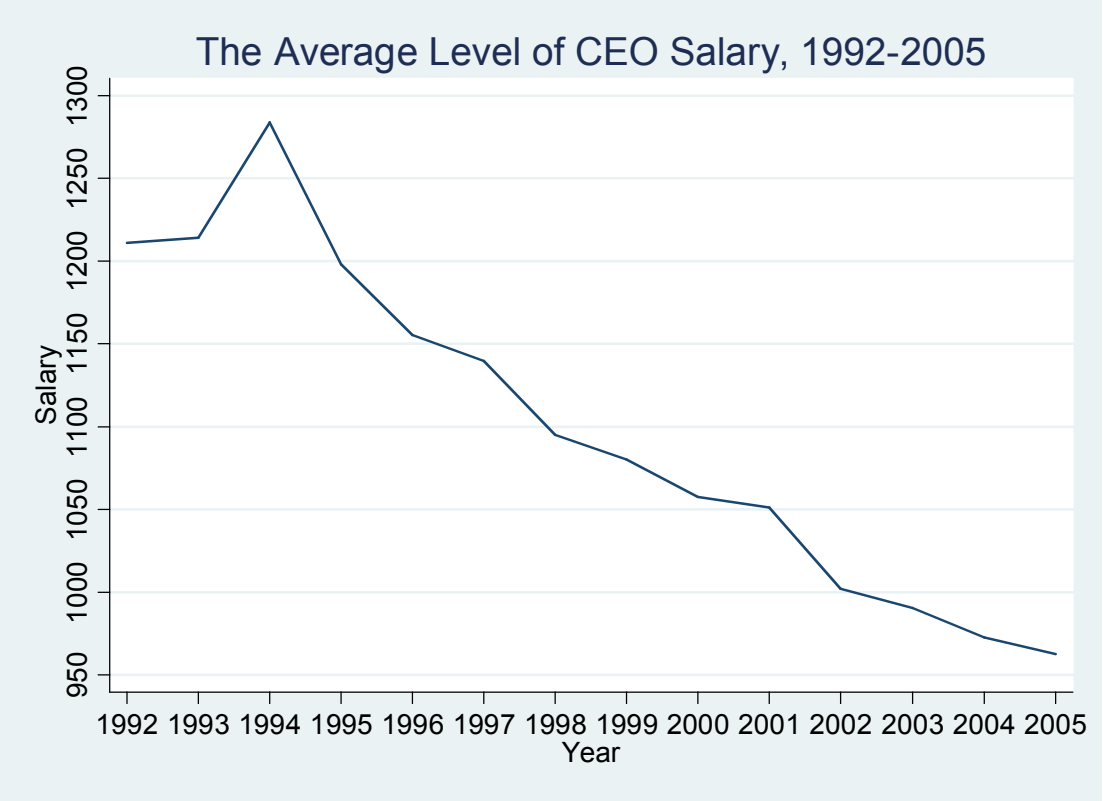

Figure 1. Average level of CEO pay, 1992-2005. Data is selected from the set of S&P 500 index companies per the ExecuComp database. I report mean Salary data for all S&P index firms that paid their CEOs' salaries no less than $1 million. The salary is adjusted to 1992 constant dollars according to the Consumer Price Index (CPI). The sample includes 309 firms with 1,368 firm-year observations.

in 1992 which suggests that salary was one of the main components of a CEO's compensation in 1992. However, the situation has changed rapidly since 1992. The ratio has a very sharp drop from the year 1992 to 1997. And after 1997, CEO salary is no longer a significant part of CEO total compensation. The variation range of the ratio of salary to total compensation is between 6.1% and 11.4% from the year 1998 to 2005. And again, the year 1994 becomes a dividing point so that the CEO average salary only occupies a small percentage

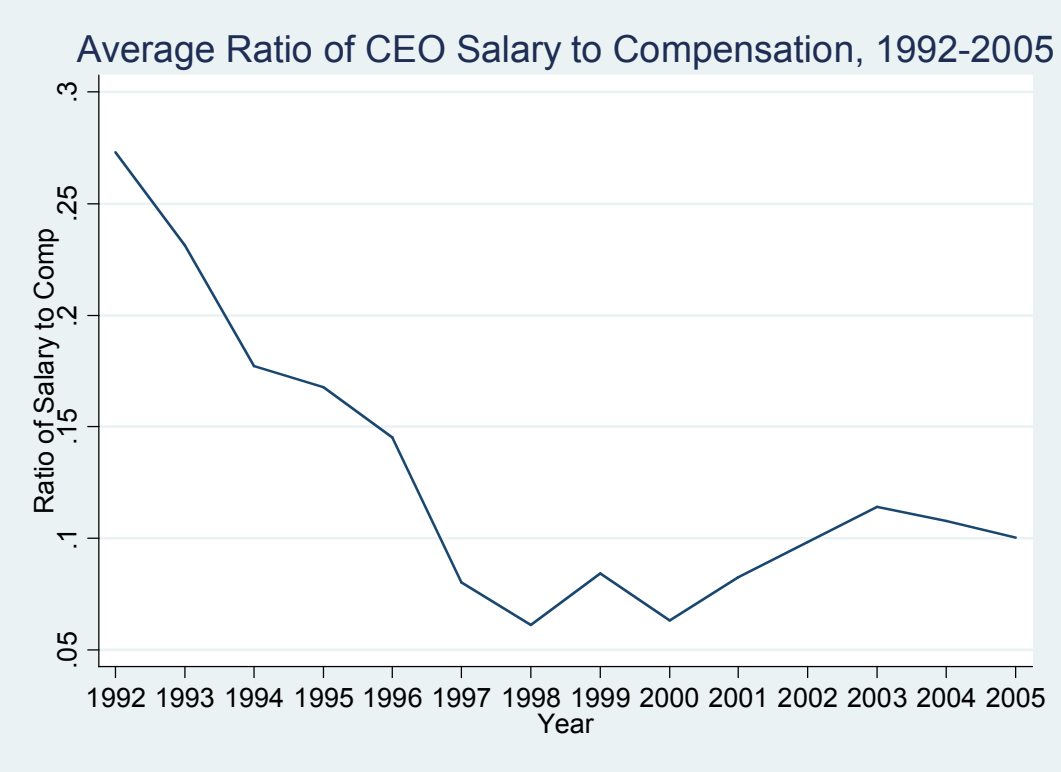

Figure 2. Average ratio of CEO salary to compensation, 1992-2005. Data is selected from the set of S&P 500 index companies per ExecuComp database. I report the average *CEO salary / total compensation* ratio for all S&P 500 firms that paid their CEO salaries no less than $1million. All data are adjusted to the 1992 constant dollars. The sample represents 309 firms with 1,368 firm-year observations.

in CEO total compensation after Section 162(m) became effective. However, it is not clear how much effect Section 162(m) has in regard to such a huge change in the CEO compensation structure. Nevertheless, the decreasing ratio of salary to total compensation implies that Section 162(m) is a result of public attention on excessive executive compensation. Also, after the implementation of Section 162(m), more and more public attention is attracted to CEOs' high salaries and such forces made public companies resist raising their CEO salary too high (as indicated in Fig. 1) for the actual value of CEO salaries decreased after 1994.

