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The economic consequences of accelerated vesting of employee stock options

Abstract

Do mandated changes in accounting policy result in the reapportionment of executive equity compensation? Specifically, is this true for firms accounting for employee stock options (ESOs) under FAS 123R? This research addresses how this policy change motivated firms to substitute restricted stock awards (RSAs) and other non-option compensation for ESOs. Accelerating firms that overweighted options in their compensation structure are shown to utilize the implementation of FAS 123R as a deadline to reduce ESOs relative to RSAs. The evidence does not indicate that accelerating firms are managing option expense recognition in an effort to minimize management option compensation costs.

Keywords: accelerating, vesting, employee stock options.
JEL Classification: M41.

Introduction

Is there a linkage between a significant revision in accounting policies and the reapportionment of executive equity compensation? In particular, is this true for firms accounting for employee stock options (ESOs) under FAS 123R? If so, how do these changes motivate firms to alter their optimal compensation contracts? This research tries to provide evidence to answer these questions. Previous studies by Hall and Murphy (2002), Lambert and Larcker (2004) and Oyer and Schaefer (2005) have tried to provide these answers. Unfortunately, their theoretical models demonstrate different and conflicting predictions about this linkage. Further, and importantly for this research, prior empirical research provides inconclusive evidence on the linkage between accounting policy and option usage. Hall and Murphy (2002) suggest that favorable accounting treatment for options (under FAS 123) motivated the overweighting of options and the underweighting of restricted stock awards (RSAs). Similarly, Carter and Lynch (2003, 2005) suggest that accounting considerations may motivate firms to alter option contract terms. However, Yermack and Bryan (1995), Hwang and Lilien (2000) do not find a reliable relation between options usage and financial reporting.

This mixed evidence has led to a call for further research directly examining the effects of accounting policy changes on the use of options (Core, Guay, and Larcker, 2003). Core et al. specifically state that: "It is important for future research to examine the role of accounting in motivating firms to either increase or decrease their use of stock options … The role of financial accounting for employee stock options is of a considerable importance to firms, but it is not well understood by economists" (p. 42).

In an attempt to provide an answer to their call, this paper examines the role of accounting and how changes in accounting standards with regard to the treatment of ESOs impact the design and structure of management compensation. The change in accounting standards is examined and compares option disclosure (in footnotes) under FAS 123 to income statement recognition under FAS 123R. The specific question addressed is whether this change motivates management and boards to alter management compensation structure toward a more optimal and efficient compensation contract. Firms with a high degree of financial reporting concerns[1] are examined to find if they accelerate the vesting of ESOs before the imminent implementation deadline of FAS 123R, in an attempt to alter the compensation structure away from options and into other forms of compensation.

Companies with a high degree of financial reporting concerns, and who decide to accelerate vesting of ESOs, provide a natural setting in which to investigate the role of accounting in motivating firms to move toward optimal compensation contracts, without having to rely on a proxy. A decrease in the use of options once the deadline is passed would be consistent with unfavorable accounting treatment, discouraging the use of options and moving towards other forms of compensation. This evidence would support the assertion that changes in accounting policies do affect the design and the structure of executive compensation contracts. Carter, Lynch and Tuna (2007) examine the role of accounting in CEO equity compensation using a sample of expensing firms as a proxy for financial reporting con-

[1] The term 'high degree of financial reporting concerns' is commonly used in the accounting literature. It refers to firms which actively try to increase their reported accounting earnings by using alternative reporting and disclosure techniques that are dependant upon their particular objective or target audience. For example, reported earnings that are 'enhanced' may prevent a firm from violating its debt covenants.

cerns. However, in this research we contend that examining accelerating firms provides better evidence, relative to expensing firms. Accelerators are likely to be more sensitive and more aggressive in their response to financial reporting concerns and to changes in financial reporting requirements. This fact is evident by their affirmative actions to alter option contracts before the FAS 123R deadline, under a climate characterized by greater scrutiny of management actions by capital markets, investors, regulators and standard setters. Accelerators are typically heavy users of options and they have chosen not to expense voluntarily until it becomes imminent to do so. For these firms, the decision to accelerate vesting before FAS 123R becomes effective demonstrates a high level of concern about financial reporting costs.

There are additional reasons that support the superiority of examining accelerators rather than expensing firms. First, the voluntary nature of the expensing decision is questionable as it was probably clear to firms that expensing would eventually be mandatory. Second, financial reporting concerns may not have been the main driver to expense. Instead, the expensing decision could be driven by motives such as capitalizing on positive publicity, given the negative political climate towards 'excessive' executive compensation in 2002 and 2003[1]. This would be especially true for companies with no options or with a small percentage of options in their compensation structure. For example, a significant number of firms who elected to expense prior to mandatory expensing are real estate investment trusts (REITs), where management compensation contracts typically do not include a significant proportion of options, if any. Aboody, Barth, and Kasznik (2004) find that expensers have a significantly lower option expense than do other firms. Additionally, the decision could be driven by "moral persuasion" or pressure from governmental agencies such as the Federal Reserve Bank in their attempts to restore confidence in the capital market. This is evidenced by the fact that 34 percent of the expensers (Aboody et al., 2004) were banks and financial institutions. Actually, Carter et al. (2007) acknowledge the problems of using expensers by stating that: "The voluntary nature of the expensing decision presents some challenges in interpreting our results … Specifically, it is possible that firms' choices about expensing result in selection bias impact our conclusions regarding a reduction in options and an increase in restricted stock upon expensing options" (p. 353). Further: "Our inability to control for the voluntary nature of the decision to expense raises the possibility of an alternative explanation for our results" (p. 354). Thus, while financial reporting concerns might be a factor behind the expensing decision, it is argued here that accelerating firms provide a superior sample to examine the role of accounting and financial reporting and how it motivates firms to alter their compensation structures.

Changes in accounting policies and accounting standards with regard to management compensation contracts, the firm's response to these changes, and the framework or the theory explaining firm reaction are issues of paramount importance to the areas of accounting, finance and business in general. This research attempts to make several contributions to these disciplines.

First, the paper provides an answer to the question of how changes in accounting standards motivate firms to alter their compensation structure toward more optimal and efficient compensation contracts. This is accomplished by examining whether firms with a high degree of financial reporting concerns, i.e. companies who accelerate the vesting of ESOs alter their compensation structure away from options towards other forms of compensation, like restricted stock awards.

