

**REEXAMINING INTERNAL REVENUE CODE SECTION
162(M): BONUS-PERFORMANCE SENSITIVITY
ANALYSIS**

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Abstract

This paper examines the effects of Internal Revenue Code Section 162(m) on CEO bonus payout, with an emphasis on the sensitivity of bonuses to firm performance. This paper seeks to address the changes of the IRS guidance in compliance and the non-regulatory factors that significantly influence the behavior of the target-firms. As such, I propose an approach to examine the immediate and long term effects of the tax provision. I document that the target-firms show an increased sensitivity of CEO bonus payout to stock-price-based performance (measured by stock return) in the short-term, and an enhanced association between CEO bonus payout and accounting-earnings-based performance (measured by return on assets) in the long-term.

1. INTRODUCTION

In the early 1990s, the investing community expressed mounting frustration over its belief that public companies grossly overpaid their executives at the expenses of their shareholders and employees.¹ In response, Congress mandated that public corporations cannot deduct, as a business expense, any compensation to covered executives in excess of \$1 million during a corporate taxable year.² Effective January 1, 1994, Internal Revenue Code Section 162(m) was added to the tax law. The covered executives include the CEO and the four highest compensated executives other than the CEO. However, the \$1 million deduction limit does not apply to compensation that qualifies as performance-based. To qualify for a performance-based exemption, firms must establish performance goals for compensation plan, and the compensation plan must be approved by the compensation committee and ratified by shareholders, and the compensation committee must certify that the performance goals have been met before payment is made.³

Numerous studies have examined the effects of Section 162(m) on executive compensation. The tax provision may directly affect CEO compensation by increasing the after-tax cost of corporation or indirectly affect CEO pay by inducing firms to change their compensation-setting processes (Rose and Wolfram, 2002). Previous researchers documented that larger firms, and firms that overpaid their executives, were more likely to conform to the tax provision (e.g., Balsam and Ryan 1996), and that firms that paid their CEOs near the \$1 million cap also restrained salary increases (e.g., Perry and Zenner 2001; Rose and Wolfram 2002). However, firms with higher re-contracting costs were more likely

¹ See e.g., *CEO Pay: How Much is Enough?*, Harvard Business Review, v70, n4 (Jul/Aug 1992) 130-139; Charles M. Elson, *Executive Overcompensation--A Board-Based Solution*, 34 B.C.L. Rev. 937 (1993).

² Omnibus Revenue Reconciliation Bill of 1993, H.R. 2264, 103d Cong., 1st Sess. (1993).

³ Refer to Treasury Regulation Section 1.162(m)-27(e) for the detail requirements.

to forfeit the tax deduction, while firms with higher tax benefits and political costs were more likely to preserve the tax deductions (e.g., Balsam and Ryan 1996; Balsam and Yin 2005). Also, firms with CEOs hired after Section 162(m) enactment tended to curb the increase in CEO salary, given the better opportunity to redesign their executive pay packages (e.g., Balsam and Ryan 2007). These previous findings are consistent with the argument that firms are sensitive to the additional tax costs incurred.

The objectives of Section 162(m) were to reduce excessive CEO compensation levels and more importantly, strengthen the pay for performance relation (Perry and Zenner, 2001; Balsam, 2012). There is a consistency within the literature findings that CEO total compensation has been increased substantially since the enactment of Section 162(m) (e.g., Johnson, Porter, and Shackell 2001; Perry and Zenner, 2001; Balsam and Ryan, 2007; Balsam, 2002). However, fewer studies had examined the impact of Section 162(m) on pay-performance sensitivity, and the findings of those studies were inconclusive. For example, Perry and Zenner (2001) found an increasing relationship between stock returns and both bonus payments and total compensation after 1993 for all firms; and Balsam and Ryan (2007) found an increased sensitivity of bonus to ROA and to shareholders' returns for affected-firms that hired CEOs after Section 162(m) enactment. Conversely, Rose and Wolfram (2002) were unable to find statistically significant evidence on increases in performance sensitivity of CEO pay at affected firms and argued that the corporate pay decision has been relatively insulated from this policy.

While the existing studies on Section 162(m) have addressed the immediate effect of this tax provision, assessment of its long-term effect is quite limited. Coglianese (2012) acknowledges that implementation and enforcement activities are only one set of influences on the behavior of those targeted by a regulation, but other non-regulatory factors, such as economic and community or social pressures, will affect their behavior as well. The impact of Section 162(m) on pay-performance sensitivity can

be viewed as an analogy: When paddling a boat on calm water, a sailor may easily find his way to the destination. But in a storm, the boat may deviate from its course because the force of the sailor paddling is less significant than the force of the storm. However, the sailor may still hope to reach his destination because his paddling force is continuous and has a definite direction, while the storm is temporary and volatile. Paddling a boat on the water reflects a situation where the targeted interaction tangles with other forces of stronger influence. In this case, the effect of Section 162(m) on pay-performance sensitivity is analogous to the paddling, while the dramatic economy and market environment changes are analogous to the storm. In some situations the economy changes could produce a stronger effect on CEO compensation than Section 162(m). To avoid the strong effects of the dramatic economy changes in some “storm” years, such as the Dotcom crash around 2001 and the financial crisis around 2008 will minimize the effect of unwanted events that would overshadow the impact of Section 162(m) on pay-performance sensitivity.

Besides the consideration of economic environment, another more subtle factor also needs to be addressed: Has the tax provision been implemented with the same strength all these years after 1994?

According to some surveys, many critics consider Section 162(m) a failure. They claim it is not seriously treated and companies easily get over the one million dollar threshold after its implementation in 1994. For example, Bebchuk and Fried (2004) estimate that the forgone taxes as a result of widespread abuse of Section 162(m) have cost the U.S. Treasury at least \$20 billion. More direct evidence came from IRS. In 2003, IRS initiated a pilot project named “Corporate Executive Compliance”⁴ and found “sufficient problems” with Section 162(m). In 2005, the IRS

⁴ <http://www.irs.gov/Businesses/Corporations/Corporate-Executive-Compliance>

published “Section 162 (m) Audit Technical Guide” on its website⁵ with a road map to detect violations when a firm claims CEO compensation above \$1 million as performance-based compensation, while evidence suggests a disconnect between pay and performance. These facts clearly indicate that Section 162(m) is not enacted with the same scrutiny since 1994. Accordingly, this study divides the post-Section 162(m) into two time periods: short and long-term periods and suggests that the short-term (immediate) effect of Section 162(m) may be different from its long-term effect.