Figures 1 and 2 indicate that the average CEO salary level of Million-Dollar Firms decreases following the implementation of Section 162(m) and the role of salary has changed from being the main contributing component of total compensation(more than 25% of total compensation in1992) to being a less significant component of compensation (about 6% in 1998). However, the figures so far show an overall trend on the average salary level and the composition of salary to total compensation. Further examination indicates that compensation committees of Non-Million-Dollar Firms curb the salary increase rate because of Section 162(m). First, I simply employ t-statistics to test simple difference in the CEO salary growth rates prior to Section 162(m) and after Section 162(m) for Million-Dollar Firms and Non-Million Dollar Firms. As noted in the previous data section, ExecuComp reports CEO compensation data only started in 1992 and Section 162(m) became effective in 1994. Thus, prior to Section 162(m), salary growth rate is only available for year 1992 and 1993. Therefore, I use salary growth rate from 1992 to 1993 as the period of pre-Section 162(m) and its corresponding period, the period of 1994-1995 as post-Section 162(m) period. The mean comparison is used to differentiate the salary growth rate between pre- and after- Section 162(m) and differentiate salary growth rate between Million-Dollar Firms and Non-Million-Dollar Firms. Table 1 reports the mean difference of salary growth rate before and after Section 162(m). Panel A of Table1 presents the salary growth rate for Million-Dollar Firms. The mean salary growth rate increases before Section 162(m) and decreases after Section 162(m) and the difference in salary growth rate of Million-Dollar Firms is

Table 1
Salary Growth Rate Before and After Section 162(m)

This table reports t-statistics of the salary growth rate before and after Section 162(m) between CEOs of firms subject to Section 162(m) and CEOs of firms less likely to be affected by Section 162(m) (Million-Dollar Firms vs. Non-Million-Dollar Firms). Salary growth rate is calculated as $(salary_t\text{-}salary_{t-1})/salary_{t-1}$. Within the group of Million-Dollar Firms, there are 29 matched companies for 1992-1993 and 34 for 1994-1995. Within group of non-Million-Dollar Firms, there are 166 matched companies for 1992-1993 and 312 for 1994-1995.

Panel A: Million-Dollar Firms This panel includes the number of matched firms that paid their CEOs' salaries no less than $1million.						
	obs	Mean	Std. Err	Std. Dev.	[95% conf. Interval]	
Pre-Section162 (m) (1992-1993)	29	.05709	.30388	.16364	-.00515	.11934
Post-Section162 (m) (1994-1995)	34	-.00244	.02968	.17307	-.06284	.05795
Diff		.05953	.04248		-.02543	.14449
Ho: diff = 0	Satterthwaite's degrees of freedom = 60.3244 t=1.4014* (P<0.08)					
Panel B: Non-Million-Dollar Firms This panel includes the number of matched firms that paid their CEOs' salaries no less than $1million.						
	obs	Mean	Std. Err	Std. Dev.	[95% conf. Interval]	
Pre-Section162 (m) (1992-1993)	166	.05791	.00959	.12358	.03897	.07685
Post-Section162 (m) (1994-1995)	312	.06204	.00960	.16961	.04315	.08094
Diff		-.00413	.01357		-.03081	.02254
Ho: diff = 0	Satterthwaite's degrees of freedom = 431.51 t=-0.3045 (P<0.62)					

* Represent significant levels at 10 percent.

statistically significant (at 10% level of significance). However, Panel B of Table 1 reports that the difference of salary growth rate before and after Section 162(m) for Non- Million-Dollar Firms is not statistically significant. The results of Table 1 further suggests that Million-Dollar Firms have limited their CEOs salary growth after the implementation of the tax law, while the change in the tax provision has not significantly affected salary growth rate among Non-Million Dollar Firms. The differences imply that firms with lower salaries are less sensitive to this tax policy intervention than their counterparts paying their CEOs no less than $1 million in salary. To further explore this apparent effect, I

Table 2
1992-2005 Salary Level Regression
Million-Dollar Firms vs. Non-Million-Dollar Firms

Ordinary least squares regressions of the determinants of CEO salary level as a function of year, firm size, firm value and performance. Model (1) is the base model that does not include firm specific effects. The dependent variable is natural logarithm of salary (salary is in 1992 constant dollar, inflation adjusted). Year-dummies are indicator variables that equal 1 with the respected year, 0 otherwise. Model (2) includes firm specific effects: ROA is return on assets, performance measure; Ln(Sales) is natural logarithm of sales, proxy for firm size; Tobin'sQ is the market value of assets to the book value of assets, measure of firm value and performance. Models are estimated on million-dollar-firms and non-Million-Dollar Firms, respectively.

Independent Variables	Dependent variable Ln(Salary)			
	Million-Dollar Firms		Non-Million Dollar Firms	
	Model (1) (P-value)	Model (2) (P-value)	Model (1) (P-value)	Model (2) (P-value)
intercept	7.117*** (<0.001)	6.229*** (<0.001)	6.287*** (<0.001)	5.392*** (<0.001)
1992dummy	-0.008 (0.902)	-0.048 (0.448)	0.075 (0.497)	0.02 (0.855)
1993dummy	-0.043 (0.478)	-0.039 (0.49)	0.013 (0.893)	0.013 (0.893)
1995dummy	-0.072 (0.205)	-0.1* (0.058)	-0.011 (0.903)	-0.012 (0.894)
1996dummy	-0.106* (0.055)	-0.123*** (0.016)	-0.055 (0.55)	-0.064 (0.486)
1997dummy	-0.118** (0.029)	-0.142*** (0.005)	-0.086 (0.349)	-0.095 (0.295)
1998dummy	-0.141*** (0.007)	-0.181*** (<0.001)	-0.168* (0.068)	-0.16* (0.08)
1999dummy	-0.163*** (0.001)	-0.191*** (<0.001)	-0.199** (0.03)	-0.181** (0.047)
2000dummy	-0.188*** (<0.001)	-0.226*** (<0.001)	-0.167* (0.067)	-0.188** (0.037)
2001dummy	-0.196*** (<0.001)	-0.228*** (<0.001)	-0.072 (0.425)	-0.095 (0.305)
2002dummy	-0.242*** (<0.001)	-0.259*** (<0.001)	-0.186** (0.046)	-0.21** (0.023)
2003dummy	-0.255*** (<0.001)	-0.277*** (<0.001)	-0.12 (0.203)	-0.143 (0.129)
2004dummy	-0.276*** (<0.001)	-0.303*** (<0.001)	-0.135 (0.154)	-0.167* (0.076)
2005dummy	-0.299*** (<0.001)	-0.324*** (<0.001)	-0.137 (0.154)	-0.18* (0.0059)
Ln(Sales)		0.091*** (<0.001)		0.119*** (<0.001)
ROA		0.000 (0.716)		0.000 (0.521)
Tobin's Q		0.018*** (0.004)		-0.02*** (<0.001)
N	1,369	1,368	3,983	3,979
Adjusted R^2	0.085	0.212	<0.01	0.022
F-value (Pr>F)	10.77 (<0.001)	24.05 (<0.001)	1.40 (0.151)	6.71 (<0.001)

***, ** and * represent significant levels at the 1%, 5% and 10%levels, respectively.

employ ordinary least squared regression models to detect possible Section 162(m) effects.

