FINANCIAL ACCOUNTING REGULATION AND EXECUTIVE COMPENSATION DESIGN

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ABSTRACT

We examine the economic consequences of the recent adoption of SFAS 123(R) in the United States. Consistent with the conjectures of prior research, our results show that the removal of favorable accounting treatment for stock options post SFAS 123(R) results in a switch from stock options to restricted stock. Further analysis shows that this shift is more prominent for high-volatility firms than for low-volatility firms and for low-growth firms than for high-growth firms, a pattern consistent with the implications of the agency theory. This study extends the literature on the economic consequences of financial reporting standards by providing evidence that the leveling of accounting treatment for different forms of equity compensation causes the design of executive compensation to converge to the economically optimal form. By empirically examining the actual consequences of a heavily debated accounting standard change, this study also provides important policy implications that can be helpful in the consideration of future regulatory accounting changes in the United States as well in other accounting jurisdictions.

JEL: J33, M41, M43, M44, M52

KEYWORDS: Executive compensation, financial reporting, SFAS 123(R)

INTRODUCTION

This study investigates the economic consequences of the recent change in the financial reporting standard for employee stock options in the United States. Specifically, we empirically test whether the removal of favorable accounting treatment for stock options post SFAS 123(R) induces firms to alter the relative weight of restricted stock and stock options. Using this accounting regulatory change as a quasi experiment setting, we examine whether the leveling of accounting treatment for different forms of equity compensation causes the design of executive compensation to converge to the economically optimal form as prescribed by the agency theory.

Previous studies on executive compensation have cited favorable accounting treatment of stock options as an important explanation for the deviation of executive compensation from the predictions of the principal agent model. For example, Hall and Liebman (1998) cite accounting rules as an explanation for the virtual non-existence of relative pay (e.g. indexed stock options). Hall and Murphy (2003) suggest that discriminatory accounting treatments may suppress the use of restricted stock in favor of stock options although restricted stock provides economically more efficient incentive instruments under certain circumstances. They argue that the accounting treatment of stock options leads to low perceived cost and thus contributes to the widespread adoption of stock options and hefty pay packages. Consistent with this hypothesis, Carter et al. (2007) find a positive association between financial reporting concerns and the use of stock options and a negative association between financial reporting concerns and the use of restricted stock during the period of 1995 to 2001. Carter et al. (2007) corroborate these findings by examining a sample of firms that began voluntarily expensing stock options in 2002 or 2003, with the conclusion that these firms increased their use of restricted stock and decreased their use of stock options following the voluntary expensing decision. However, the voluntary nature of the expensing decision makes it difficult to draw direct inferences regarding the role of accounting in compensation design due to the existence of self-selection bias.

In this study, we use the mandatory adoption of SFAS 123(R) to create a cleaner setting to test whether the 'veil of accounting' has artificially caused executive compensation design to diverge from the economically optimal form. Moreover, the mandatory expensing rule allows us to empirically test propositions of the analytical studies modeling the choice between restricted stock and stock options by observing whether the pattern of convergence following the removal of the potentially biasing factor is consistent with the theoretical implications. Consistent with the conjectures of prior research, our results show that the removal of favorable accounting treatment for stock options post SFAS 123(R) results in a switch from stock options to restricted stock. Further analysis shows that this shift is more prominent for high-volatility firms than for low-volatility firms and for low-growth firms than for high-growth firms, a pattern consistent with the implications of the agency theory.

This study makes three contributions. First, this study adds to the evidence in support of the view that accounting impacts 'real' economic decisions by showing that financial reporting standards play a role in the design of executive compensation. Second, the results of this study provide empirical support to previous studies modeling the optimal choice between restricted stock and stock options. Finally, the findings of this study provide important policy implications. The potential costs and benefits induced by mandatory stock option expensing have been heavily debated among policy makers, practitioners, and academics. By empirically examining the actual consequences of SFAS 123(R), the study can provide evidence regarding the validity of these *ex ante* perspectives and shed light on the potential economic impacts of similar regulatory accounting changes in the future or in other accounting jurisdictions.