A typical executive compensation package includes equity and cash compensations. Balsam (2012) discussed the tax status of the components of compensation package as follows: salary, bonuses, stock grants, and other compensation are subject to \$1 million cap while non-equity incentive plan, stock options, and stock appreciation rights are likely to be claimed as performance-based and thus fully deductible (also see Balsam and Ryan 2007; Rose and Wolfram 2002). This study focuses on examining the effect of Section 162(m) on the sensitivity of CEO bonuses to performance due to the following reasons: First, “salary is not qualified for the performance-based exception under Section 162(m)” (Balsam, 2012, p. 5). Thus Section 162(m) may not directly influence CEO salary-to-performance sensitivity. Even if salary-to-performance sensitivity changes, it is illogical to contribute to Section 162(m). Second, examining the association between total compensation and performance can lead to spurious finding since some components of total compensation, such as stock options and stock appreciation rights, are considered qualified for performance-based and therefore excluded from the deduction limitation of Section 162(m). Hence, this study takes its focus on examining the effect of Section 162(m) on the sensitivity of CEO bonuses to performance.

⁵ <http://www.irs.gov/businesses/corporations/section-162m-audit-techniques-guide-02-2005>

This paper provides detailed analysis of the effects of Section 162(m) on CEO bonus payouts in the short- and long-term. First, I find that target-firms are very sensitive to the tax provision immediately after its implementation. Their CEO bonus payout had a larger increase than did other firms' payouts shortly after the enactment of Section 162(m). More interestingly, I find a greater increase in CEO bonuses of target-firms in the long-term that may have contributed to the accumulated effect of Section 162(m), since CEO bonus payout in other firms decreases significantly in the same period. Second, these results show that while Section 162(m) strengthens the association between CEO bonuses and firm stock-price-based performance (measured by stock return) in the short-term, the association between CEO bonuses and target-firms' accounting-earnings-based performance is strengthened in the long-term. This implies that in the long term, the continuous and directional force of Section 162(m) and increasing audit scrutiny in recent years may increase the sensitivity of CEO bonuses to accounting-earnings-based performance in target-firms.

This paper is organized as follows. In section II, I discuss sample selection and research design. In Section III, I discuss hypotheses development. In Section IV, I introduce the models and variables used to test the hypotheses. In section V, I present the empirical results and the robustness tests, and analyze the implications of the results. In Section VI, I present the conclusion of this study.

2. SAMPLE SELECTION AND RESEARCH DESIGN

2.1 Time Period Selection

In developing sound empirical research methodology on the effect of the tax provision on executive compensation, data selection is crucial. It seems straightforward to include all years after 1994 as post-Section 162(m) data. However, such a selection would neglect the different economic environments in the different periods. In this case, the Dotcom crash around 2001 and the

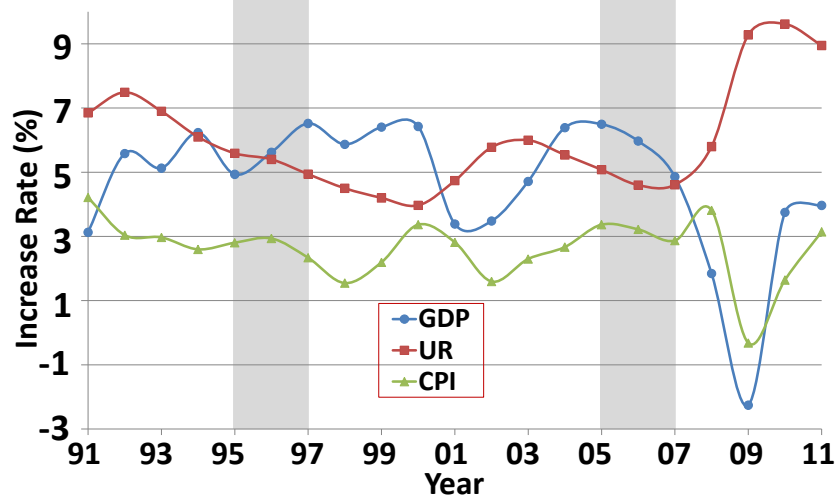
financial crisis around 2008 would certainly overshadow the effect of Section 162(m). To control these “non-regulatory” factors, I could typically use economic indexes such as GDP, job growth rates, and inflation rates as control variables. However, when these other factors overshadow the investigated effect, it may not be best suited. For example, someone tries to see if his body mass index (BMI) has significantly changed after he participated in a diet program three years ago. Although he may collect all data including his childhood as pre-diet data, the BMI during his childhood may be very different from the BMI during the diet program. Even his age is used as the control variable, the result may deviate from disclosing the real effect of the diet program.

Moreover, the force of the tax provision itself may not be applied uniformly and under the same scrutiny during all years after 1994. In the earlier years of implementation of Section 162(m), board of directors often perceived as employees of executive management than representatives of shareholders, and simply rubber-stamping the decisions of executives (Elson, 1996). As noted by Charan (2005, p. 102), “when the tax deductibility of salaries was capped at \$1 million in 1993, some boards began to award “guaranteed” bonuses to pay CEOs higher cash compensation.” Many critics consider Section 162(m) a failure. More direct evidence came from IRS. In 2003 IRS initiated a pilot project named “Corporate Executive Compliance” and found “sufficient problems” with Section 162(m). To emphasize that the era of “benign neglect” is over (Moran, 2004), IRS published “Section 162 (m) Audit Technical Guide” on its website in 2005 to confirm that IRS is serious about policing compliance with the tax reporting rules by public companies. Since then, Section 162(m) has come under greater scrutiny by the Internal Revenue Service (Kahen 2005; Grow and Javers 2006). It seems that mixing the short and long-term data neglects the development of the tax provision and treats Section 162(m) as a uniform event during all of these years. Hence, this study divides the post-Section 162(m) into two time periods: short and long-term periods.