Table 2 summarizes the results estimating equations (1) and (2). After the data are collected, I adjust salary to the 1992 constant dollar according to Consumer Price Index. It is well known that the inflation adjustment may guarantee that the same dollar amount provides an identical purchasing power through all these years. Salary is an important component of cash compensation as Charan (2005) notes that "of the cash component, half might be base salary, with potentially another half a performance bonus." Therefore, executives devote substantial attention to the salary-determination process (Murphy, 1999). The determinants of base salary include the percentile of peers, size and complexity and salary level of the previous year. The previous salary level is the key and if there were no Section 162(m) in place, minimum increases in base salaries for subsequent years would at least match the inflation rate. Thus, I believe the adjusted salary would reflect the real value of CEO salary. Model (1) estimates the effect of Section 162(m) on the changes in salary level during sample period of 1992-2005 for Million-Dollar Firms and Non-Million-Dollar Firms. Model (2) includes specific effects of firm size and performance, firm value and growth. Table 2 suggests that CEO salary of Million-Dollar Firms is reduced after Section 162(m). As indicated in column (i) and (ii), the estimated slope coefficients of the year-dummies show that the mean salaries in post Section 162(m) period (the period 1995-2005) are statistically lower than the mean salary in 1994 (the intercept represents year 1994) and there is a persistently continuation of the

downward trend. However, the estimated coefficients in 1992 and 1993 are not statistically significant different from that of 1994. I use year 1994 as the reference year because Section 162(m) was effective after January 1, 1994. The results for non-Million-Dollar Firms (column (iii) and column (iv)), do not show the obvious pattern of decreasing salary level after 1994 due to lack of statistical significance. These results further suggest that implementation of Section 162(m) has created a focal point for the changes in salary level in that CEO salary levels have decreased after Section 162(m), and that firms with fixed cash payment no less than $1 million are more sensitive to the million dollar cap than their counterpart with CEO fixed cash payment lower than $1 million benchmark.

In Model (2), control variables for size, performance and firm value are taken into consideration. As expected, firm size is positively related to salary of both Million-Dollar Firms and Non-Million-Dollar Firms (coefficient of ln(sales) is 0.09 ($p<0.001$) for Million-Dollar Firms and 0.12 ($p<0.001$) for Non-Million-Dollar Firms). The observed relation between salary and company size is consistent with prior theory and empirical work (Rosen1982; Smith and Watts1992). There is virtually no performance sensitivity for salary because coefficients of ROA are not significant for either Million-Dollar Firms or Non-Million-Dollar Firms. This is expected results since fixed salary is not contingent on performance. The results of Tobin's Q are mixed. For Million-Dollar Firms, Tobin's Q is positively related to salary while for Non-Million-Dollar Firms, Tobin's Q is negatively related to salary. The results may suggest that Million-Dollar Firms are normally bigger firms and thus their CEO salaries tend to be correlated with their firm value, and that Non-

Million-Dollar Firms are paying their CEO salaries in a much more discretionary manner.

4.1.2 Change of compensation

Figure 3 depicts the trends of the main components of CEO compensation over the time period studied. Only Million-Dollar Firms are studied in Figure 3. Components of CEO compensation include Salary, Bonus, Restricted Stock Granted (RTS), Stock Option, and Long-Term Incentive Payouts (LTIP). All components of CEO compensation are adjusted to the 1992 constant dollar. It is clear that although the CEO average salary decreased after 1994 (see figure 1), CEO compensation is not following the same trend. This suggests that the salary's relative decrease has been compensated with other components of compensation. Notice that the CEO total compensation curve has two distinct peaks in year 1998 and year 2000. As this figure reveals, restricted stock grants and stock options contribute most in forming the 1998 and 2000 peaks respectively. US economic growth reached its peak during the period of 1998-2000 and the market also had its best performance during the same period. It is reasonable to argue that CEO compensation was largely influenced by this economic growth. Unsurprisingly, the variation in economic growth might have a larger effect on CEO compensation than Section 162(m). In fact, during that time period (1998-2000), companies were distributing a lot of stock-related payments to their CEOs. And it is important to note that the value of restricted