The remainder of the paper is organized as follows. Section 2 briefly discusses the relevant literature. Section 3 develops the research hypotheses. Section 4 describes the sample and analysis methods. Section 5 discusses the results from the empirical analyses. Section 6 concludes the paper.

LITERATURE REVIEW

Executive compensation has been extensively studied by researchers in a variety of disciplines including accounting, finance, economics, management, and sociology. The purpose of this section is to provide a brief review of the related literature that covers the basic issues in this area.

Most of the economics-based research on executive compensation centers on the principal-agent relationship derived from the agency theory first proposed by Jensen and Meckling (1976). According to the agency theory, the objective of executive compensation scheme is to achieve optimal incentive and risk sharing. On one hand, high-level incentive is desirable because it helps align manager's goals with those of the shareholders and thus mitigate the moral hazard problem. On the other hand, compensation scheme designed to tie managers' pay to outcomes can lead to suboptimal risk sharing. In particular, managers tend to be more risk averse than shareholders because of the difficulty in diversifying human capital investment. As such, managers will demand a premium for accepting performance-based pay in lieu of fixed pay to compensate for increased uncertainty. This premium represents the discrepancy between the 'executive value' and 'company cost' of executive compensation and results in a deadweight loss from the efficiency perspective (Hall and Murphy, 2002). Therefore, the efficient executive compensation scheme needs to achieve the optimal tradeoff between incentive and risk sharing, that is, when the marginal benefit of increasing incentive equals the marginal increase in the deadweight loss due to suboptimal risk sharing.

Consistent with the agency theory's focus on the principal-agent relationship, a large volume of research has examined the role of executive compensation as a control mechanism to mitigate the conflict of interest between shareholders (the principle) and managers (the manager). One major stream of research in this context focuses on pay performance sensitivity based on the assumption that executive compensation should be highly correlated with firm performance when the compensation contract

efficiently aligns the interests of shareholders and managers. Despite the existence of the large volume of empirical work on this topic, however, the findings are mixed regarding the association between executive pay and firm performance. For example, Jensen and Murphy (1990) find that the pay-performance sensitivity for executives is "small" at approximately $3.25 change in executive pay per $1,000 change in shareholder wealth. Similarly, Miller report very low and statistically insignificant correlation between executive pay and two proxies for firm performance: sales and net profits. By contrast, Belliveau et al. (1996) report the ROE-CEO pay correlation to be statistically and economically significant at 0.410. Boschen and Smith (1995) also provide evidence supporting the positive linkage between executive compensation and firm performance by showing that pay-performance sensitivity is dramatically higher when measured under a longer time frame.

The theory-based explanation for the mixed evidence on pay-performance sensitivity is that the relation between incentive alignment and agency costs is non-linear (Gomez-Mejia and Wiseman, 1997). This explanation is consistent with the agency theory's prediction regarding the tradeoff relation between incentive alignment and risk sharing. According to this view, linking pay and performance initially reduces agency costs by aligning the interests of managers with those of shareholders. After a certain inflection point, however, linking pay to performance would shift excessive amount of risk to the more risk avert manager and thus increase agency costs as the manager becomes overly conservative in decision making and sacrifices returns for higher level of certainty. There is some evidence in support of this notion. For example, Cannella and Gray (1992) document that executive pay is closely related to firm performance under conditions of low risk but not under conditions of high risk. As pointed out by Gomez-Mejia and Wiseman (1997), however, considerably more theoretical development and empirical work has to be done before the shape of the pay-performance relation can be clarified.

In the context of incentive-risk tradeoff relation under the agency theory, previous research has examined the implications of the design of executive compensation. One issue of interest concerns the effects of different performance measures on pay at risk, a key concept in the incentive-risk tradeoff. For example, Baysinger and Hoskisson (1990) argue that quantitative performance measures are associated with higher pay risk than qualitative performance measures because managers have limited control over objective firm performance outcomes. By contrast, Dyl (1989) argues that pay risk is greater when executive compensation is linked to market-based performance measures rather than accounting-based performance measures.