The first period is 1995-1997 for the assessment of immediate effect upon adoption. Also, the economic environment during this time period is not much different from pre-Section 162(m). I believe that there are differences between the immediate effect and the long-term effect of Section 162(m) because any behavioral change caused by the regulation will have influence on its outcomes (Coglianese 2012). Then, I choose another period to examine the long-term effects of Section 162(m). However, the choice of the second period is far more delicate and easily challenged than the first period. I set up two constraints to choose the right second period. First, the second period needs to be some years after the first period. Second and more importantly, the economic environment of the second period has to be as similar as possible to the first period. Figure 1 shows the Gross Domestic Product (GDP) increase rates, unemployment rates and inflation rates based on the Consumer Price Index (CPI) for the years from 1991 to 2011. During the first period (1995-1997), respective annual GDP increase rates were 4.9 percent, 5.6 percent and 6.5 percent; unemployment rates were 5.6 percent, 5.4 percent and 4.9 percent; and inflation rates were 2.8 percent, 2.9 percent and 2.3 percent.

The second period of 2005-2007 was 10 years apart from the first period. This time period has an economic environment most similar to the first and also after IRS actively involved in the Section 162(m). During the second period, respective annual GDP increase rates were 6.5 percent, 6.0 percent and 4.9 percent; unemployment rates are 5.1 percent, 4.6 percent and 4.6 percent; and inflation rates were 3.4 percent, 3.4 percent and 2.9 percent.

Figure 1
Gross Domestic Product (GDP), Unemployment Rate (UR), and Consumer Price Index (CPI) (1991-2011)



For regression models, I define an indicator variable D_{t1} that equals one for the period 1995-1997, and equals zero for the period before the 1994 Section 162(m) enactment. For the years before enactment, only 1992 and 1993 CEO compensation data were available since the ExecuComp database originated in 1992. (The same data limitation also occurred in previous studies, e.g. Perry and Zenner 2001; Rose and Wolfram 2002). To test the long-term effects of Section 162(m), I define another indicator variable D_{t2} that equals one over the second post-Section 162(m) period (2005 to 2007) and equals zero for the first post-Section 162(m) period (1995 to 1997). In addition, I test the periods 2004-2006 and 2006-2008 for robustness and reliability checks of the results.

2.2 Target-Firms Identification

To examine the effects of Section 162(m), it is also very important to identify firms affected by this tax provision. Upon enactment of Section 162(m), firms that offered CEO cash

compensation (here the use of cash compensation as benchmark is consistent with Rose and Wolfram 2002) above \$1 million faced additional after-tax cost, as compensation in excess of \$1 million was no longer deductible unless qualified for performance-based. Most of the previous studies use some formula to predict CEO cash compensation after 1994, as if Section 162(m) had not been enacted in 1994. For instance, Rose and Wolfram (2002) defined affected-firms by whether their predicted cash compensation was greater than or equal to \$1 million. Some other studies use a lower threshold to define affected firms. For example, Perry and Zenner (2001) included \$900,000 in salary as the benchmark to determine affected firms. The use of the predicted CEO compensation or setting a lower threshold is easy to understand. For example, company A's CEO compensation is \$1M in 1994, and are predicted to increase to \$1.1M in 1995 according to its compensation history. But possibly due to Section 162(m), the firm decides to maintain CEO compensation of \$1M in 1995. Thus the company is clearly affected by Section 162(m).

This study is focused on examining the effect of Section 162(m) on the sensitivity of CEO bonus to performance. Company A's CEO cash compensation is \$1M in 1995 and the company may not need to claim its CEO compensation as performance-based because it doesn't exceed \$1M cap and Section 162(m) does not make company A pay extra tax. Thus, Section 162(m) was not supposed to affect pay-performance sensitivity of company A and company A should not be included as the target-firms. In this study, I use the benchmark of \$1 million cash compensation on each examined firm-year to classify companies as *target-firms* or as *other firms*. On the other hand, the predicted compensation is based on the assumption that Section 162(m) is not enacted. It may work for a short period of time after 1994, but no formula can reasonably estimate the CEO compensation after year 2000 from the CEO salary data before 1994. Moreover some companies are established after 1994. For such cases, I do not use the predicted values to identify target-firms.

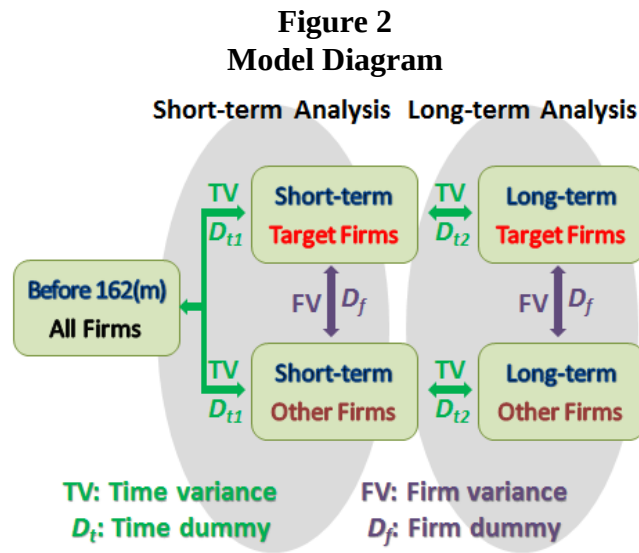
Some prior studies use cash compensation (e.g., Balsam and Ryan 1996; Balsam and Yin 2005; Harris and Livingstone 2002) to categorize affected firms, while other studies used salary payments (e.g., Hall and Liebman 2000; Perry and Zenner 2001). Since firms who pay CEO salaries below \$1 million could still be affected by Section 162(m) if their total CEO cash compensation (i.e., with bonus) exceeded \$1 million, I use cash compensation instead of just salary as the threshold. Thus, due to the different focus and study objectives, I identify target-firms as firms that pays their CEOs' cash compensation more than \$1 million.