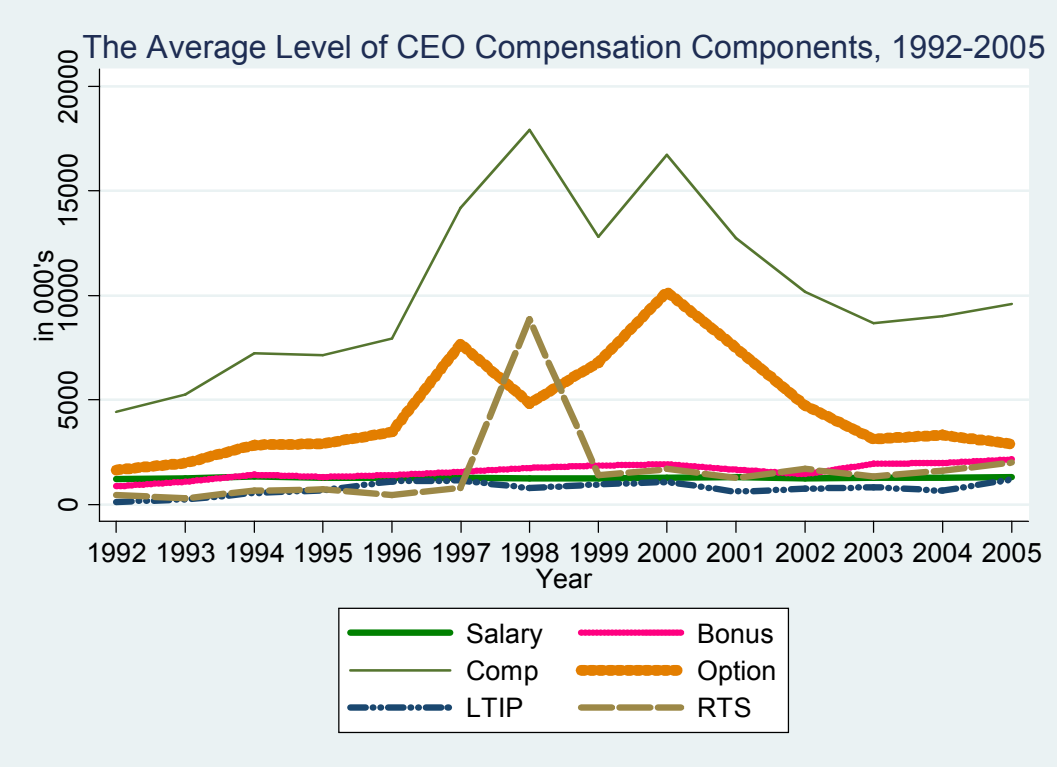

Figure 3. The average level of CEO compensation components, 1992-2005. Data is selected from the set of S&P500 index companies per ExecuComp database. The mean compensation components data is inflation adjusted (in CPI-deflected 1992 constant dollars) for firms that paid their CEO salary no less than $1million. CEO compensation (Comp) contains six components: salary, bonus, option, restricted stock grant (RST), long-term incentive plan (LTIP) and the total other. Option refers to the value of stock option granted to the executive during the year as valued using S&P's Balck-Scholes methodology. RTS is the value of restricted stock granted during the year determined as the date of the grant. LTIP means the amount paid out to the executive under the company's long-term incentive plan. The sample represents 309 firms with 1,368 firm-year observation.

stock that companies gave their CEOs in 1998 was more than two times the total restricted stock value from 1992 to 1997. As a result, CEO total compensation increased dramatically during the period of two distinct peaks in the figure. To examine the effects of Section 162(m) on compensation, these economic and market influences have to be controlled. Also company performance can influence CEO compensation, especially performance related components such as bonuses. In short, to examine the Section 162(m) effect on CEO

compensation while smoothing out the influences of the economic environment and company performance, I use a combination of mechanisms. First, all data is adjusted for inflation (in CPI-deflected 1992 constant dollars, control for economic influence). Second, given that stock options and restricted stocks are directly related to market prices, I adjust stock options and restricted stocks to the 1992 S&P index standard (control for stock market performance). Third, I calculate the average yearly return on equity (ROE) (proxy for firm performance, control for firm performance) and adjust bonuses to the 1992 performance standard since bonuses are more likely to be connected with company performance. Finally, the CEO average total compensation is adjusted correspondingly to the relative adjustment of stock options, restricted stocks and bonuses. Figure 4 serves the purpose of presenting the modified compensation components after smoothing out economic and performance influences. Following the same concept as the inflation adjustment, if stock options and restricted stock curves go upward, it suggests that the increase of this component are larger than market average growth. Similarly, the upward trend of the bonus curve suggests bonus increases are larger than company growth. As shown in Figure 4, stock options are found to be the CEO's most important income component. Bonus and salary are weighed in a similar manner and are the second highest components respectively in CEO total compensation. Moreover, but not tabulated here, the ratio of bonuses to total compensation reached 34.1% in 2005 while the ratio of stock options to total compensation has

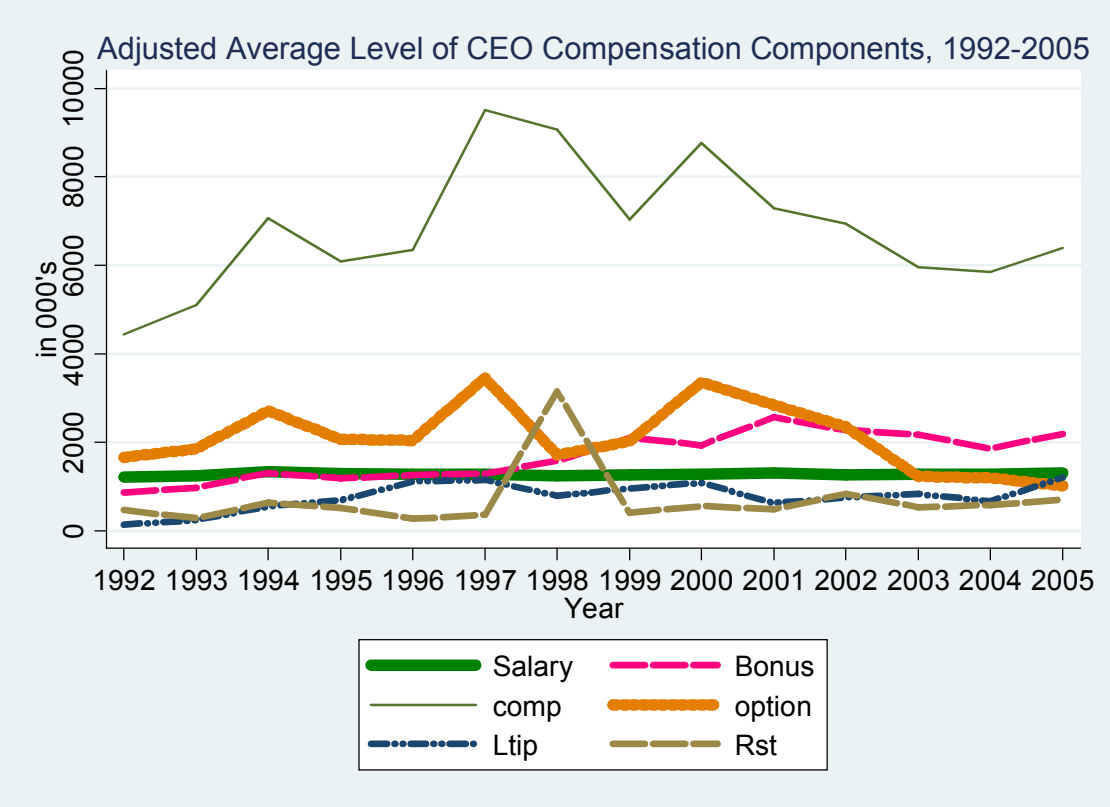

Figure 4. Adjusted average level of CEO compensation components, 1992-2005. Data are collected from the set of S&P index companies per ExecuComp database. I report mean compensation component data (in CPI-deflected 1992 constant dollars) for firms that paid their CEO salares no less than $1million. CEO compensation contains six components: salary, bonus, option, restricted stock grant (RST), long-term incentive plan (LTIP) and the total compensation (COMP). Option refers to the value of stock option granted to the executive during the year as valued using S&P's Balck-Scholes methodology. RTS is the value of restricted stock granted during the year determined as the date of the grant. LTIP means the amount paid out to the executive under the company's long-term incentive plan. Stock-based compensation such as option and restrictrd stock is adjusted by S&P 500 index to control for market influence and bonus is adjusted by return on equity (ROE, a proxy for firm performance) to smooth out firm growth influence. The sample represents 309 firms with 1,368 firm-year observations.