Another related issue along this line is the modeling of optimal pay practices. In particular, within the category of equity-based compensation, restricted stock and employee stock options also have different payment structures and thus different implications to both incentive and risk sharing. Previous studies have modeled the choice between restricted stock and stock options from the efficiency perspective. For example, Hall and Murphy (2002) and Jenter (2000) demonstrate that restricted stock generally dominate stock options from the efficiency perspective. In contrast, Feltham and Wu (2001) show that restricted stock are the preferred form of equity compensation only when the agent's action has little impact on the variance of the outcome.

Despite the theoretical arguments for the relative advantage of restricted stock under certain conditions, empirical evidence has shown that restricted stock are rarely used in practice (Carter et al., 2007). One explanation for this puzzling observation is the perceived cost hypothesis proposed by Hall and Murphy (2003). They argue that the favorable accounting treatment of stock options creates a gap between the perceived and economic costs of options grants, which leads to excessive use of stock options at the expense of restricted stock because stock options are considered a 'bargain' since there is an accounting charge for restricted stock grants but not for option grants. That is, costs associated with restricted stock grants had to be recognized in the income statement even when the costs associated with stock option grants were allowed not to be included in the body of financial statements. However, the adoption of

SFAS 133 levels the accounting treatment of stock options and restricted stock by requiring the expensing of employee stock options in the income statement based on the fair value. The purpose of this study is to empirically test whether the removal of favorable accounting treatment for stock options post SFAS 123(R) induces firms to alter the relative weight of restricted stock and stock options.

HYPOTHESES DEVELOPMENT

As discussed in the previous section, favorable accounting treatment for stock options over restricted stock prior to the adoption of SFAS 133 may have caused executive compensation design to deviate from its economically optimal form. As such, we hypothesize that the adoption of SFAS 123(R) will increase the weight of restricted stock and decrease the weight of stock options in executive compensation packages as SFAS 133 levels the accounting treatment for the two forms of equity compensation.

H1: The weight of restricted stock in total compensation is greater after the adoption of SFAS 123(R) than before the adoption of SFAS 123(R). The weight of stock options in total compensation is smaller after the adoption of SFAS 123(R) than before the adoption of SFAS 123(R).

One important objective of this study is to use the adoption of SFAS 123(R) as a setting to test the theoretical propositions regarding the optimal choice between restricted stock and stock options. Accordingly, we also test whether the switch from stock options to restricted stock is more concentrated among the subpopulation of firms for which restricted stock is more likely to dominate stock options as the more efficient form of equity compensation. In particular, we identify two conditioning firm characteristics from previous literature to capture the differential effect of SFAS 123(R): volatility and growth.

Volatility affects both the incentive and risk sharing features of stock options. Higher volatility implies that the value of the underlying stocks are more likely to fall into the tail of the distribution, that is, stock options are more likely to be either deep in the money or deep out of the money. Due to options' asymmetric value structure, stock option loses its incentive power when the stock price is well below the exercise price. Moreover, using stock options as incentive instruments can also induce excessive risk-taking when the stock options are out of money because the agents can benefit from the upside potential but the downside risk is entirely borne by shareholders. Therefore, we expect more high-volatility firms to switch from stock options to restricted stock after SFAS 123(R) removed the favorable accounting treatment for stock options.

H2: The switch from stock options to restricted stocks following the adoption of SFAS 123(R) is more prominent for firms with high return volatility than for firms with low return volatility.

Feltham and Wu (2001) model the choice between restricted stock and stock options and conclude that restricted stock are the preferred form of equity compensation when the manager's action has little impact on the firm's operating risk while stock options are the preferred form when the manager's action significantly affects the operating risk. As pointed out by Feltham and Wu (2001), the former scenario is represented by mature firms while the latter setting is represented by high-growth firms. As such, we expect to observe that the switch from stock options to restricted stock following the adoption of SFAS 123(R) are more prevalent among low-growth firms than among high-growth firms.

H3: The switch from stock options to restricted stocks following the adoption of SFAS 123(R) is more prominent for low-growth firms than for high-growth firms.