In addition, some firms paid their CEOs cash compensation more than \$1 million without paying any bonus. For such cases, I exclude these firms from the target-firm category. To check whether the exclusion of such firms affect the results, I also run the regressions with including these firms and find no significant differences on the results with excluding these firms (the results are not tabulated in the study). Furth more, firms' tax-paying status may also play a role in the provision. For example, Perry and Zenner (2001) found that non-taxpaying firms were less sensitive to Section 162(m). Therefore, this study excludes from the target-firm category those firms that did not pay Federal income tax. Based on all of the above considerations, I identify a target-firm as one that pays its CEO cash compensation greater than \$1 million with a bonus payout, and pays Federal income tax in a given year; otherwise, I classify it to other-firm category.

2.3 Model Variable Specification

In the regression model, I use an indicator variable D_f that equals one for target-firms and zero for other firms. As discussed above, the economy and market environments may have much larger effects than Section 162(m). The dummy variable D_f is an important parameter to determine the impact of Section 162(m) on pay-performance sensitivity because it compares firms within the same period. To analyze this kind of small interaction force in a highly interactive and complex system, I compare the target group

and the other group under the same conditions and generally achieve direct and reliable results. With time dummy D_t and firm dummy D_f , I combine analyses of time variance and firm variance to examine the effects of Section 162(m) in short- and long-term as indicated in Figure 2.



It would be ideal if I can identify the exact performance measures used to award CEO compensation. However it is not practical to find the exact performance measures and methodologies firms used to award CEO compensation. (The same concern also was expressed by Perry and Zenner 2001.) For example, American Express Company's 1994 proxy statement stated its compensation committee determined the CEO annual bonus, but did not specify which bonus determinants the committee used. By looking at compensation practices in proxy statements and in the compensation literature, I identify three independent variables as conventional performance measures: sales, stock returns and ROA. These measures are frequently used in academic literature (e.g., Murphy 1985; Sloan 1993) as well as by companies to determine bonus awards. Among these measures,

sales can indicate firm size, stock returns commonly indicate firm stock-price-based performance and ROA is a common measure of accounting earnings-based performance (Sloan 1993).

I use a change ratio to measure the dependent and independent variables in this study. Simply put, changes in compensation do not serve the purpose of comparing CEO compensation in firms of different sizes. For example, the big companies will commonly have large values and the small companies will have small values so that the influence of size must be eliminated before unbiased estimates of the other, non-size parameters can be obtained (Kuh and Meyer 1955). To illustrate, Company A paid its CEO \$2 million compensation last year and \$4 million this year; Company B paid its CEO \$10 million last year and \$12 million this year. The changes in compensation indicate the same dollar increase for both CEOs, but the growth rate better measured that CEO compensation at Company A increased at a greater rate than at Company B.

While the change ratio formula, defined as $(Bonus_t - Bonus_{t-1}) / Bonus_{t-1}$ is typically used, I modify a little on the formula to improve the data stability. I define the bonus change ratio as $(Bonus_t - Bonus_{t-1}) / AvgBonus$, where $AvgBonus$ is the average bonus of each individual firm for the examined period. This approach increases the sample data stability (Zimmerman 1994; Zimmerman 1995) so that I can include the data that would otherwise have to be discarded. For example, in 1992 Ford Motor Company paid no bonuses, but in 1993 paid \$1.1 million in bonuses. If I calculate the bonus change ratio for Ford from 1992 to 1993 using the 1992 bonus as the denominator, the ratio becomes mathematically undefined.

3. HYPOTHESES DEVELOPMENT

Congress expected to curb excessive executive pay and promote a closer tie between CEO pay and firm performance through Section 162(m). Among all CEO compensation components, the current study focuses on how Section 162(m) has

affected the sensitivity of CEO bonuses to firm performance as discussed in the introduction.

3.1 CEO Bonus to Performance Sensitivity before and Immediately after Section 162(m)

After Section 162(m) enactment, firms that do not qualify CEO compensation in excess of \$1 million cap will forfeit their tax deduction. However, firms that forfeit their tax deduction due to Section 162(m) may face criticism from their shareholder and stakeholders because they are wasting corporate resources (Balsam and Ryan, 1996). Balsam and Yin (2005) examined the underlying determinates of firms' willingness to forfeit tax deduction in response to Section 162(m). They find that firms are more likely to claim for full deductibility when tax benefit is greater, when firm size is large and CEO compensation is high relative to performance, and when firm has taken steps to qualify their short-term bonus plan.

Firms that preserve their tax deduction on bonus plan need to state how their pay plans are qualified for performance-based. Ample of evidence has suggested that the shift to performance-based encouraged executives to use subjective evaluation to determine bonus payout, to setup easy performance goals, and to focus on and manipulate short-term performance goal at the expense of long-term value creation (e.g., Adut, Cready, and Lopez 2003; Bebchuk and Fried 2004; Charan 2005; Harris and Livingstone 2002; Reitenga, Buchheit, Yin, and Baker 2002). It is worth noting that the U.S. equity market was on a strong upward trend around the time of enactment. The equity market improvement may have enticed firms to award their CEOs increased bonuses. I examine whether target-firms were more likely to have a larger increase in bonus payout than other firms because I expect target-firms utilize the benefit of strong market performance to qualify their CEO bonuses as performance-based. Therefore, Section 162(m) may have increased CEO bonus growth in target-firms more than it did in other firms. Meanwhile, the

improved stock return of target-firms helped them claim CEO bonuses were performance-based. Thus, Section 162(m) may have increased the association between CEO bonus payout and firm stock-price-based performance of the target-firms shortly after the enactment. Thus, I propose the following hypotheses:

H1a: In the short-term, Section 162(m) increases the growth of CEO bonus payout in target-firms.

H1b: In the short-term, Section 162(m) enhances the association between CEO bonus payout and stock-price-based performance of target-firms.

3.2 Section 162(m) Long-Term Impact on CEO Bonus Payout

As noted by Coglianese (2012), in addition to the regulation under evaluation, there will be other non-regulatory factors that exist and affect the behavior of the individuals or organizations targeted by the regulation. The effect of Section 162(m) may hard to detect sometimes due to macroscopic economic forces and some other factors, just like impact of a storm to the paddling force of a boat, can overshadow its effect. However, the continuous and directional force of Section 162(m) suggests that although the effect of Section 162(m) seems not so significant at some time, we still may detect its undercurrent effect if a long-term analysis is conducted.