Second, within the framework of contracting theory, this paper develops the optimal contracting hypothesis as a new explanation of firms' decisions to accelerate the vesting of ESOs. According to this hypothesis, the implementation of FAS 123R will impact existing 'optimal' compensation contracts. Companies with overweighted (underweighted) options (restricted stock awards) and firms with a large percentage of options, especially those that are underwater, are more likely to have an optimal compensation structure that is seriously violated by FAS 123R. They are expected to respond by moving toward a more optimal compensation structure under the new regime by accelerating, thereby decreasing option-based compensation and increasing RSAs. On the other hand, for companies with relatively fewer options, the implementation of FAS 123R is less likely to impact their optimal compensation structure and they are less likely to accelerate. Thus, the optimal contracting hypothesis provides an explanation as to why some firms accelerate vesting while others choose not to accelerate.

Finally, this paper examines the market reaction to the accelerating announcement and the determinants of the market response. The analysis focuses specifically on whether the company discloses that acceleration is a part of a strategy to reduce, eliminate, or substitute options with other forms of compensation components, particularly restricted stock awards. This analysis is conducted to complement

[1] Seethamraju and Zach (2003) find that firms with greater public exposure are more likely to voluntarily expense ESOs.

univariate statistical and multivariate regression analysis, and provides additional evidence on the competing hypotheses.

The findings of this study show that first, acceleration of option vesting is not utilized to manage the recognition of option expenses so that the impact of the cost of management's option compensation on the balance sheet is minimized or is made less apparent to stockholders. Second, accelerating firms with relatively large stock option proportions, compared to restricted stock awards, employed the FAS 123R implementation deadline as an opportunity to substitute RSAs for ESOs and achieve an optimal compensation structure that reduces agency costs. Finally, the findings indicate that acceleration is also undertaken to increase the economic benefits of increased retention and positive motivational value of stock options.

1. Development of testable hypotheses

1.1. Management-of-financial-reporting hypothesis. The management-of-financial-reporting hypothesis acknowledges that by accelerating underwater (out-of-the-money) options prior to the effective date of FAS 123R, a company is allowed to avoid expensing/recognizing the fair value of options granted in their income statement. Instead, the company will act under FAS 123 and disclose the unamortized fair value of the accelerated options in the financial statement footnotes in the period in which the option vesting is accelerated. This amount represents, from a management prospective, an avoided expense, or a "cost saving" and will cause reported accounting net income to be higher over the remaining vesting period, relative to a company that decides not to accelerate but to recognize these costs after implementation of FAS 123R[1].

Hypothesis 1: Firms with a higher degree of financial reporting concerns are expected to be more likely to accelerate the vesting of their underwater ESOs.

Three proxy variables are utilized to develop evidence for the management-of-financial-reporting hypothesis. The first variable is the option expense avoided (*EXPAVDEQ*), calculated as the expense avoided scaled by market value of equity. For accelerating firms the total option expense avoided is that reported in the acceleration announcement or from the SEC 8-K report. For accelerating firms that do not disclose the actual amount of option expense avoided, and also for the control group, the implied option expense (COMPUSTAT item 398) is utilized[2] and it is similarly scaled by market value of equity. The second variable is financial leverage (*LEV*) and it is designed to account for non-violation of debt covenants as a motive for managing reported earnings through acceleration. *LEV* is calculated as the book value of debt plus debt in current liabilities divided by total assets. Finally, following Aboody et al. (2004) companies with a high level of capital market activity are assumed to have more incentive to accelerate. The proxy employed (*ISSUE*) is a dummy variable equal to one, if the company issued debt or equity in the previous three fiscal years and is zero otherwise. The management-of-financial-reporting hypothesis suggests a positive relation between *EXPAVDEQ*, *LEV*, and ISSUE and the likelihood of accelerating.

1.2. Optimal-contracting hypothesis. This research develops an alternative to the management-of-financial-reporting as a rationale for acceleration. The optimal-contracting hypothesis suggests that firm response to accounting policy changes has economic consequences impacting firm value. Executive compensation contracts involve a delicate balance between incentive and risk. To properly align the interests of management and the shareholders, an efficient contract must achieve a high level of motivation while avoiding the imposition of excessive risk on managers. The pre-FAS 123R accounting treatment of ESOs assigned zero accounting costs to ESOs rather than their much higher economic fair value costs and was driven by preserving accounting profits. This preferential treatment resulted in two consequences with significant implications for compensation contracts. First, Hall and Murphy (2003) and Brown and Lee (2007) argue that boards got involved in a costly process of overweighting options at the expense of other compensation components. The overweighting is costly because ESOs are more expensive forms of compensation, since managers will demand a greater risk premium for receiving ESOs (and their speculative gains) rather than guaranteed cash or restricted stock awards[3]. Second, boards acted as if ESOs were cheaper than their economic cost, resulting in more ESOs being

[1] From the efficient capital market perspective, these cost savings represent an accounting or "paper" costsaving. The decision of whether to expense or recognize does not have actual cash-flow implications since share prices should already capitalize the fair market value of ESOs. As such, there are no "real" cost savings or valuation effects. However, the accounting literature suggests that if investors are focused on reported earnings and fail to recognize the costs disclosed in the footnotes, the decision of whether to recognize or to disclose might have a valuation effect.

[2] A similar procedure is used by Brown and Lee (2007). In addition, the correlation between amounts of expense avoided and implied option expense for those companies who disclose the amount is 87 percent.

[3] Studies such as Lambert, Larcker and Verrecchia (1991) and Hall and Murphy (2002) suggest that executives value ESOs grant far below their economic cost to the company because executives are risk averse and cannot perfectly hedge the risk imposed by ESOs. Firms providing more ESOs must compensate managers for this increased risk and reduced diversification, resulting in greater overall executive pay. In addition, Hall and Murphy (2002) report that firms conducting explicit exchange of cash for stock-based compensation typically gave participating managers a risk premium for accepting stock-based compensation, with the ESOs risk premium nearly double that of restricted stock. This suggests that ESOs are a more expensive form of compensation relative to other components.

granted than if they had been accounted for at their fair value. Murphy (2002) and Bodie, Kaplan and Merton (2003) argue that FAS 123 accounting treatment of ESOs created an uneven playing field for executive compensation, providing an accounting subsidy to stock options and encouraging their excessive use. Mandated expensing under FAS 123R eliminated most of the accounting appeal of options and raised ESOs accounting costs to their approximate fair values. This aspect made boards far more appreciative of their cost and shareholders much more cognizant of corporate generosity. Thus, mandatory expensing will significantly alter the balance of compensation contracts away from ESOs towards other forms of compensation. Boards and management are thereby motivated to re-examine the level and structure of management compensation and make adjustments to return to an optimal compensation structure[1]. Companies with overweighted (underweighted) options (restricted stock awards) and firms with a large percentage of options being underwater, are more likely to have an optimal compensation structure that is seriously violated by FAS 123R. They will choose to respond by moving toward an adjusted optimal compensation structure under the new regime.