DATA AND METHODOLOGY

Sample

The analysis in this study is based on executive compensation and financial statement data obtained through ExecuComp and COMPUSTAT North America, two integrated databases provided by Standard & Poor's containing information for publicly traded companies in the United States. Since our focus is to examine the effect of accounting regulatory change, we choose the sample period between fiscal year 1996 through fiscal year 2007 to have a clean test of the consequences of the mandatory expensing of stock options. Before the adoption of SFAS 123(R), accounting treatment for stock options is governed by SFAS 123, which came into effect for fiscal years beginning after Dec 15, 1995. SFAS 123 requires the disclosure but not the recognition of stock option expenses, while SFAS 123(R) mandates the expensing of stock option costs. Choosing a sample period after SFAS 123 came into effect helps ensure that the change observed after the adoption of SFAS 123(R) are due to the mandatory expensing of stock option costs rather than other accounting changes (e.g. the disclosure of the fair value of the stock options).

Model Specification

We estimate the effect of SFAS 123 (R) on the design of executive compensation based on the following pooled regressions models:

$$Restrict\ stock\ percentage = \alpha 0 + \alpha 1(After) + \alpha 2(Volatility) + \alpha 3(Growth) + \alpha 4(After * Volatility) + \alpha 5(After * Growth) + (Control\ Vars) \quad (1)$$

$$Stock\ option\ percentage = \beta 0 + \beta 1(After) + \beta 2(Volatility) + \beta 3(Growth) + \beta 4(After * Volatility) + \beta 5(After * Growth) + (Control\ Vars) \quad (2)$$

Since we are interested in the relative composition rather than the absolute level of executive compensation, we use the weight of restricted stock and the weight of stock options in the total compensation as the dependent variables in the regression analysis to examine how the weight of each component changes following the adoption of SFAS 123(R). *After* is a dummy variable coded as 0 if the observation is from the pre-SFAS 123 (R) period and coded as 1 if the observation is from the post-SFAS 123(R) period. As we hypothesize that the adoption of SFAS 123(R) will increase the weight of restricted stock and decrease the weight of stock options in executive compensation packages, we hypothesize α1 to be significantly positive in equation (1) and β1 to be significantly negative in equation (2).

We include two interaction terms, *After*Volatility* and *After*Growth*, in equation (1) and (2) to test H2 and H3. Since all the main effects are controlled for in the regression models, the coefficients on the interaction terms capture the differential effects of SFAS 123(R) for different subpopulations of firms as hypothesize in H2 and H3. As hypothesized in H2, the increase in the weight of restricted stock and the decrease in the weight of stock options following the adoption of SFAS 123(R) should be more prominent for high-volatility firms than for low-volatility firms. Accordingly, we expect α4 to be significantly positive in equation (1) and β4 to be significantly negative in equation (2). As hypothesized in H3, the increase in the weight of restricted stock and the decrease in the weight of stock options should be more prominent for low-growth firms than for high-growth firms. Therefore, we expect α5 to be significantly negative in equation (1) and β5 to be significantly positive in equation (2).

Volatility is measured as the volatility input used in the Black-Scholes model in the valuation of the firm's stock options. We choose this volatility measure because Black-Scholes model is the most widely

used model to determine the fair value of stock options. Companies are required to disclose all the inputs to the model, and these measures must be examined and approved by auditors. As such, the volatility measure reported in ExecuComp should be sufficiently reliable for data analyses. Consistent with the corporate finance literature, we use Tobin's q (the ratio of the market value of equity to the book value of equity) as the proxy for growth opportunity. We also include control variables that represent important dimensions of firm characteristics. Specifically, we include log of total assets, debt to asset ratio, and ROA to capture the size effect, the leverage effect, and the performance effect respectively.

Sub-period Analysis

We perform sensitivity analysis to confirm the validity of our inferences. In particular, our pre-SFAS 123(R) period includes the late 1990's, a period in which the dot-com boom skyrocketed the use of stock options and questionable accounting practices were more likely to be considered acceptable. In order to rule out the possibility that our results are driven by these macro factors, we estimate equation (1) and (2) using the sample period from 2002 to 2007, which only covers fiscal years after the dot-com bust and major accounting scandals. As discussed earlier, a number of public companies had opted to voluntarily expense stock options before SFAS 123(R) came into effect. Including these companies in the pre-and-post SFAS 123(R) comparison will create noises that bias against finding significant results, and using the shorter sample period from 2002 to 2007 will amplify this bias. Therefore, the sensitivity analysis represents the more conservative test of our research hypotheses.