In 2003, the Internal Revenue Service (IRS) conducted a pilot study and found widespread compliance failure in bonus plan administration, especially the exemption requirements of Section 162(m). As discussed in Section II, in 2005, the IRS posted Section 162(m) Audit Technique Guidelines (ATGs) to strengthen compliance. The IRS stated that corporate tax audits would routinely examine Section 162(m) compliance; the ATGs also indicated more auditing scrutiny. I expect bonuses would continue to be the preferred cash payout method for Section 162(m) target-firms during the second period (the long-term period). As such, I expect to observe a large increase in the CEO bonus growth rate. Also, due to more robust IRS audits, and the continuous and

directional forces of the tax provision, Section 162(m) may have increased the association between CEO bonus payout and firm accounting-earnings-based performance within target-firms. Based on the above discussion, I form the following hypotheses:

H2a: In the long-term, Section 162(m) increases the growth of CEO bonus payout in target-firms.

H2b: In the long-term, Section 162(m) increases the association between the CEO bonus payout and the accounting-earnings-based performance of target-firms.

4. MODELS AND VARIABLES

From the set of Standard & Poor's (S&P) Composite 1500 Index, I collect firms with data on their CEO bonus payouts and performance measures, including sales for firm size, stock return for stock-price-based performance, and ROA for accounting earnings-based performance.

Two time-related dummy variables D_{t1} and D_{t2} , and one firm-related dummy variable D_f are used in the model. To present a simple and clear method on testing hypotheses, I try to avoid applying multiple interactive dummies in the regression model because the interaction of dummy terms does not provide inference of test statistical significance on the difference between the target group and other groups or the additive contribution of the two dummies but show the inference on the extra contribution of the interaction of dummies (Ren and Xiao, 2012). It is also worth noting that CEO bonus payout may depend on many factors, such as a CEO's education, experience, seniority and reputation, and firm size, industry and history. However, it would not be wise to include all of these factors in the model. They are too many to count, and many of them are difficult to collect or precisely quantify. To mitigate this problem this study uses the following techniques in the model. First, the change ratio helps to minimize the effects since many of these factors were already reflected in the CEO's previous year bonus payout. Second, based on the same

assumption, I introduce the CEO's previous year bonus payout as a lagged variable to minimize the number of control variables and to facilitate explanation of the current behavior of the dependent variable with its own past. Here I present the ordinary least squares multiple regression models:

$$\begin{aligned} \text{ChgBonus}_{it} = & \beta_0 + \beta_1 \times \text{ChgSales}_{it} + \beta_2 \times \text{Return}_{it} \\ & + \beta_3 \times \text{ChgROA}_{it} + \beta_4 \times D_t + \beta_5 \times D_t \times \text{ChgSales}_{it} \\ & + \beta_6 \times D_t \times \text{Return}_{it} + \beta_7 \times D_t \times \text{ChgROA}_{it} \\ & + \beta_8 \times \text{LagBonus}_{it} + \varepsilon_{it} \end{aligned} \quad (1)$$

$$\begin{aligned} \text{ChgBonus}_{it} = & \beta_0 + \beta_1 \times \text{ChgSales}_{it} + \beta_2 \times \text{Return}_{it} \\ & + \beta_3 \times \text{ChgROA}_{it} + \beta_4 \times D_f + \beta_5 \times D_f \times \text{ChgSales}_{it} \\ & + \beta_6 \times D_f \times \text{Return}_{it} + \beta_7 \times D_f \times \text{ChgROA}_{it} \\ & + \beta_8 \times \text{LagBonus}_{it} + \varepsilon_{it} \end{aligned}$$

(2)

where:

ChgBonus_{it} = percentage change in CEO bonus of firm i in year t , or $(\text{Bonus}_{it} - \text{Bonus}_{it-1}) / \text{AvgBonus}_i$, and AvgBonus_i is the average bonus of firm i for the examined period (to control for inflation, all bonuses are adjusted in 1992 constant U.S. dollar);

ChgSales_{it} = percentage change of firm i 's sales in year t , or $(\text{Sales}_{it} - \text{Sales}_{it-1}) / \text{Sales}_{it-1}$;

Return = the 1 year total return to shareholders of firm i , including monthly dividend reinvestment;

ChgROA_{it} = the percentage change of firm i 's ROA, or $\text{ROA}_{it} - \text{ROA}_{it-1}$, and ROA is net income before extraordinary items and discontinued operations divided by total assets;

D_t = a dummy variable, equals 1 for years from 1995 to 1997, 0 for years before 1994 (when test the short-term effect); equals 1 for years from 2005

to 2008, 0 for years from 1995 to 1997 (when test the long-term effect);

D_f = a dummy variable, equals 1 for target-firms, and 0 for other firms (a target-firms is a firm i in year t that paid its CEO cash compensation more than \$1,000,000 and paid Federal income tax, an other-firm otherwise);

$LagBonus_{it}$ = the lag of average CEO bonus ratio, $Bonus_{it-1} / AvgBonus_i$ (bonuses are adjusted in 1992 constant U.S. dollar).

To make a distinction between the two different analyses (also refer to Figure2), Model (1) is the analysis of time variance, to test Section 162(m) effect on CEO bonus before and after enactment, and the differences in the short- and long-term effects. Model (2) is the analysis of firm variance, to test the differences in Section 162(m) effect on the sensitivity of CEO bonus to performance between target and other firms in both the short- and long-term.

5. RESULTS

I collect CEO compensation data from the ExecuComp database and merged it with firm performance data and Federal income tax data from the CompuStat database. However, during the long time span sampled, many companies included in the S&P 1500 Index dropped out or merged and new companies later entered the Index. ExecuComp collected executive compensation data of the S&P 1500 companies for each recorded year. To control for inflation, all compensation data are used in 1994 U.S. dollar. When I merge the ExecuComp compensation data with CompuStat performance and tax data, and eliminate inactive companies. This matching process offers an advantage when I compare the short- and long-term effects of the tax provision. That is, it increases the

likelihood of comparing similar companies for the two periods, 10 years apart, and helped to maintain continuity of the tax provision when comparing different periods. There are 752 observations in target-firms and 1,515 observations in other firms during the period 1995-1997, while there are 946 observations in target-firms and 3,212 observations in other firms during 2005-2007.