Accelerated vesting converts the future cost of unvested options into a one-time footnotedisclosure as part of the process to achieve an optimal compensation structure. It may represent a decision by the board and management to reduce or even eliminate stock options as a part of an adjustment in response to new accounting rules. However, rational CEOs and other managers are unlikely to accept a permanent reduction in their total compensation and will seek to substitute other forms of compensation for these options. This explanation is consistent with the notion that accounting rules play a major role in motivating firms to move towards optimal compensation structures that will enhance firm value. It is also consistent with the assertion that there are economic consequences that result from financial reporting.

Hypothesis 2: Firms with compensation structures that are more heavily weighted with stock options (*prior to implementation of FAS 123R*) *are expected to make a significant change in compensation structure by increasing the proportion of restricted stock awards at the expense of stock options as a part of the total pay package.*

The optimal-contracting hypothesis provides an explanation as to why firms with overweighted options accelerate vesting, while underweighted option firms choose not to accelerate. In contrast, the management-of-financial-reporting hypothesis does not explain why non-accelerating firms choose not to accelerate vesting to attain the accounting benefits of one-time footnote disclosure, even when they have both in-the-money and out-of-the-money options as a part of their compensation packages.

Eight proxy variables are utilized to provide evidence upon the optimal-contracting hypothesis in regard to the likelihood of accelerating option vesting. Six variables address issues related to the ESOs, *RSA*s, bonuses and the substitution of *RSA*s for stock options. Two variables represent management ownership and board independence. The first variable is the percentage of option value to total compensation[2] (*BSVTC*), where the option value is determined by the Black-Scholes (1973) option-pricing model. It is the *BLKSHVAL* value obtained from the ExecuComp dataset divided by the ExecuComp TD1 variable. The second variable is the ratio of restricted stock awards (ExecuComp *RSTKGRNT* variable) to total compensation (*RSATC*). The third variable (*RSAOP*) relates RSAs to stock options, and is calculated as: (1+*RSATC*)/(1+*BSVTC*). The optimal-contracting hypothesis predicts a significant decline (increase) in *BSVTC* (*RSATC*) for all firms in the post-FAS 123R period, relative to the pre-FAS 123R period. However, it is expected that this decline will be more pronounced post-FAS 123R for accelerating firms, relative to the control sample of non-accelerating firms. In addition, companies with a higher ratio of *RSAOP* are projected to be less likely to be involved in substitution, and thereby accelerate vesting. Further, companies with an optimal compensation structure, such as the high-tech and health-care sectors, which (pre-FAS 123R) called for an overweighting (underweighting) of options (restricted stock awards) are more likely to substitute options with restricted stock awards. Thus, they are expected to be more likely to accelerate option vesting. Additionally, a dummy variable is included and used to indicate whether a firm has chosen to expense their options (*DEXPEN*) prior to the implementation of required expensing under FAS 123R. This variable takes the value of one for voluntary expensers and is zero otherwise. Firms with relatively few options are less likely to be impacted by the requirement to expense the option cost, and therefore have less incentive, or reason, to shift their compensation structure away from stock options towards *RSA*s or other forms of compensa-

[1] "As intended, recording options, fair value as a charge against earnings made boards far more sensitive to their cost and shareholders far more aware of their companies, largess." Is executive compensation reform really on the march? Lawrence A. Sucharow and Eathan D. Wohl, New York Law Journal, March 24, 2008.

[2] Total compensation is defined as the total of salary, bonus, other annual compensation, the Black-Scholes fair value of option grants, restricted stock awards, long-term investment plans and all other compensations.

tion via acceleration of their unvested options. Thus, there is expected to be a negative relationship between this variable and the likelihood of accelerating for firms under the optimal-contracting hypothesis.

The ratio of cash bonus to total current compensation (*BONCC*) is also employed to serve as a proxy for the optimal-contracting hypothesis. Total current compensation is the sum of salary, bonus and all other annual compensations. Indjejikian and Nanada (2002) note that companies with a higher percentage of ESOs to total compensation tend to grant less in terms of bonuses. Thus, companies with a higher *BONCC* percentage (a lower percentage of ESOs) are expected to be less likely to accelerate.

Managers and boards with significant wealth tied up in the firm's shares have an interest more closely aligned with shareholders. They are also more sensitive to deviations from optimal compensation contracts caused by changes in accounting policies. Thus, they are more likely to accelerate the reduction of options and increase restricted stock awards in an attempt to reach a new efficient contract under the FAS 123R regime. In addition, an effective corporate governance structure can mitigate and counteract the private incentives of management and directors, and discourage the adoption of accounting practices that act against shareholder interests. Companies with a higher percentage of shares held by management and the board (*PSHROWN*), and a higher percentage of independent board members (*DIRINDEP*) are more likely to accelerate. *PSHROWN* is the percentage of shares held by the top five executives and board members. *DIRINDEP* is the percentage of the independent board members, i.e. members who are not the part of the management team. For the accelerating firms, *PSHROWN* and *DIRINDEP* were obtained from the fiscal year preceding the acceleration announcement's year. For the control sample, these variables were collected from the fiscal year preceding FAS 123R's implementation.

One additional variable is used to address the characteristics of accelerating firms under the optimal contracting hypothesis. *DCHANGE* is a dummy variable that is equal to one if the accelerating company reported in its announcement that acceleration is specifically part of a strategy to alter the compensation structure and is zero otherwise. A positive relationship is expected between this variable and the market's reaction to the announcement, as capital markets should ascribe a higher valuation effect to firms whose intention to accelerate reflects a desire to reduce or eliminate options in optimizing the compensation structure as an aid in reducing agency costs.

1.3. Positive economic-benefits hypothesis. The positive economic-benefits hypothesis developed by Murphy (2000, 2003) and Balachandran, Carter and Lynch (2006) suggests that options lose their economic incentive and retention value once the stock price falls sufficiently below the exercise price. If this happens, executives perceive little chance of being able to exercise the options[1]. Management and the boards of accelerating firms frequently adopted this argument as the stated motive for their decision. They argued that the expense associated with these options would be disproportionately high compared to the perceived value to the employees[2].