Additional Analysis

We conduct additional analysis to examine whether the hypothesized change in executive compensation design have implications for important firm characteristics such as performance and capital structure. The rationale for such analysis is that, if the adoption of SFAS 123 (R) helps restore the design of executive compensation to the economically optimal form as we hypothesize, the improvement in executive compensation design could lead to changes in performance indicators and capital structure. Specifically, we estimate the following pooled regressions:

$$ROA = \gamma 0 + \gamma 1(After) + \gamma 2(Volatility) + \gamma 3(Growth) + \gamma 4(Size) \quad (3)$$

$$Debt = \delta 0 + \delta 1(After) + \delta 2(Volatility) + \delta 3(Growth) + \delta 4(Size) \quad (4)$$

The dependent variable in equation (3) is return on asset (measured as net profit scaled by total asset at the beginning of the period), and the dependent variable in equation (4) is debt level (measured as debt scaled by total assets at the beginning of the period). *After*, *Volatility*, and *Growth* are measured the same way as in equation (1) and (2). I also include *Size* (measured as natural log of total assets) as a control variable.

RESULTS

Table 1 reports descriptive statistics. The mean of total assets is $13, 256 million while the median of total assets is $1,544 million, suggesting that the distribution of firms' total assets in the sample is highly right skewed. Similarly, the mean of total compensation is $3,176 while the median of total compensation is $1,219, suggesting a positive skewed distribution. The mean (median) of the weight of stock options in total compensation is 0.3741 (0.3496). By contrast, the weight of restricted stock is strikingly lower with a mean value of 0.0528 and a median value of 0.

Table 1: Descriptive Statistics

Variable	N	Mean	Std Dev	Lower Quartile	Median	Upper Quartile
Total ASSETS (in million $)	159617	13,256	63,754	486	1,544	5,981
Debt	160342	0.5879	0.3761	0.4023	0.5825	0.7470
ROA	159547	0.0135	0.5960	0.0010	0.0382	0.0785
Total Compensation (in thousand $)	140861	3,176	10,835	588	1,219	2,781
Restricted stock weight	133257	0.0582	0.1303	0.0000	0.0000	0.0192
Stock options weight	133257	0.3701	0.2903	0.1021	0.3496	0.6013

Table 2 reports the regression results for the weight of restricted stock in total compensation. Panel A reports results based on the full sample, and Panel B reports results of the sub-period analysis. Consistent with H1, the coefficients on *After* are significantly positive in both panels, suggesting that firms use more restricted stock following the adoption of SFAS 123(R). Consistent with H2, the coefficients on the interaction term *After*Volatility* are significantly positive in both panels, suggesting that the switch to restricted stock following the adoption of SFAS 123(R) is more concentrated among high volatility firms. The coefficients on the interaction term *After*Growth* are negative as reported in both panels as H3 predicts, although they are not statistically significant at conventional level. In addition, it is clear that there is no substantial difference between Panel A and B, indicating that the results are not driven by other macro factors discussed earlier.

Table 2: Weight of Restrict Stock in Total Compensation

Panel A: Full Sample		
Independent variable	Parameter estimate	Hypothesized sign
Intercept	-0.043 (-2.43)***	NA
After	0.046 (8.89)***	+
Volatility	-0.014 (-9.59)***	NA
Growth (Tobin's Q)	-0.00001 (-1.29)	NA
After*Volatility	0.044 (4.56)***	+
After*Growth	-0.0002 (-0.28)	-
Size	0.014 (5.82)***	NA
Debt ratio	0.009 (7.20)***	NA
ROA	0.00004 (2.64)***	NA
R^2	0.1739	
Adjusted R^2	0.1728	
F value	507.57***	
Panel B: Sub-period Analysis		
Independent variable	Parameter estimate	Hypothesized sign
Intercept	-0.032 (-2.47)***	NA
After	0.012 (1.98)*	+
Volatility	-0.028 (-2.15)***	NA
Growth (Tobin's Q)	-0.00001 (-0.70)	NA
After*Volatility	0.063 (5.49)***	+
After*Growth	-0.0002 (-0.26)	-
Size	0.016 (3.68)***	NA
Debt ratio	0.010 (5.58)***	NA
ROA	0.00007 (2.11)**	NA
R^2	0.1675	
Adjusted R^2	0.1618	
F value	496.37***	