Table 1
Sample Selection

Firm-year observations	95-97	05-07
(1) Full sample on the ExecuComp database	4,922	5,557
(2) Firm-year obs. of (1) merged with CompStat database	2,267	4,158
(3) Firm-year obs. of (2) and CEO cash compensation larger than \$1M*	992	1,676
(4) Firm-year obs. of (3) can CEO bonus payout	971	1,295
(5) Firm-year obs. of (4) and a positive Federal tax (<i>target-firms</i>)	752	946
(6) Firm-year obs. of (2) minus (5) (<i>other firms</i>)	1,515	3,212

*\$1M indicates the one million dollar.

5.1 Bonus-Performance Relationship Before and Shortly After Section 162(m)

Before enactment of Section 162(m) in 1994, it is not necessary to categorize firms as *target-firms* or *other firms*. Therefore, I run the regression of CEO bonus growth to firm performance before and after Section 162(m) with one-dummy variable D_{t1} . Variable D_{t1} indicates the period before (value of zero) and after (value of one) Section 162(m) enactment. I use all firm-year data before 1994 to compare with the post-Section 162(m) data from the target and other firms respectively. Table 2 shows the descriptive statistics. It is worth noting that the average CEO bonus change ratio in target-firms during 1995-1997 is 27.44 percent, about 25 percent higher than firms in 1992-1993 and much higher than the average 5 percent bonus increase rate in the other firms in the period 1995-1997.

Table 2
Descriptive Statistics, Analysis of Short-Term Effects

Variable	Category	Mean	Std Dev	Median	Obs.
CEO cash compensation (000s)	92-93 All ¹	970.203	925.800	738.496	1,156
	95-97 Target ²	1,970.451	1,411.732	1,575	752
	95-97 Other ³	821.084	851.283	670	1,515
CEO bonus change ratio	92-93 All	0.025	0.786	0.049	414
	95-97 Target	0.274	0.606	0.173	725
	95-97 Other	0.054	1.015	0.016	1,281
Sales change (%)	92-93 All	15.027	71.249	6.532	1,147
	95-97 Target	16.598	31.044	10.761	752
	95-97 Other	22.379	87.404	11.262	1,511
Return change ratio	92-93 All	-0.484	39.884	-0.005	424
	95-97 Target	1.064	7.791	0.457	717
	95-97 Other	1.618	97.004	0.498	1,360
ROA change ratio	92-93 All	-0.129	2.641	0.024	430
	95-97 Target	0.127	3.874	0.058	725
	95-97 Other	-2.506	145.784	0.004	1,385
Lag CEO bonus ratio	92-93 All	0.818	0.632	0.785	414
	95-97 Target	1.018	0.417	1.044	725
	95-97 Other	0.920	0.648	0.959	1,281

¹All: All firms

²Target: Target-firms

³Other: Other firms

Table 3 reports the changes in the pay-performance relationship between the periods of pre- and post-Section 162(m) enactment. Not only target-firms, but also other firms show a highly significant increase (with $p \sim 0.000$ for target-firms and $p \sim 0.001$ for other firms) in CEO bonus payout shortly after Section 162(m) enactment, which is consistent with my expectation, because the U.S. equity market was on a strong upward trend during that time. Economic and market optimism may have enticed firms to award their CEOs larger bonuses. It also helped raise the firms' stock-price-based performance and increased the likelihood that more target-firms would qualify their CEO bonuses as performance-based. Thus, the association between CEO bonus payout and firm stock-price-based performance is tightened. Table

3 also shows a significant decrease in the association between CEO bonus payout and the accounting-earnings-based performance in both target-firms and other firms shortly after Section 162(m) enactment. The similar behavior of target-firms and other firms before and after the tax provision indicates that time-related factors, such as the economy and market environment, played a big role in CEO bonus payout. Thus, it would be hard to determine the effect of Section 162(m) on the bonus-performance sensitivity based on time variance analysis alone.

I believe that the comparison between target and other firms in the same period may offer direct results to determine the impact of Section 162(m). I combine time variance and firm variance comparisons to analyze how Section 162(m) affects the bonus-performance relationship. The firm variance analysis in Table 3 reports the relationship between bonus growth and firm performance during 1995-1997, shortly after Section 162(m) enactment.

There are two significant differences between target and other firms immediately after Section 162(m). First, the significant positive coefficient of D_f with $p \sim 0.000$ suggests that CEO bonus growth of target-firms is significantly larger than that of other firms, which is also consistent with the finding by Perry and Zennar (2001). Second, the positive coefficient of the interactive term of D_f and stock returns suggests that the association between CEO bonus growth and firm stock-price-based performance in target-firms is stronger than in other firms.

Due to the performance-based cap exemption, CEO bonuses offer target-firms a better way to boost executive cash compensation than salary. Although the exciting market environment could have caused the large CEO bonus growth, Section 162(m) successfully catalyzes a CEO bonus payout carnival when its implementation met the bull market of 1995-1997. On the other hand, improved firm stock-price-based performance helped firms qualify their CEO bonus payout as performance-based. The results came as expected, showing larger

CEO bonus payouts (support H_{1a}) and increased CEO bonus to firm stock-price-based performance sensitivity in target-firms (support H_{1b}) shortly after Section 162(m).

Table 3
Bonus-Performance Relationship Before and Shortly After
Section 162(m)

Analysis	Time variance (Model 1)				Firm variance (Model 2)	
	Target-Firms		Other Firms		Short-Term (95-97)	
Category	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
Variables						
Intercept	0.72	20.61	0.86	21.04	1.02	34.31
<i>ChgSales_{it}</i>	0.001	2.89	0.001	2	0.0002	0.95
<i>ChgROA_{it}</i>	0.037	4	0.038	2.92	- 0.0003	- 2.17
<i>ChgReturn_{it}</i>	0.0005	0.75	0.0007	0.82	0.0003	1.66
<i>D (D_{t1} or D_t)</i>	0.39	11.59***	0.139	3.46***	0.294	8.59***
<i>D × ChgSales_{it}</i>	0.0004	0.5	- 0.0008	- 1.45	0.0012	1.21
<i>D × ChgROA_{it}</i>	- 0.0456	- 4.36***	- 0.0386	- 2.94***	- 0.01	- 1.62
<i>D × ChgReturn_{it}</i>	0.0118	4.83***	- 0.0004	- 0.46	0.01	3.38***
<i>LagBonus_{it}</i>	- 0.857	- 28***	- 1.033	- 38.48***	- 1.053	- 41.72***
n		1123		1661		1972
Adjusted R ²		0.45		0.48		0.48
F-value		117		189		231