dropped from 38.3% to 15.7% over the period of 2000- 2005. Although CEO average salaries decreased after 1994, the adjusted CEO total compensation does not show the downward trend (which is also shown in Figure 3). The decrease in salary is mostly compensated by the stock option increase before

2000 and the bonus increase after 2000. The total compensation curve has three distinct peaks at 1994, 1998 and 2000. Two peaks also appear in Figure 3 and are possible indications of excessive CEO pay. The peaks in 1998 and 2000 suggest that during the period of 1998-2000, companies paid their CEOs more than what can be explained by economic and company growth. The third peak in 1994 is more interesting for it indicates that although the CEO total compensation curve does not show a long-term downward trend, it does have a drop immediately after Section 162(m) became effective. It should be noted that CEO total compensation in Figure 3 does not show a significant change immediately after 1994. However, Figure 4 shows an immediate downward trend in CEO total compensation after 1994. The downward trend may imply that Section 162(m) does have a short-term effect on constraining CEO compensation. The decrease in salary, which took effect immediately after 1994, is not compensated by other compensation components synchronously.

Figure 3 and 4 suggest that the tax provision has not succeeded in reducing overall compensation levels. However, these figures are only suggestive and do not explain whether the observed tendency is related to firm specific characteristics or year-fixed effects. Therefore, multivariate regression analysis (Model 3 and 4) will serve this purpose. I model CEO compensation as a function of firm size, stock return, performance and indicator variables of firm character (million-dollar firm vs. non-million-dollar firm) and year specific effect (pre-Section 162(m) vs. after-Section162(m)).

Table 3
1992-2005 Compensation Level Regressions

Regression models of CEO compensation level as a function of firm size, stock market and firm performance, and indicator variables. The dependent variable of Model (3) is the natural logarithm of CEO compensation and the dependent variable of Model (4) is the natural logarithm of adjusted CEO compensation which is adjusted for inflation (in 1992 constant dollars). Independent variables include return on assets, natural logarithm of sales, total return to shareholders, dummy variable, D162 equals 1 if compensation years are after January 1, 1994 and 0 otherwise and dummy variable, Million-Dollar-Firms equals 1 if a firm pays its CEO salary no less than $1million, and 0 otherwise. OLS uses ordinary least squares regression analysis and Robust uses median regression analysis. Regression p-values are in parentheses.

	Model (3)		Model (4)	
Dependent variable	Ln(Comp)		Ln(AdjComp)	
Estimation method	OLS	Robust	OLS	Robust
D162	0.589*** (0.000)	0.641*** (0.000)	0.427*** (0.000)	0.471 (0.000)
D162*Million-Dollar-Firms	0.599*** (0.000)	0.599*** (0.000)	0.562*** (0.000)	0.520*** (0.000)
Ln(Sales)	0.278*** (0.000)	0.304*** (0.000)	0.271*** (0.000)	0.299*** (0.000)
ROA	0.002* (0.078)	0.004*** (0.000)	0.002** (0.048)	0.004*** (0.000)
Return	0.000* (0.073)	0.000*** (0.000)	0.000* (0.071)	0.000 (0.344)
Intercept	5.261*** (0.000)	4.990*** (0.000)	5.321*** (0.000)	5.031*** (0.000)
N	5,293	5,293	5,293	5,293
Adjusted R^2	0.23		0.22	
Pseudo R^2		0.17		0.17
F-value (Pr<F)	317.68 (<0.001)		299.03 (<0.001)	

***, ** and * represent significant levels at the 1%, 5% and 10% levels, respectively.

Table 3 presents regression results of Model (3) and Model (4). Compensation is measured in both nominal value and inflation-adjusted value. The results for both measurements of compensation are virtually the same. The positive and statistically significant coefficients of the dummy variable, D162, suggest that the overall CEO compensation is statistically increased after Section 162(m). The estimated coefficients of interaction of Section162 (m) and Million-Dollar-Firms suggest an impact of Section 162(m) on Million-Dollar Firms. As indicated from Table 3, the coefficients of the interaction term imply that CEO

compensation levels of Million-Dollar Firms increased much more than those of Non-Million-Dollar Firms after the implementation of Section 162(m). As expected, firm size, measured by the natural logarithm of sales, is positively related to total compensation. By looking at performance coefficients, CEO compensation is positively related to return on assets while it is only marginally positively related to stock return.

Using the least absolute deviation method to minimize the outliers' influence, I re-examine Model (3) and (4) by median regression analysis (indicated as "robust" in Table 3). The results are consistent with ordinary least squares (OLS) regression analysis.

4.2 The Effect of Section 162(m) on CEO Compensation Structure

Table 4 reports the corresponding results for changes in CEO compensation structure before and after Section162 (m). The coefficient of the dummy variable D162 on Affected Firms is positive and significant in both OLS and median regressions, suggesting that after section 162(m), Affected Firms pay their CEOs more incentive compensation than before Section 162(m). The dependent variable, Mix, measured by the ratio of performance-based compensation to salary, captures the magnitude of the increased use of performance-based compensation relative to non-performance-based pay. If Affected Firms alter the pay structure by increasing the level of incentive compensation and reduce or stabilize fixed salaries, this behavior may suggest

Table 4
1992-2005 Compensation Structure Regressions
Affected Firms vs. Other Firms

Regressions of the ratio of performance related compensation to the fixed salary of CEO as a function of firm size, stock market and firm performance, and indicator variables as presented in Model (5). The dependent variable is the ratio of the Black-Scholes value of option grants plus bonus to the salary of the CEO. Independent variables include return on assets, natural logarithm of sales, total return to shareholder, dummy variable, D162 equals 1 if compensation years are after January 1, 1994 and 0 otherwise. OLS uses ordinary least squares regression analysis and Robust uses median regression analysis. Regression p-values are in parentheses.

Dependent variable	Mix			
Subgroup	Affected Firms		Other Firms	
Estimation method	OLS	Robust	OLS (in 000's)	Robust
D162	3.587* (0.074)	1.499* (0.052)	219.744 (0.747)	0.127 (0.462)
Ln(Sales)	1.334*** (0.000)	0.763*** (0.000)	171.074 (0.308)	0.244*** (0.000)
ROA	-0.049 (0.412)	0.07*** (0.003)	4.567 (0.703)	0.017*** (0.000)
Return	0.024** (0.022)	0.003 (0.462)	0.106 (0.84)	0.001*** (0.000)
TIME	-0.107 (0.377)	0.157*** (0.001)	17.118 (0.808)	15.6*** (0.000)
Intercept	-8.944*** (0.014)	-6.293*** (0.000)	1,427.263 (0.316)	-1.000*** (0.005)
N	978	978	3,155	3,155
Adjusted R^2	0.02		0.01	
Pseudo R^2		0.04		0.01
F-value (Pr<F)	5.31 (<0.001)		0.36 (<0.874)	

***, ** and * represent significant levels at the 1%, 5% and 10% levels, respectively.

that such firms, which are likely to be affected by Section 162(m), responded to additional tax expenses due to the implementation of the million dollar tax rule by designing CEO compensation away from fixed salary toward performance-based pay.