Hypothesis 3: *Firms with a relatively greater percentage of unvested and unexercised options that are underwater are expected to be more likely to accelerate the vesting of their options.*

As the first proxy for the economic-benefits hypothesis, the relative amount that the option is in-the- or out-of-the-money is employed. This variable (*IVMP*) is calculated as the intrinsic value (*S-X*) scaled by the market price (*S*). *S* is calculated as the five-day average market price preceding the acceleration announcement. The exercise price was collected from the article reporting the acceleration announcement. For accelerating firms that did not disclose this information and for the comparison group, the stock price is that at the fiscal year's end and the exercise price was obtained from ExecuComp and/or the proxy statements. The second proxy is the extent to which options are underwater (*EXTUW*). This proxy variable is calculated as the number of unvested underwater options divided by all (both underwater and in-the-money) unvested options. A negative relation is anticipated between both *IVPM* and *EXTUW* and the likelihood to accelerate under this hypothesis, since options more deeply underwater provide less economic motivation and retention incentives. The third proxy variable is the percentage of options granted to all other employees (*PCTTOEMP*) who are not one of the top five executives. It is calculated as one minus the percentage of options granted to the top five executives. In contrast to the other two proxy variables for this hypothesis, a positive relation is expected between *PCTTOEMP* and the likelihood to accelerate, since a relatively greater number of vested options for all other employees should enhance motivation and retention.

[1] Balachandran et al. (2006) examine changes in executive compensation firms make in response to underwater options. Firms taking such actions claim they do so to restore incentives from market-wide or industry-wide factors beyond their control. Their results support the argument that restoring incentives and retaining executives seems to be the primary drivers of firms' responses to underwater options.

[2] Disclosing the reason for acceleration is not a voluntary choice. The office of the chief accountant points out that accelerators must disclose a business justification of the reason for accelerating vesting. Thus, the given reason might be a routine statement to satisfy the regulatory requirement.

Two variables are also developed under this hypothesis to offer evidence upon the characteristics of firms that choose to accelerate. *DRESTR* is utilized as a proxy variable that is equal to one if a company restricts the exercisability of the accelerated options until the original vesting period and is zero otherwise. Such an action would allow footnote disclosure of the option expense (prior to the FAS 123R expensing requirement) and at the same time preserve motivational and retention aspects of the options. A positive relationship between *DRESTR* and market reaction is expected under the positive economic-benefits hypothesis. These firms presumably include these restrictions to ensure the retention of valuable employees and to enhance employee morale, rather than allowing employees to immediately enjoy the private benefits of the vested options. The second accelerating firm variable under the positive economic-benefits hypothesis is closely related to the previously developed *PCTTOEMP* variable. *PEMOA* is a proxy for the percentage of accelerated options held by the (non-top five executive) employees as compared to all accelerated options. Under this hypothesis, a positive relationship is expected between *PEMOA* and market reaction if the acceleration is done to increase rank-and-file employee motivation and retention rather than simply increase top-management rewards.

1.4. Control variables. Finally, four control variables are employed. Two variables are employed to control for industry and firm size. First, start-up companies with cash constraints but large potential upside tend to overweight the percentage of options in their compensation structure. This acts to secure the type of entrepreneurial talent desired in a high leverage risk-reward relationship. Both high-tech and health-care companies (*HTHC*) may be characterized as such. FAS 123R will have a greater impact on those sectors, relative to other segments. High-tech and health-care companies are more likely to accelerate in attempts to reduce or even eliminate options and substitute other forms of compensation for them. Thus, a positive relation is anticipated between *HTHC* and the likelihood to accelerate. The *HTHC* proxy is constructed as an indicator variable equal to one if the company is in the high-tech or health-care sector and is zero otherwise. The coding for these two industries is based on the North American Industry Classification System (NAICS) and by examining the type of business description as reported in the company's SEC filings. The natural log of market value of equity (*LMVEQ*) is utilized as a proxy to control for firm size. As firm size increases, it may become more difficult to monitor manager's actions (Smith and Watts, 1992), which makes it necessary to use options as an incentive (Carter et al., 2007). Sesil and Kroumova (2005) and Kruse (1993) find that large firms with ESOs plan generate higher productivity gains from their employees relative to smaller firms. This finding suggests that larger companies are more likely to continue to use a higher percentage of ESOs in their compensation packages relative to smaller firms. Thus, large firms are less likely to substitute a large portion of their options with restricted stock awards, and therefore are expected to be less likely to accelerate.

The other two control variables account for annual firm profitability (*ROE*) and historical financial performance (*MTB*), effectively measuring market value added. The *ROE* variable is calculated as firm net income divided by book value of equity. *MTB* is equal to the market value of equity divided by book value of equity. As these variables are meant to control for other factors impacting upon the hypotheses examined, no sign is predicted.

2. Data and sample description and methods of analysis

The initial sample of companies that accelerated vesting of ESOs is obtained from a list composed by Bear Stearns[1] and it is complemented by a search of Factiva, the Dow Jones interactive database, and the Internet using Google. The initial search produced a sample of 722 acceleration announcements covering the period from January 1, 2004 through December 31, 2005. Compensation and company account data for the accelerating firms from each year between 2003-2006 were obtained from ExecuComp and the Compustat database. For accelerating firms with no compensation data on the ExecuComp reports, data is collected manually from the SEC DEF 14A filing proxy statement and from annual reports. These searches produced 650 firms with complete data for the four-year period. Thus, the final sample of accelerating firms is comprised of 2600 firm-year observations. The control group includes all non-accelerating firms covered by the ExecuComp database with compensation data available for each year from 2003 to 2006 and company account data available on the Compustat database. These procedures produce a final sample of 1122 firms, or 4488 firm-year observations.

Panel A of Table 1 reports details regarding the initial sample and the reason for deletion to reach

[1] The list obtained from Bear Stearns Co. (McConnell, Pegg, Senyek, Mott and Calingasan, 2006) covers the period from January 1, 2004 to January 6, 2006. Announcements made after December 31, 2005 were excluded due to the unavailability of returns on the CRSP database at the time of this manuscript's original writing.

the final sample. Seventy-two (277) firms from the accelerating (control) sample, respectively, are deleted based on the availability of Compustat, CRSP and compensation data. Panel B provides a frequency distribution for the accelerating and control group samples by industry affiliation based on the first two digits of the 2007 NAICS classification code. Table 1 indicates that accelerators belonging to primary metal manufacturing (33.4 percent of the sample), information (12.0 percent), and scientific and technical services (15.5 percent) are significantly over-represented relative to the control group. In fact, high-tech companies make up a majority of each of these groups.