This table reports results of the association between CEO bonus payout growth and firm performance before and immediately after Section 162(m) (all bonuses are adjusted in 1992 constant U.S. dollar). I used time-series data for firms from S&P1500, 1992-1997. The dependent variable is CEO bonus growth rate, and the independent variables include performance measures such as the percentage changes in Sales, ROA and Stock Returns indicated by *ChgSales*, *ChgROA*, and *ChgReturn*. Target-firms are firms that paid their CEOs cash compensation more than \$1 million and paid Federal income tax in the examined year. Other Firms are firms other than target-firms. The time variance analysis columns present differences between before and after Section 162(m) (using *D_{t1}* to indicate the two periods: *D_{t1}*=1 if the observation is in the period immediately after Section 162(m); *D_{t2}*=0 if the observation is in the period before Section 162(m)) on target and other firms, respectively. The firm variance analysis column reports differences between target and other firms (using *D_f* to indicate the two types of firms: *D_f*=1 for target-firms; *D_f*=0 for other firms) in the period shortly after Section 162(m) (years 1995-1997).

*** indicates significance at one percent or lower level.

5.2 Bonus-Performance Relationship in the Long-Term

Since the effect of Section 162(m) is continuous and directional, I expect its long-term effect to differ from its short-term effect, and

to serve as a direct measure of Section 162(m) impact. Therefore, I run the regression of CEO bonus growth to firm performance between the first post-Section 162(m) and second post-Section 162(m) periods with one-dummy variable D_{t2} on target and other firms respectively. D_{t2} indicates the first period 1995-1997 (value of zero) and the second period 2005-2007 (value of one). As stated in "Sample and Research Design," the choice of the second period is mainly based on its economic similarity to the first period. Table 4 shows the descriptive statistics.

Table 4
Descriptive Statistics, Analysis of Long-Term Effects

Variable	Category	Mean	Std Dev	Median	Obs.
CEO cash compensation (000s)	Target ¹	2,939.13	3,462.733	2,006.112	946
	Other ²	919.470	913.141	762.712	3,212
CEO bonus change ratio	Target	0.294	1.213	0.154	889
	Other	-0.758	1.768	-0.026	2,697
Sales change (%)	Target	16.285	20.248	12.623	946
	Other	14.150	35.545	9.572	3,198
Return change ratio	Target	-0.383	59.623	-0.263	885
	Other	-1.364	87.843	-0.060	2,857
ROA change ratio	Target	-0.027	4.551	0.068	889
	Other	-0.494	37.356	0.005	2,892
Lag CEO bonus ratio	Target	1.530	0.828	1.543	889
	Other	1.308	1.353	1.160	2,697

¹Target: Target-firms

²Other: Other firms

Table 5 shows the regression results between the two periods after Section 162(m). The results show that target-firms have significantly higher increase in CEO bonus payout in the later period compared to the earlier period, while other firms show a significant decrease in CEO bonuses. The decrease in other firms may have related to economic and market over-optimism during the first period. That optimism was greatly reduced in the second period, although its economy and market environments were similar to the first period. The difference causes other firms to offer

much lower CEO bonuses in the later period. (2) Opposite outcomes between the target and other firms serve as evidence of the accumulative effect of Section 162(m). For example, while CEO bonus growth in other firms decreases significantly, Section 162(m) may have triggered target-firms to choose bonuses as more desirable cash compensation over salary, and thus push a larger increase in their CEO bonus growth. The different behavior between target and other firms indicates that the effects of Section 162(m) typically thought of as a small force, can be accumulated to produce a huge effect in a long-term.

Meanwhile, I observe significantly increased sensitivity of target-firms' CEO bonus payout to firm accounting-earnings-based performance. This is a new finding, not observed in the short-term analysis (i.e., for the period 1995-1997). Also, the strengthened association between CEO bonus payout and firm stock-price-based performance in target-firms, shown as a short-term effect, weakens in the second period. On the other hand, the sensitivity of CEO bonus payout to firm stock-price-based and accounting-earnings-based performance in other firms is not statistically different between the two periods. These results indicate differences between short- and long-term effects. However, to determine the effect of Section 162(m), I need the long-term results from the firm variance analysis.

Table 5 reports the bonus-performance relationship between target and other firms in the period 2005-2007. The highly significant positive coefficient of D_f ($\beta_4=1.2614$, $p<0.01$) indicates that Section 162(m) increases the CEO bonus growth in target-firms. Also different from the short-term results in Table 4, Table 5 shows the association between CEO bonus growth and firm accounting-earnings-based performance does increase ($\beta_7=0.0193$, $p<0.05$), while the association between CEO bonus growth and firm stock-price-based performance does not increase. The results suggest the differences in the short- and long-term results are due to better long-term compliance with the tax provision and increased audit scrutiny, which may have directed firms to set

multiple targets and give more weight to accounting-earnings-based performance measures when designing CEO bonus plans.