As the table reports, the coefficients of D162 on "other firms" estimated by both OLS and robust regressions, are not statistically significant, indicating that firms other than Affected Firms do not show significant higher Mix after Section 162(m). This may imply Section 162(m) does not create the same effect to other

firms as it does on Affected Firms and provides further evidence that Section 162(m) may have an effect on the significant changes in the compensation structure of Affected Firms.

4.2 The Effect of Section 162(m) on Pay-for-Performance Sensitivity

Table 5 and 6 report the association between CEO compensation and firm performance during period 1992-1997. Normally bonus payouts are best used as incentive contracts for annual performance objectives. According to traditional agency theory, an efficient incentive contract minimizes agency cost and aligns the interest of management with interest of shareholders. Therefore, we would expect to see significant association between bonus, compensation and performance. However, the results in Table 5 and 6 indicate the lack of overall association between CEO compensation and performance during the examined period.

In table 5, among the coefficients of performance measurements, only the coefficient of market return (Return) for Affected Firms is positively related to bonus at the 1% significant level ($p<0.01$ in OLS and $p<0.00$ in robust regression). But within the other firms, only sales is positively related to bonuses ($p<0.000$ in both OLS and Robust analysis). These results indicate there is a statistically significant association between CEO bonus and market return in Affected Firms while in other firms, there is a significant association between bonus and sales. In both groups (Affected Firms vs. other firms) and all

Table 5
Performance-Sensitivity Regressions, 1992-1997
Affected Firms vs. Other Firms

Regressions of CEO bonus as a function of firm performances and an indicator variable as presented in Model (6). The dependent variable is the natural logarithm of CEO bonus. Independent variables include return on assets, the natural logarithm of sales, and market return. Dummy variable, D162 equals 1 if compensation years are after January 1, 1994 and 0 otherwise. Control of CEO tenure is a proxy of CEO age and the variable TIME captures the trend over time in the corresponding dependent variable. OLS is ordinary least squares regression analysis and Robust is median regression analysis. Regression p-values are in parentheses.

Dependent variable	Ln(Bonus)			
Subgroup	Affected Firms		Other Firms	
Estimation method	OLS	Robust	OLS (in 000's)	Robust
Intercept	2.364 (0.324)	3.001* (0.096)	1.673** (0.034)	1.931** (0.013)
Ln(Sales)	-0.066 (0.599)	-0.035 (0.703)	0.307*** (0.000)	0.269*** (0.000)
ROA	0.004 (0.883)	-0.003 (0.869)	0.005 (0.583)	-0.002 (0.824)
Return	0.008** (0.016)	0.010*** (0.000)	0.003* (0.064)	0.002* (0.092)
D162	-1.548 (0.256)	-2.209** (0.026)	-0.165 (0.666)	-0.545 (0.147)
D162*Ln(Sales)	0.195 (0.152)	0.263*** (0.009)	0.04 (0.374)	0.071 (0.114)
D162*ROA	-0.028 (0.303)	-0.012 (0.511)	-0.002 (0.830)	-0.011 (0.27)
D162*Return	-0.003 (0.401)	-0.005* (0.073)	0.001 (0.724)	0.001 (0.610)
Ln(Age)	1.24** (0.024)	0.989** (0.015)	0.434** (0.017)	0.476*** (0.008)
TIME	0.037 (0.515)	0.042 (0.334)	0.042* (0.058)	0.056*** (0.01)
N	199	199	1,307	1,307
Adjusted R^2	0.11		0.26	
Pseudo R^2		0.12		0.18
F-value (Pr<F)	3.78 (<0.001)		51.85 (<0.001)	

***, ** and * represent significant levels at the 1%, 5% and 10% levels, respectively.

regression analysis, CEO tenure is positively related to bonus payments. To detect whether Section 162(m) has any impact on pay-for-performance sensitivity, I analyze the interaction variables (dummy D162 multiplied by performance variables). If the differential slope coefficients (coefficients of

Table 6
Performance-Sensitivity Regressions, 1992-1997
Affected Firms vs. Other Firms

Regressions of CEO total compensation as a function of firm performances and an indicator variable as presented in Model (7). The dependent variable is the natural logarithm of CEO total compensation. Independent variables include return on assets, the natural logarithm of sales, and market return. Dummy variable, D162 equals 1 if compensation years are after January 1, 1994 and 0 otherwise. Control of CEO tenure is a proxy of CEO age and the variable Time captures the trend over time in the corresponding dependent variable. OLS is ordinary least squares regression analysis and Robust is median regression analysis. Regression p-values are in parentheses.

Dependent variable	Ln(Comp)			
Subgroup	Affected Firms		Other Firms	
Estimation method	OLS	Robust	OLS (in 000's)	Robust
Intercept	10.767*** (0.000)	12.066*** (0.000)	5.151*** (0.000)	5.633*** (0.000)
Ln(Sales)	0.103 (0.394)	-0.012 (0.933)	0.276*** (0.000)	0.278*** (0.000)
ROA	-0.004 (0.859)	0.007 (0.797)	0.005 (0.568)	0.001 (0.949)
Return	0.008** (0.021)	0.006 (0.180)	0.001 (0.408)	0.001 (0.672)
D162	-1.032 (0.429)	-1.63 (0.282)	-0.008 (0.413)	-0.41 (0.297)
D162 x Ln(Sales)	0.123 (0.348)	0.184 (0.224)	0.037 (0.381)	0.042 (0.371)
D162 x ROA	-0.014 (0.571)	-0.015 (0.633)	-0.008 (0.413)	0.003 (0.757)
D162 x Return	-0.004 (0.305)	-0.002 (0.695)	0.002 (0.213)	0.003* (0.095)
Ln(Age)	-0.887* (0.059)	-0.964 (0.102)	0.006 (0.969)	-0.124 (0.493)
TIME	0.162*** (0.002)	0.139** (0.038)	0.104*** (0.000)	0.106*** (0.000)
N	227	227	1,445	1,445
Adjusted R^2	0.22		0.25	
Pseudo R^2		0.13		0.16
F-value (Pr<F)	8.14 (<0.001)		53.23 (<0.001)	

***, ** and * represent significant levels at the 1%, 5% and 10% levels, respectively.

interaction variables) are statistically significant, it suggests that pay-for-performance sensitivity is statistically different before-and-after Section 162(m). But there are no significant differential slope coefficients except that of sales in robust analysis. In table 6, only sales of other firms is positively related to total

compensation ($p<0.000$ in both OLS and Robust analysis), and none of the differential slope coefficients are statistically significant.