Table 1. Initial sample, reasons for deletion and frequency distribution by industry

Panel A: Initial sample and reasons for deletion		Accelerator sample		Control sample	Market reaction
Initial sample		722		1399	722
Firms with missing Compustat, CRSP, and compensation data		72		277	72
Announcements with confounding events during the three-day announcement window (merger, earnings, repurchase, or dividend change announcements)		na		na	179
Missing returns during the three-day announcement window		na		na	18
Final sample		650		1122	453
Panel B:Industry group (2007 NAICS)	NAICS	Accelerating firms		Control firms	
		N	%	N	%
Agriculture, forestry, fishing, hunting	11	0	0	3	0.27
Mining, quarrying, oil and gas extraction	21	4	0.62	49	4.37
Utilities	22	2	0.31	48	4.28
Construction	23	2	0.31	17	1.52
Food manufacturing	31	13	2.00	52	4.63
Wood product manufacturing	32	61	9.38	123	10.96
Primary metal manufacturing	33	217	33.38	291	25.94
Wholesale trade	42	19	2.92	33	2.94
Retail: motor vehicle and parts dealers	44	15	2.31	57	5.08
Retail: sporting goods, hobby, book	45	16	2.46	27	2.41
Transportation and warehousing	48,49	12	1.85	32	2.86
Information	51	78	12.00	101	9.00
Finance and insurance	52	101	15.54	149	13.28
Real estate and rental and leasing	53	2	0.31	12	1.07
Professional, scientific and tech services	54	54	8.31	40	3.57
Administrative, support and waste mgmt.	56	17	2.62	24	2.14
Educational services	61	6	0.92	3	0.27
Health care and social assistance	62	20	3.08	16	1.43
Arts, entertainments and recreation	71	3	0.46	2	0.18
Accommodation and food services	72	7	1.08	31	2.76
Other services, public administration	81,99	1	0.15	12	1.07
Total	na	650	100	1122	100

Notes: Panel A presents the initial sample and the reason for deletion. Panel B presents a frequency distribution of the final sample based upon the first two digits of the 2007 North American Industry Classification System (NAICS). *N* is the number of observations within each group and % is the percentage of the observations relative to the total number of observations in the final sample; na indicates not applicable.

A logistic regression is used to differentiate between the proposed hypotheses with regard to management motives associated with this activity. The actual model is fully depicted at the top of Table 4. The variables employed have been previously described in the hypothesis development Section and are also detailed in Table 4, thus in the interest of brevity are not duplicated here.

Abnormal returns around the acceleration announcement are estimated using the Fama-French (1993) three-factor model as the return-generating process. A cross-sectional regression model is developed to provide additional evidence upon the three hypotheses and to explain the determinants of market reaction. The cross-sectional regression model and the variables employed are fully depicted in Table 5 and are not repeated here in the interest of brevity.

3. Empirical results

Table 2 presents univariate statistical analysis of management compensation before and after FAS 123R for the sample of 650 accelerating firms and

1122 non-accelerating control firms. The results from Table 2 (as well as the other tables) discussed generally only those that are significant. The mean (median) fair value of options (*OPTIONS*) declined by $125.55 ($156.46) thousand, from $837.68 ($495.27) to $712.13 ($338.81) thousand for accelerating firms. This translates into a 14.99 (31.59) percent decline. This decline is statistically significant at 0.10 percent level. Non-accelerating firms experience an average increase of 9.19 percent in *OPTIONS*. The difference in the percentage decline between accelerators and the control group is 24.18 (30.35) percent is statistically significant at 0.10 percent level.

Table 2. Univariate analysis of management compensation before and after FASB 123R for both accelerating and non-accelerating firms

Variable	Accelerators sample				Non-accelerators comparison sample				Difference	
	BEFORE	*AFTER*	*DIFFA*	% Δ*CA*	*BEFORE*	*AFTER*	*DIFFB*	% Δ*CB*	*DD*	*D%*
SALARY ($)	338.17 (296.74)	408.46 (365.41)	70.29** (68.67)**	20.79 (23.14)	401.39 (362.60)	462.15 (418.91)	60.76** (56.31)**	15.14 (15.53)	9.53 (12.36)**	5.65 (10.78)
BONUS ($)	245.28 (136.46)	341.75 (154.21)	96.47** (17.75)**	39.33 (13.01)	431.84 (230.13)	650.86 (375.14)	218.96*** (145.01)***	50.70 (63.01)	-122.49*** (-127.26)***	-11.37 (-50.00)
OPTIONS ($)	837.68 (495.27)	712.13 (338.81)	-125.55*** (-156.46)***	-14.99 (-31.59)	796.92 (351.34)	870.17 (346.98)	73.25** (-4.36)	9.19 (-1.24)	-198.80*** (-152.10)***	-24.18 (-30.35)
RSA ($)	127.36 (0.00)	290.66 (1.23)	163.30*** (1.23)**	128.22 (na)	292.31 (0.00)	500.88 (94.43)	208.57*** (94.43)***	71.35 (na)	-45.27*** (-93.20)***	56.87 (na)
TC ($)	1701.42 (1141.38)	1889.92 (1167.12)	188.50** (25.74)	11.08 (2.26)	2221.64 (1346.93)	2863.35 (1813.24)	641.71*** (466.30)***	28.88 (34.62)	-453.20*** (-440.56)***	-17.80 (-32.36)
CCTC (%)	35.62 (38.60)	41.05 (47.21)	5.43* (8.61)*	15.24 (22.31)	39.00 (45.90)	40.59 (45.94)	1.59 (0.04)	4.08 (0.08)	3.84** (8.57)**	11.16 (22.23)
ECTC (%)	61.24 (53.53)	58.99 (49.69)	-2.25 (-3.84)	-3.67 (-7.17)	57.07 (45.73)	59.27 (49.47)	2.20 (3.73)	3.85 (8.18)	-4.45* (-7.57)**	-7.52 (-15.35)
BSVTC (%)	49.23 (43.39)	37.68 (29.03)	-11.55*** (-14.36)***	-23.46 (-33.10)	35.87 (26.08)	30.39 (19.14)	-5.48** (-6.94)**	-15.28 (-26.61)	-6.07*** (-7.42)***	-8.18 (-6.49)
RSATC (%)	7.49 (0.00)	15.38 (0.11)	7.89*** (0.11)	105.34 (na)	13.16 (0.00)	17.49 (5.21)	4.33** (5.21)	32.90 (na)	3.565** (-5.10)***	72.44 (na)

Notes: For each of the variables in the Table the numbers shown in parentheses below the upper row of numbers represent the medians. *SALARY* is the average annual salary. *BONUS* is the average annual cash bonus. *OPTIONS* is the Black-Scholes' value of options granted. *RSA* is the amount of restricted stock awards. *TC* is the total compensation defined as the sum of the current plus equity compensation. *CCTC* is the percentage of current compensation to total compensation. *ECTC* is the percentage of equity compensation to total compensation. *BSVTC* is the percentage of B-S option value to total compensation. *RSATC* is the percentage of restricted stock awards to total compensation. *BEFORE* indicates that the amounts are for the year before the announcement year for accelerators and 2004 for non-accelerators. *AFTER* indicates that the amount is for the year after the announcement year. DIFFA is the *AFTER* minus *BEFORE* difference for accelerators. % ΔCA is the percentage change between after and before for the accelerating firm sample. *DIFFB* is the *AFTER* minus *BEFORE* difference for non-accelerators sample. % Δ*CB* is the percentage change between the before and after sample for the non-accelerators. DD is the difference between *DIFFA-DIFFB*. *D%* is the change in the percentage change between accelerators and non-accelerators (% Δ*CA*-% Δ*CB*). Amounts are in thousands of dollars. The significance level for the standard t-test (Wilcoxon test) for a significant difference in means (medians) is shown using asterisks in the upper (lower) row for each variable in the *DIFFA*, *DIFFB* and *DD* columns. ***, ** and * indicates significance at the 0.1%, 1% and 5% level, respectively.