Table 5
Bonus-Performance Relationship, Long-Term Effect

Analysis	Time variance (Model 1)				Firm variance (Model 2)	
Category	Target-Firms		Other Firms		Long-Term 05-07	
Variables	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
Intercept	1.195	27.33	1.006	32.71	0.5346	19.11
<i>ChgSales_{it}</i>	0.00143	1.28	0.0002	0.63	0.0034	5.35
<i>ChgROA_{it}</i>	- 0.009	- 1.27	- 0.00026	- 1.44	- 0.0005	- 0.92
<i>ChgReturn_{it}</i>	0.0116	3.25	0.0003	1.09	- 0.0001	- 0.34
<i>D (D₁₂ or D_t)</i>	0.4723	9.86***	- 0.4522	-12.91***	1.2614	25.51***
<i>D × ChgSales_{it}</i>	0.0025	1.47	0.0032	4.73***	0.00056	0.3
<i>D × ChgROA_{it}</i>	0.028	3.11***	- 0.00022	- 0.43	0.01927	2.52**
<i>D × ChgReturn_{it}</i>	- 0.0115	- 3.18***	- 0.00038	- 1.09	0.00025	0.4
<i>LagBonus_{it}</i>	0.9394	- 34***	- 1.0386	78.14***	-1.0237	- 73.06***
n	1602		3922		3552	
Adjusted R ²	0.43		0.63		0.63	
F-value	151		841		755	

This table reports results of the association between CEO bonus payout growth and firm performance on two time periods after Section 162(m), the period 1995-1997 and the period 2005-2007. I used time-series data for firms from S&P1500 over the stated two periods. The dependent variable is CEO bonus growth rate and the independent variables include performance measures such as the percentage changes in Sales, ROA and Stock Returns indicated by *ChgSales*, *ChgROA*, and *ChgReturn*. Target-firms are firms paid that their CEOs cash compensation more than \$1 million and paid Federal income tax in the examined year. Other firms are firms other than target-firms. The time variance analysis column presents differences between two periods after Section 162(m) (using *D₁₂* to indicate the two periods: *D₁₂*=1 if the observation is in the period of 2005-2007; *D₁₂*=0 if the observation is in the period of 1995-1997) on target-firms and other firms, respectively. The firm variance analysis column reports differences between target and other firms (using *D_t* to indicate the two types of firms: *D_t*=1 for target-firms; *D_t*=0 for other firms) in the period of 2005-2007.

, * indicate significance at 5 percent, and 1 percent or lower levels, respectively.

To complete the study on long-term effects, I apply sensitivity analysis to two other long-term periods, 2004-2006 and 2006-2008. Table 6 tabulates the results. Specifically, the results

for the period 2004-2006 are very similar to the period 2005-2007 shown in Table 5, which also demonstrates a highly significant CEO bonus growth increase in the target-firms and significantly increased sensitivity of CEO bonus payout to performance. However, there is a lack of statistical significance on increased sensitivity in target-firms during the period 2006-2008, which indicates that the economic and marketing environment may have changed the analysis results (e.g., financial crisis around 2008).

Table 6
Robustness Analysis, Long-Term Effect

	Period 04-06		Period 06-08	
Variables	Coeff.	t-value	Coeff.	t-value
Intercept	1.293	33.42	0.254	16.63
<i>ChgSales_{it}</i>	0.0028	4.11	0.000039	0.51
<i>ChgROA_{it}</i>	- 0.00027	- 0.45	- 0.00049	- 1.65
<i>ChgReturn_{it}</i>	- 0.00033	- 2.13	- 0.00009	- 0.71
<i>D_t</i>	0.9796	20.45***	1.0835	26.39***
<i>D_t × ChgSales_{it}</i>	- 0.00069	-0.4	0.00136	0.304
<i>D_t × ChgROA_{it}</i>	0.0116	1.8*	0.0068	1.48
<i>D_t × ChgReturn_{it}</i>	0.00073	1.24	0.00094	0.95
<i>LagBonus_{it}</i>	- 1.217	- 74.2***	- 1.014	- 103.1***
n		3378		3728
Adjusted R ²		0.66		0.75
F-value		814		1416

This table reports results of robustness analysis on the long-term effect. The regression is the same as the firm variance analysis in Table 5 except was on two different periods, the period 04-06 and the period 06-08. The dependent variable is CEO bonus growth rate and the independent variables include performance measures such as the percentage changes in Sales, ROA and Stock Returns indicated by *ChgSales*, *ChgROA*, and *ChgReturn*.

* and *** indicate significance at 10% , and one percent or lower levels, respectively.

6. CONCLUSION

In this study I analyze the effect of Section 162(m) on CEO bonus payout, with an emphasis on the sensitivity of bonuses to firm performance. Since the effect of Section 162(m) on CEO bonus payout could be influenced by non-regulatory factors such as large changes of the economic and marketing environment analogous to paddling a boat in a storm, this study suggests that

examining the effect of Section 162(m) under the similar economy environment is crucial to design the empirical tests. Thus different from previous studies on Section 162(m), I do not include all years after 1994 as post-Section 162(m) data because several time periods such as the Dotcom crash around 2001 and the financial crisis around 2008 would certainly overshadow the effect of Section 162(m).

In addition the force of the tax provision may not be applied uniformly during all years after 1994. In the earlier years Section 162(m) has not effectively implemented as IRS found “sufficient problems” in 2003. After IRS published an audit guide of Section 162(m) in 2005, the tax provision is under greater scrutiny. Based on these facts, I design a different research approaches from previous studies to include analysis over the short- and long-term. This design helps mitigate the impact of time-related factors and helps to determine the Section 162(m) effects more accurately.

The results indicate that immediately after Section 162(m) enactment, both target and other firms show a large increase in CEO bonus payout. Mainly, the bull market caused the CEO bonus increase. However, I attribute the larger increase within target-firms (over other firms) to the Section 162(m) cap exemption for qualified performance-based bonuses. Also, firms' improved stock-price-based performance (measured by stock returns) helps them qualify their CEO bonus as performance-based. In turn, this increases CEO bonus sensitivity to stock-price-based performance for target-firms, as a short-term Section 162(m) effect. However, this study does not find an increase in bonus sensitivity to accounting-earnings-based performance in the short-term.

The Section 162(m) long-term effects differ from the short-term effects because of improved compliance, more stringent audit rules and the tax provision's accumulated and directional force. When I compare results between the short- and long-term periods, I observe totally opposite outcomes in CEO bonus payout for target and other firms. This may indicate that Section 162(m)

successfully catalyzes CEO bonus growth. Meanwhile, there is observed increased sensitivity in CEO bonus payout to firms' accounting-earnings-based performance (measured by ROA) in the long-term, as I predicted. Finally, I complete the study of long-term effects by applying sensitivity analysis on periods different from the selected period, as a robustness check. Like all studies, this one is also subject to limitations. The outcomes of the IRS audit guides of Section 162(m) are from survey reports. An empirical analysis on the outcome of IRS increased scrutiny over Section 162 (m) could prove interesting in the context.

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