*Table 2 reports regression results on the weight of restricted stock in total compensation. Panel A reports results based on the full sample of 122,554 observations from fiscal year 1996 through fiscal year 2007. Panel B reports results based on the subsample of 48,571 observations from fiscal year 2002 through fiscal year 2007. ***, **, and * indicate statistically significant at 0.01, 0.05 and 0.1 level respected based on two-tailed t tests (t statistics reported in parentheses).*

Table 3 reports the regression results for the weight of stock options in total compensation. Panel A reports results based on the full sample, and Panel B reports results of the sub-period analysis. Consistent with H1, the coefficients on *After* are significantly negative in both panels, suggesting that firms use less stock options following the adoption of SFAS 123(R). Consistent with H2 and H3, the coefficients on the interaction term of *After*Volatility* and *After*Growth* in both panels are significantly negative and positive respectively, suggesting that the switch away from stock options following the adoption of SFAS 123(R) is more concentrated among high volatility firms and among low growth firms. Again, there is no substantial difference between Panel A and B.

Table 3: Weight of Stock Options in Total Compensation

Panel A: Full Sample		
Independent variable	Parameter estimate	Hypothesized sign
Intercept	0.172 (3.98)***	NA
After	-0.073 (-6.51)***	-
Volatility	0.230 (3.76)***	NA
Growth (Tobin's Q)	0.0002 (2.97)***	NA
After*Volatility	-0.175 (-8.57)***	-
After*Growth	0.007 (5.92)***	+
Size	0.025 (5.36)***	NA
Debt ratio	-0.140 (-4.25)***	NA
ROA	-0.0008 (-2.91)***	NA
R^2	0.2326	
Adjusted R^2	0.2208	
F value	877.65***	
Panel B: Sub-period Analysis		
Independent variable	Parameter estimate	Hypothesized sign
Intercept	0.236 (3.71)***	NA
After	-0.035 (-3.19)***	-
Volatility	0.143 (3.76)***	NA
Growth (Tobin's Q)	0.00003 (1.32)	NA
After*Volatility	-0.116 (-5.86)***	-
After*Growth	0.007 (6.61)***	+
Size	0.011(2.15)***	NA
Debt ratio	-0.116 (-3.09)***	NA
ROA	-0.001 (-2.51)***	NA
R^2	0.1918	
Adjusted R^2	0.1879	
F value	838.28***	

*Table 3 reports regression results on the weight of stock options in total compensation. Panel A reports results based on the full sample of 122,554 observations from fiscal year 1996 through fiscal year 2007. Panel B reports results based on the subsample of 48,571 observations from fiscal year 2002 through fiscal year 2007. ***, **, and * indicate statistically significant at 0.01, 0.05 and 0.1 level respected based on two-tailed t tests (t statistics reported in parentheses).*

Taken together, the evidence summarized in Table 2 and 3 shows that, following the adoption of SFAS 123(R), the weight of restricted stock in total executive compensation increases while the weight of stock options decreases. Further analysis indicates that this switch from stock options to restricted stock is more prominent for high-volatility firms than for low-volatility firms, and more prominent for low-growth firms than for high-growth firms. These inferences are consistent with the implications of the agency theory, suggesting that the removal of favorable accounting treatment for stock options following the adoption of SFAS 123(R) causes the design of executive compensation to converge to the economically optimal form.

Table 4 reports results of the analysis that examines the change in performance (ROA) following the adoption of SFAS 123(R). Although we make no formal hypothesis regarding the direction of the change in ROA, we expect that firm performance improves following the adoption of SFAs 123(R) as the standard helps restore the design of executive compensation to the economically optimal form. The results reported in Table 4 are consistent with this notion. Specifically, the regression coefficient on *After* is positive and statistically significant at 0.01 level, with a parameter estimate of 0.0195 and a t value of

2.90. More generally, the results suggest a case in which the removal of discriminatory accounting practices can have positive implications for firm performance.