The mean dollar value of restricted stock awards (*RSA*) for accelerating firms increased by $163.30 thousand (from $127.36 to $290.66 thousand) between the pre-FAS 123R and post-FAS 123R implementation periods. This translates to a 128.22 percent increase, which is statistically significant at the 0.10 percent level. Non-accelerating firms, on the other hand, experience an average increase of $208.57 thousand (from $292.31 to $500.88 thousand), equivalent to a 71.35 percent increase. The difference in the percentage increases between accelerators and the control group is 56.87 percent, which is significant at the 0.10 percent level.

The mean (median) dollar value of total compensation (*TC*) for accelerators increases by $188.50 ($25.74) thousand which is an 11.08 (2.26) percent increase. For non-accelerators, the mean (median) total compensation increases by $641.71 ($466.30) thousand, an increase of 28.88 (34.62) percent. The difference in the percentage increases between the two groups is -17.80 (-32.36) percent, which is statistically significant at the 0.10 percent level. The mean current compensation (salary and bonuses) to total compensation ratio (*CCTC*) for accelerators increased by 15.24 percent (from 35.62 to 41.04 percent) and is significant at the five percent level. On the other hand, the control group firms experienced a non-significant increase of 3.84 percent. The difference in the percentage increases between accelerating and non-accelerating firms is 11.16 percent, which is statistically significant at the one percent level.

The mean (median) *BSVTC* declined from 49.23 (43.39) percent before to 37.68 (29.03) percent after *FAS* 123R's implementation. The difference of 11.55 (14.36) percent represents a 23.46 (33.10) percent decline. These declines are both statistically significant at the 0.10 percent level. Non-accelerators, on the other hand, experience a 15.28 (26.61) percentage decline. Again, the difference in the percentage decline of 8.18 (6.49) percent between the two groups is statistically significant at 0.10 percent level.

For accelerating firms the mean value of *RSATC* increased from 7.49 to 15.38 percent. This represents a 105.34 percent increase and this increase is significant at the 0.10 percent level. Non-accelerating firms experience an increase of 32.90 percent. The difference between the accelerators' and the non-accelerators' percentage increase is 72.44 percent, which is statistically significant at the 0.10 percent level.

These results indicate that a change in accounting policy from FAS 123 to FAS 123R motivated management and boards to shift compensation structure away from stock options toward restricted stock awards and other current compensation. This change in compensation structure is significantly more pronounced for accelerating firms than it is for the control group. These univariate results provide preliminary evidence consistent with the optimal-contracting hypothesis. Firms are being motivated to move toward an optimal or more efficient contract structure.

Table 3 presents descriptive statistics for the remainder of the variables used in the logistic and cross-sectional regression analysis, for both the accelerating and control groups. The level of significance of the difference between the two group's means and medians was determined using the t-test and the Wilcoxon signed rank test statistics. The comparative analysis discussion will focus upon the mean differences in the interest of brevity, as the median difference results are typically supportive.

Table 3. Summary statistics and univariate tests for selected relevant variables

Variables	Accelerators			Non-accelerators			Mean difference	Median difference
	N	Mean	Median	N	Mean	Median		
Panel A: Variables included/proxied in the logistic regression analysis								
EXPAVD ($M)	722	8.968	1.961	1399	8.293	1.655	0.675	0.305
EXPAVDEQ (%)	722	1.30	6.00	1399	0.30	1.00	1.00***	5.00***
LEV (%)	722	14.1	7.30	1399	19.1	16.5	-5.00***	-9.20
PSHROWN (%)	722	14.7	8.50	1399	4.10	1.00	10.6***	7.50***
DIRINDEP (%)	722	45.5	45.3	1399	30.2	20.0	15.3***	25.3***
IVMP (%)	722	-39.9	-18.9	1399	17.4	17.8	-57.3***	-36.7***
PCTTOEMP (%)	722	71.7	76.6	1399	66.1	60.1	5.60***	16.5***
ROE (%)	722	3.30	7.00	1399	6.70	11.9	-3.40	-4.90
MTB (%)	722	291.6	221.0	1399	296.7	229.0	-5.10	-8.00
MVEQ ($M)	722	1863.0	323.78	1399	8393.7	1948.0	-6530.7***	-1624.22***
NACCEL (M)	422	2.573	0.729					
POACEL (%)	412	61.4	59.4					
EMOP (M)	226	2.069	0.355					
EXEOP (M)	228	0.667	0.268					
PEMOA (%)	228	56.8	57.8					
PEXOA (%)	228	43.2	42.2					
DUR (Years)	249	3.185	3.000					

Notes: *EXPAVD* is the dollar amount of option expense avoided as a result of acceleration (M indicates millions). *EXPAVDEQ* is the option expense avoided as a result of acceleration divided by the market value of equity (*MVE*). *LEV* is the degree of financial leverage calculated as current plus long-term debt divided by total assets. *PSHROWN* is the proportion of all shares owned by management and board members. *DIRINDEP* is the proportion of independent members on the board of directors. *IVMP* is the average of the intrinsic value of options granted divided by the market price per share. *PCTTOEMP* is the proportion of options granted to all (non-top five executive) employees. *ROE* is return on equity calculated as net income divided by the book value of equity (*BVE*). *MTB* is *MVE* divided by *BVE*. *MVEQ* is the market value of equity. *POACEL* is the proportion of options accelerated relative to total options outstanding. *NACCEL* is the number of options accelerated. *EXEOP* is the number of options accelerated held by executives. *EMOP* is the number of options accelerated held by (non-top five executive) employees. *PEXOA* is the proportion of accelerated options held by top-five executives. *PEMOA* is the proportion of accelerated options held by (non top-five executive) employees. *DUR* is the average number of years left until vesting for accelerated options. The t-test statistic for a difference in means is shown under the mean difference column. The Wilcoxon signed-rank test statistic is shown under the median difference column. Both statistical calculations are based on the values for accelerators minus non-accelerators. *** indicates significance at the 0.1 percent level.