Overall, the results from Table 5 and 6 indicate that there is lack of evidence suggesting significantly greater pay-for-performance sensitivity after implementation of Section 162(m). The result is consistent with Rose and Wolfram (2002) who argue that corporate pay decision have been relatively insulated from this tax policy, but are inconsistent with Perry and Zenner (2001) who find an increased relation between stock returns and both bonus and total compensation after Section162(m). The differences may be attributable to the different concept of constructing Affected Firms and different pay-for-performance models.

The limited pre-Section 162(m) compensation data may have reduced the power of statistical estimation of Model (6) and (7). Tables 7 and 8 report the results from regression analysis of Models (8) and (9) which mitigate the statistical techniques issues addressed in Section 3.2.4. Table 7 and 8 report the differences in pay- for- performance sensitivity between period 1995-1997 and period 2003-2005. Table 7 reports the difference in the association between CEO bonuses and performance during these two periods. None of the differential slope coefficients (coefficients of interaction variables) are statistically significant in OLS regression models. The results suggest that the relation between bonus and performance in the later years of the million dollar tax law implementation is not statistically different than years immediately after the enactment of this tax law. Only in robust analysis is there an increase in the

Table 7
Performance-Sensitivity Regressions, 1995-1997 vs. 2003-3005
Affected Firms vs. Other Firms

Regressions of CEO bonus growth as a function of growth rate of firm performances and an indicator variable as presented in Model (8). The dependent variable is rate of growth of CEO bonus. Independent variables include rate of growth of return on assets, rate of growth of sales, and market return. Dummy variable, Period2, equals 1 if compensation years are during period of 2003-2005 and equals 0 if compensation years are during the period of 1995-1997. OLS is ordinary least squares regression analysis and Robust is median regression analysis. Regression p-values are in parentheses.

Dependent variable	RofGBonus			
Subgroup	Affected Firms		Other Firms	
Estimation method	OLS	Robust	OLS (in 000's)	Robust
Intercept	0.037 (0.782)	0.094* (0.093)	0.128 (0.692)	-0.021 (0.310)
RofG Sales	-0.274 (0.488)	-0.150 (0.356)	0.443 (0.647)	0.162*** (0.009)
RofG ROA	0.045 (0.539)	-0.007 (0.78)	0.003 (0.931)	0.007*** (0.002)
Return	0.006** (0.032)	0.001 (0.227)	0.002 (0.746)	0.003*** (0.000)
Period2	0.028 (0.848)	-0.057 (0.354)	0.201 (0.672)	-0.049 (0.113)
Period2 x RofG Sales	0.35 (0.472)	0.244 (0.227)	1.311 (0.325)	0.107 (0.211)
Period2 x RofG ROA	-0.051 (0.488)	0.000 (0.991)	0.020 (0.847)	0.005 (0.453)
Period2 x Return	0.005 (0.156)	0.003** (0.028)	0.009 (0.372)	0.001** (0.032)
N	477	477	1,134	1,134
Adjusted R^2	0.06		0.01	
Pseudo R^2		0.03		0.00
F-value (Pr<F)	5.63 (<0.001)		1.63 (<0.12)	

***, ** and * represent significant levels at the 1%, 5% and 10% levels, respectively.

sensitivity of bonus to stock returns for all firms (Affected Firms and other firms) in the later period of Section 162(m). The difference represents--about a 0.3% (P<0.03) increase of stock return for Affected firms and a 0.1% (p<0.03) increase for other firms in responding to 1% increase in bonus. There is no evidence indicating that the sensitivity of bonus to performance for Affected Firms and other firms is different. The results from Table 7 combined with the

Table 8
Performance-Sensitivity Regressions, 1995-1997 vs. 2003-3005
Affected Firms vs. Other Firms

Regressions of CEO Total compensation growth as a function of growth rate of firm performances and an indicator variable as presented in Model (9). The dependent variable is rate of growth of CEO total compensation. Independent variables include rate of growth of return on assets, rate of growth of sales, and market return. Dummy variable, Period2, equals 1 if compensation years are during period of 2003-2005 and equals 0 if compensation years are during the period of 1995-1997. OLS is ordinary least squares regression analysis and Robust is median regression analysis. Regression p-values are in parentheses.

Dependent variable	RofGComp			
Subgroup	Affected Firms		Other Firms	
Estimation method	OLS	Robust	OLS (in 000's)	Robust
Intercept	0.903*** (0.000)	0.256*** (0.002)	0.076 (0.251)	-0.073** (0.019)
RofG Sales	-1.7*** (0.000)	-0.133 (0.525)	0.492** (0.018)	0.278*** (0.006)
RofG ROA	-0.289*** (0.001)	-0.122*** (0.007)	-0.005 (0.608)	-0.005 (0.141)
Return	0.001 (0.753)	0.001 (0.579)	0.001*** (0.000)	0.001*** (0.000)
Period2	-0.837*** (0.000)	-0.296 (0.001)	-0.240*** (0.003)	-0.135** (0.011)
Period2 x RofG Sales	1.945*** (0.001)	0.286 (0.280)	-0.372 (0.204)	-0.048 (0.737)
Period2 x RofG ROA	0.287*** (0.001)	0.120*** (0.008)	0.014 (0.550)	0.01 (0.316)
Period2 x Return	0.004 (0.296)	0.004* (0.063)	-0.001*** (0.000)	-0.001*** (0.000)
N	477	477	1,445	1,135
Adjusted R^2	0.08		0.23	
Pseudo R^2		0.04		0.09
F-value (Pr<F)	7.07 (<0.001)		51.66 (<0.001)	

***, ** and * represent significant levels at the 1%, 5% and 10% levels, respectively.

results from Table 5 and 6 are consistent with the results of Bebchuk and Fried (2004). These results indicate that compensation has grown far more than could be explained by changes in firm size or performance.

Table 8 reports the results of Model (9), which estimate the sensitivity of CEO total compensation to performance on both Affected Firms and other firms. The statistically significant coefficients of Affected Firms on *Period 2 x RofG*

Sales (1.945, p<0.00) and on *Period2 x RoG ROA* (0.287, P<0.00) suggest there is increased sensitivity of total compensation to sales growth and ROA growth over the period 2003-3005 relative to the period 1995-1997. The estimates from Model (9) on other firms do not show the same pattern as Affected Firms.

In both OLS and Robust regressions reported in Table 8, Affected Firms seem to exhibit significantly greater performance sensitivity to both rate of growth of ROA and rate of growth of sales during 2003-2005 period than do other firms. An argument that would be consistent with observed pattern of point estimates is that Affected Firms, in order to qualify their CEO compensation as performance-based, will tend to respond to the recent rules and legislations subsequent to Section 162(m)(e.g. Sarbanes-Oxley Act 2002).