Table 4: Change in ROA Following the Adoption of SFAS 123(R)

Independent variable	Parameter estimate	Predicted sign
Intercept	0.01107(2.90)***	NA
After	0.0195 (4.26)***	+
Volatility	-0.1804 (-6.29)***	NA
Growth (Tobin's Q)	0.0006 (3.74)***	NA
Size	0.0232 (5.41)***	NA
R^2	0.0734	
Adjusted R^2	0.0727	
F value	221.37***	

*Table 4 reports regression results on ROA (return on asset measured as net profit scaled by total assets at the beginning of the period) based on 122,554 observations from fiscal year 1996 through fiscal year 2007. ***, **, and * indicate statistically significant at 0.01, 0.05 and 0.1 level respected based on two-tailed t tests (t statistics reported in parentheses).*

Table 5 reports results of analysis that examines the change in debt level following the adoption of SFAS 123(R). We make no formal hypothesis regarding the direction of the change in debt level due to the lack of sufficient theoretical basis. However, given that the difference in restricted stock versus stock options comes from stock options' asymmetric payoff pattern, it is reasonable to expect that the switch from stock option to restricted stock in executive compensation induces mangers to care more about the downside risk and thus take on less leverage. Our findings are consistent with this notion. In particular, the regression coefficient on *After* is negative and statistically significant at 0.01 level (with a parameter estimate of -0.0173 and a t value of -5.14), suggesting a reduced debt level following the adoption of SFAS 123(R).

Table 5: Change in Debt Level Following the Adoption of SFAS 123(R)

Independent variable	Parameter estimate	Predicted sign
Intercept	0.1559 (3.41)***	NA
After	-0.0173(-5.14)***	-
Volatility	-0.0595(-3.94)***	NA
Growth (Tobin's Q)	0.0001(1.90)*	NA
Size	0.0615(2.45)***	NA
R^2	0.0518	
Adjusted R^2	0.0516	
F value	131.28***	

*Table 5 reports regression results on debt level (total debt scaled by total assets) based on 122,554 observations from fiscal year 1996 through fiscal year 2007. ***, **, and * indicate statistically significant at 0.01, 0.05 and 0.1 level respected based on two-tailed t tests (t statistics reported in parentheses).*

CONCLUDING COMMENTS

We empirically examine the economic consequences of the recent adoption of SFAS 123(R) in the United States and find evidence that the removal of favorable accounting treatment for stock options post SFAS 123(R) result in a switch from stock options to restricted stock. Further analysis shows that this shift is more prominent for high-volatility firms than for low-volatility firms and for low-growth firms than for high-growth firms, a pattern consistent with the implications of the agency theory. These findings add to the evidence in support of the view that accounting impacts 'real' economic decisions by showing that financial reporting standards play a role in the design of executive compensation.

By empirically examining the actual consequences of a heavily debated accounting standard change, this study also provides important policy implications that can be helpful in the consideration of future regulatory accounting changes in the United States as well in other accounting jurisdictions. In particular, the findings highlight the possibility that biasing financial reporting standards will cause firms to deviate

from the economically optimal decisions. As such, it is important for standard setters to carefully consider the potentially unintended consequences of both existing and proposed financial reporting standards.

Finally, we recognize that this study is subject to an important caveat. In particular, we examine the design of executive compensation within the framework of agency theory. As a result, we ignore 'non-economic' factors that may have played a key role in shaping executive compensation contract. For example, a large body of literature in the organizational sciences has highlighted the importance of interpersonal/political factors in the design of executive compensation (Gomez-Mejia and Wiseman, 1997). These studies are often premised on organizational behavior theories that view executive compensation as outcome of power struggle rather than of efficient contracting. One promising area of future accounting research is to examine how financial reporting interacts with the political factors that have been shown to impact the design of executive compensation. For instance, researchers could look at whether firms with compensation design that is more favorable to mangers tend to exhibit more opportunistic earnings management behavior that would further increase the level of compensation. Research along this line would deepen our understanding of executive compensation by putting the issue in a broader context.

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