The mean total option expense avoided (*EXPAVD*) is $8.968 million for accelerators and $8.293 million for the control group, however, the difference is not statistically or economically significant. Conversely,

when the option expense avoided is scaled by market value of equity (*EXPAVDEQ*) the results show that accelerators save 1.3 percent compared to non-accelerators, who save 0.3 percent. This 1.0 percent difference in means is significantly higher at the 0.10 percent level[1,2]. These results are consistent with the management-of-financial-reporting-concerns argument as a motive to accelerate vesting, although the other proxy of financial reporting concerns, i.e. *LEV*, is only significant based on mean differences.

Table 3 provides consistent (mean and median) evidence supporting the optimal-contracting hypothesis based on both the *PSHROWN* and *DIRINDEP* variables. The mean percentage of shares owned by management and board members is significantly higher for accelerators (14.7 percent), compared to non-accelerators (4.1 percent). Similarly, the *DIRINDEP* variable for accelerators equaling 45.5 percent is significantly higher than the comparable value for non-accelerators (30.2 percent). The univariate analysis shown in Table 3 also supports the positive economic-benefits hypothesis. As shown by the *IVMP* variable, options of accelerated firms are significantly more underwater (an average of -39.9 percent of the market price) in comparison to the control group in which options are, on average, 17.4 percent in-the-money. In addition, the *PCTTOEMP* variable indicates that accelerating firms grant significantly more options (71.7 percent) to (non-top five executive) employees than non-accelerating firms (66.1 percent of the total options granted). Table 3 also indicates that the mean value of *MVEQ* for accelerators ($1,863 million) represents 22.2 percent of the control group mean market value ($8,393.7 million). Thus, accelerators are significantly smaller in size than the control group, based on the t-test for mean differences. The mean (or median) differences between the two samples for *MTB* and *ROE* are not significant.

As disclosed in the acceleration announcements and proxy filings, the mean (median) number of options accelerated (*NACCEL*) is 2.573 (0.729) million. The mean (median) percentage of options accelerated (*POACEL*) relative to the total options outstanding is 61.4 (59.4) percent. Of the total options accelerated, 2.069 (0.355) million were held by employees (*EMOP*) and 0.667 (0.268) million were held by the top-five executives (*EXEOP*). As a percentage of total options accelerated, those held by employees (*PEMOA*) represent 56.8 (57.8) percent. The remainder, 43.2 (42.2) percent, were held by the top-five executives (*PEXOA*). This evidence is consistent with the economic-benefits hypothesis based on the following: unvested, underwater options have little motivational or retention-increasing value. A higher percentage of both options granted and accelerated options are held by employees, compared to top-five executives. If acceleration is done to increase the motivational and retention benefits, the options that are accelerated will be predominately underwater options, as shown in Table 3.

Table 4 reports the results of the logistic regression analysis. Subsection 1.1. reports the results for variables representing the management-of-financial-reporting hypothesis. The *EXPAVDEQ* variable is positive and statistically significant at the 0.10 percent level, which suggests that companies with greater option expenses avoided are more likely to accelerate vesting. Contrary to expectations developed under this hypothesis, the signs of *LEV* (a proxy for debt covenants) and *ISSUE* (a capital-market activity proxy) variables are negative and the *ISSUE* variable is significant at the 0.10 percent level in all three models. These are not consistent with the notion that acceleration is motivated by a firms' desire to avoid violation of debt covenants and/or to enhance their access to capital markets.

Table 4. Results of the logistic regression analysis

$$ACCEL = \beta_0 + \beta_1 (EXPAVDEQ) + \beta_2 (LEV) + \beta_3 (ISSUE) + \beta_4 (BSVTC) + \beta_5 (RSATC) + \beta_6 (RSAOP)$$
$$+ \beta_7 (DEXPEN) + \beta_8 (BONCC) + \beta_9 (PSHROWN) + \beta_{10} (DIRINDEP) + \beta_{11} (IVMP) + \beta_{12} (EXTUW)$$
$$+ \beta_{13} (PCTTOEMP) + \beta_{14} (HTHC) + \beta_{15} (LMVEQ) + \beta_{16} (ROE) + \beta_{17} (MTB) + \varepsilon.$$

Variable	Predicted sign	Model 1		Model 2		Model 3	
		Estimate	Z-stat	Estimate	Z-stat	Estimate	Z-stat
Intercept	na	1.843	3.273***	1.298	3.047***	1.325	3.118***

[1] The ratio of (option) expense avoided to net income and the ratio of expense avoided to the absolute value of net income are also calculated. For accelerators the mean (median) of expense avoided to net income is 0.376 (0.069), while the mean (median) for the ratio using the absolute value of net income is 0.670 (0.176). Table 3 reports the expense scaled by the market value of equity for two reasons: first, using the absolute value of net income overstates the contribution of the expense avoided for companies with reported losses; and second, net income is a value that reflects the profitability of the company over one accounting period. On the other hand, the total expense avoided reflects the amount of expense avoided over the remaining vesting period and the number of periods can vary from one company to the other, which makes comparison of this value from one company to another inconsistent.

[2] The amount of the expense in Panel A and that for the accelerating firm sample represents the amount disclosed in the announcement or the proxy filing. For those companies that do not disclose this information the implied option expense is utilized as a proxy. The correlation coefficient is estimated between the 453 companies that disclose the amount of the expense saved and the implied option expense to examine the robustness of this proxy. The correlation coefficient is 0.876 percent, which provides reasonable assurance about the validity of the proxy.

Table 4 (cont.). Results of the logistic regression analysis

Variable	Predicted sign	Model 1		Model 2		Model 3	
		Estimate	Z-stat	Estimate	Z-stat	Estimate	Z-stat
1.1. Management-of-financial-reporting hypothesis							
EXPAVDEQ	Positive	35.445	3.734***	34.617	3.599***	37.251	3.949***
LEV	Positive	-0.259	-0.667	-0.278	-0.720	-0.252	-0.648
ISSUE	Positive	-0.797	-4.046***	-0.799	-4.056***	-0.783	-3.995***
1.2. Optimal-contracting hypothesis							
BSVTC	Positive	na	na	0.869	3.788***	na	na
RSATC	Negative	na	na	na	na	-1.208	-3.244**
RSAOP	Negative	-0.949	-3.592***	na	na	na	na
DEXPEN	Negative	-1.364	-3.202***	-1.363	-3.193***	-1.381	-3.249***
BONCC	Negative	-0.894	-2.371**	-0.859	-2.261**	-0.938	-2.497**
PSHROWN	Positive	4.478	7.029***	4.512	7.061***	4.424	6.945***
DIRINDEP	Positive	1.549	5.454***	1.558	5.478***	1.546	5.421***
1.3. Positive economic-benefits hypothesis							
IVMP	Negative	-1.460	-7.019***	-1.445	-6.889***	-1.492	-7.180***
EXTUW	Negative	-0.029	-3.992***	-0.030	-4.045***	-0.029	-3.920***
PCTTOEMP	Positive	0.943	2.627**	0.986	2.679***	0.840	2.389**
1.4. Control variables							
HTHC	Positive	0.454	3.027***	0.444	2.866**	0.477	3.161***
LMVEQ	Negative	-0.394	-6.758***	-0.410	-6.555***	-0.365	-6.404***
ROE	Na	0.139	2.337**	0.142	2.375**	0.136	2.278**
MTB	Na	0.019	1.557	0.019	1.520	0.020	1.667*
N		1772		1772		1772	
Pseudo R		0.6427		0.6429		0.6424	