Indeed, U.S. publicly traded corporations are subject to more stringent requirements on executive pay after implementation of Section 162(m). For instance, The Sarbanes-Oxley Act of 2002 (SOX) was enacted as a reaction to the number of major corporate and accounting scandals such as Enron and WorldCom's fraudulent accounting practices and self-dealing executives. SOX require timely reporting and disclosure on stock transaction of corporate officers. Narayanan and Seyhun (2006) suggests that disclosure requirements imposed by SOX that executive option grants be reported to Securities and Exchange Commission (SEC) within two-business days of the grant date reduce the ability to boost the value of option grants either through timing or through back-dating. In October, 2003, the New York Stock Exchange Inc (NYSE) and the NASDAQ Stock Market Inc. (NASDAQ) submitted to SEC their proposal that the

compensation committee must be made up exclusively of “independent directors.” Also, the IRS’s Audit Technique Guidelines (ATGs) posted in 2005 as discussed in Section 2.3.2 of this study signals that the IRS will pay more attention to firm’s tax compliance with respect to Section 162(m). Thus, the greater association between compensation growth rate and performance growth rate in the later post-Section 162(m) period than the earlier post-Section 162(m) period for Affected Firms suggests that such firms have responded to later compensation requirements in response to Section 162(m). More importantly, the results that the pay-for-performance sensitivity of other firms has not significantly changed between the two post-Section 162 (m) periods, suggest that increased relation between pay and performance in Affected Firms is from the effects of Section 162(m).

CHAPTER 5

SUMMARY, CONCLUSIONS AND LIMITATIONS

I reexamine how the changes in tax policy have affected CEO compensation. The goals of Internal Revenue Code Section 162(m) were meant to discourage "excessive" executive compensation of publicly traded companies and to encourage closer ties between pay and performance. I examine the effects of this tax law on CEO compensation level, CEO compensation structure, and pay-for-performance sensitivity. My results provide empirical evidence for policy makers assessing whether the tax law has met its objectives.

I find that the average level of CEO salary decreased after the implementation of Section 162(m) and that firms that paid their CEOs salary no less than $1 million (refer to Million-Dollar Firms in this study) have constrained their CEO salary growth following the implementation of Section 162(m). This finding is consistent with Rose and Wolfram (2002). On the other hand, I do not find the same pattern in the changes in CEO salaries for firms that paid their CEOs below the $1 million dollar cap (referred to as Non-Million-Dollar Firms in this study). The results suggest that Million-Dollar Firms are more sensitive to the imposition of the $1 million tax cap than other firms. Regarding Non-Million-Dollar Firms, the salary growth rate after Section 162(m) increased but not statistically different from that of before Section 162(m).

However, the level of CEO total compensation does not show the same trend as CEO salary. I find that average total compensation increased after enactment of Section 162(m). This result is consistent with Perry and Zenner's

(2001) finding that the million dollar tax rule has not achieved the objective of reducing CEO compensation growth. I find that the increases in bonuses and equity-based compensation were the main contributors to the upward trend in total compensation. I also find that compensation levels of Million-Dollar Firms increased much more than those of Non-Million-Dollar Firms.

To further identify how firms respond to additional risk imposed by Section 162(m) in order to maintain their risk-averse executives' utility level, I examine the ratio of performance-based compensation to fixed salary. I find that Affected Firms (firms that are more likely to be affected by the million dollar tax cap) pay their CEOs more performance-related compensation after Section 162(m). I do not find a statistical difference in the stated ratio before and after Section 162(m) on other firms. One interpretation of the results is that Affected Firms tend to be larger firms and that pay their CEOS much higher salaries than their counterparts, and therefore are more sensitive to the million dollar cap. This increased sensitivity to the cap results in firms steering their CEOs' pay away from non-deductible compensation toward deductible compensation.

To promote a closer association between pay and performance was another important objective of Section 162(m). I examine whether performance sensitivity of CEO bonuses and total compensation increased after Section 162(m). I do not find evidence to support the position that pay-for-performance sensitivity has changed right after implementation of Section 162 (m) compared to that before Section 162(m). My results are consistent with the results of Rose and Wolfram (2002), but are inconsistent with Perry and Zenner's (2001) finding

that there is an increasing relation between stock return and both bonus and total compensation. The inconsistency is likely attributable to different definitions of Affected Firms and the different pay-for-performance models. Unlike Perry and Zenner, I not only consider whether the level of CEO salaries that are subject to the million dollar cap, but also include firms' tax status that will influence firm's sensitivity to the loss in tax benefits. I argue that influences of tax status should be included in defining Affected Firms. I then further probe the long-term effect of Section 162(m) on pay-for-performance sensitivity. I investigate whether implementation of Section 162(m) increased the pay-for-performance sensitivity during the later sample periods compared to that over the period right after the tax coded was enacted. I find Affected Firms showing increased sensitivity of total compensation growth to sales growth and ROA growth over the period 2003-2005 compared to that over the period 1995-1997. This finding suggests that because of the change in tax law, Affected Firms will respond to more stringent legislation and rules adopted subsequent to Section 162(m). Consequently, the relation between pay and performance increased in the later post-Section 162(m) period for Affected Firms. More importantly, my results suggest that Section 162(m) worked with recent enhanced requirements has a long-term effect on pay-for-performance.

In sum, my results provide empirical evidence about the effectiveness of Section 162(m). I find that firms that paid their CEOs more than $ 1million in salaries constrained their fixed salary growth after Section 162(m), while the average total compensation actually increased after Section 162(m). Also such

firms are more likely to alter their CEO compensation packages by using more performance related compensation than using fixed salaries. I do not find significant differences in pay-for-performance sensitivity before-and-after Section 162(m), but I document a long-term effect of Section 162(m) on pay-for-performance sensitivity. My results suggest that Section 162(m) may have limited impact on accomplishing Congressional goals of reducing "excessive" executive compensation and increasing pay-for-performance sensitivity.

My results are subject to two primary limitations. First, compensation data for Pre-Section 162(m) are available only for the years 1992 and 1993 in the ExecuComp database. This limits my ability to examine the changes in compensation before and after Section 162(m) was enacted since only 2 years of data is available for the pre-Section162 (m) period. I would also like to examine changes in compensation growth rates before and after Section 162(m), but the pre-Section 162(m) would be reduced to year 1993 and would not be a comparable approach because the pre-Section 162(m) data has only one year with fewer than 30 observations while after-Section 162(m) includes 4 years or more with more than several hundred observations. Second, there are other governmental interventions such as the Sarbanes-Oxley Act have taken place after Section 162(m) so it is very difficult to control the effects of other policies and regulations on CEO compensation.

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