Notes: The logistic regression model is shown above. The independent variable is *ACCEL*, which equals one if the company accelerated vesting of employee stock options and is zero if they did not. *EXPAVDEQ* is the option expense avoided as a result of acceleration scaled by market value of equity (*MVE*). *LEV* is the degree of financial leverage calculated as current plus long-term debt divided by total assets. *ISSUE* is a dummy variable that equals one if the company has issued debt or equity in the 2002-2004 period and is zero otherwise. *BSVTC* is the Black-Scholes value of option grants divided by total compensation. *RSATC* is the value of restricted stock awards divided by total compensation. *RSAOP* equals restricted stock awards relative to *BSVTC* option awards. *DEXPEN* is a dummy variable equal to one if the company is expensing the fair value of options (prior to the implementation of FAS 123R) and is zero otherwise. *BONCC* is the annual bonus divided by current compensation. *PSHROWN* is the percentage of shares owned by management and board members. *DIRINDEP* is the percentage of independent members on the board of directors. *IVMP* is the average of the intrinsic value of options granted divided by the market price per share. *EXTUW* is the extent to which the unvested options are underwater. *PCTTOEMP* is the percentage of options granted to all (non top-five executive) employees. *HTHC* is a dummy variable that equals one if the company belongs to the high-tech or health-care sectors and is zero otherwise. *LMVEQ* is the natural log of *MVE*. *ROE* is return on equity calculated as net income divided by book value of equity (*BVE*). *MTB* is *MVE* divided by *BVE*. ε is the standard error of the regression. Z-stat is the z-test statistic indicating if the parameter estimate is significantly different from zero; na indicates not applicable.

Subsection 1.2. presents the logistic regression results for the optimal-contracting hypothesis. The *BSVTC* (*RSATC*) parameter estimate is positive (negative) and statistically significant. In addition, the ratio of restricted stock awards to options (*RSAOP*) is negative and statistically significant. These results suggest that companies that overweighted (underweighted) options (restricted stock awards) are more likely to accelerate. Further, they are attempting to replace options with other types of compensation, including restricted stock awards. These results are consistent with the optimal-contracting hypothesis developed earlier. Murphy (2000, 2003) and Balachandran, Carter and Lynch (2006) suggest that options lose their incentive and retention value once they become deeply underwater. The management and boards of accelerating firms frequently adopted this argument as a motive to accelerate. This suggests that there are economic benefits associated with the decision to accelerate.

The *DEXPEN* dummy variable's sign is negative and it is significant at the 0.10 percent level in all three models. This is consistent with the expectation under the optimal-contracting hypothesis that firms electing to expense options are less likely to be accelerators. The *BONCC* parameter estimate is negative and statistically significant, which suggests that firms accelerating vesting are not motivated by management's desire to increase bonuses. Actually, a negative and significant sign is consistent with a trade-off between compensation structure components. It suggests that companies that grant more options tend to give less in terms of bonuses. As such, a negative and significant *BONCC* provides evidence that companies with fewer options, and thereby more

in bonuses, are less likely to accelerate vesting. Further, both *PSHROWN* and *DIRINDEP* are positive and significant as predicted under this hypothesis. This is supportive of the proposition that acceleration decisions are not motivated by management and board desire to enhance their private benefits or because these companies lack effective corporate governance structures. Therefore, the findings in this subsection are uniformly consistent with the optimal-contracting hypothesis.

Subsection 1.3. of Table 4 shows the logistic regression results for the variables representing the positive-economic benefits hypothesis. The intrinsic value scaled by market price (*IVMP*), the extent to which unvested options are underwater (*EXTUW*) and the percentage of options granted to employees (*PCTTOEMP*) are associated with the predicted signs and are statistically significant. These results provide consistent support for the positive-economic benefits associated with accelerating vesting[1].

The control variables in the logistic regression show that companies in the hi-tech and health-care sectors are more likely to accelerate. *HTHC* is positive and statistically significant. This result can be attributed to the unique nature of these two sectors, where firms tend to rely more heavily on options as a form of compensation. Accelerators are significantly smaller and have stronger historical financial performance. This is evident by a negative and statistically significant *LMVEQ* parameter estimate and a positive and significant *ROE* coefficient. Finally, the pseudo *R* values, which may be interpreted like *R*-squares from a traditional regression, all exceed 0.64, indicating that the logistic models exhibit very reasonable levels of explanatory ability.

The market reaction to accelerated vesting announcements is also examined to further validate the preceding analysis. The results are reported in Table 5, Panel A. Further, the determinants of this market reaction are analyzed using a cross-sectional regression and the results are reported in Panel B. Panel A reports the mean and median three-day cumulative abnormal percentage return (*CAAR3*) from the Fama-French (1993) three-factor model. For the total sample of 453 announcements the mean (median) *CAAR3* is -0.166 (-0.264) percent; neither are statistically significant.

However, to provide further evidence upon the optimal-contracting hypothesis, the accelerating firms are split into subgroups on the basis of whether they disclosed that acceleration was undertaken as part of a strategy to change their compensation structure by reducing, eliminating or substituting options with *RSA*s or other compensation components. The results in Table 5, Panel A show that the mean (median) *CAAR3* for the disclosing companies motivated by changing compensation structure is 0.759 (0.704) percent, both of which are statistically significant at the 0.10 percent level. Conversely, the announcements for companies that do not disclose changes in compensation structure motives are associated with a mean (median) *CAAR3* of -0.387 (-0.329) percent although neither differs significantly from zero. However, the difference in the mean (median) *CAAR3*s between the two groups of 1.146 (1.033) percent is statistically significant at the 0.10 percent level (not reported in Table 5). These findings are consistent with the optimal-contracting hypothesis in that the market apparently perceives acceleration to be a part of an optimization strategy undertaken to achieve a more efficient contract structure and enhance employee morale, and thereby firm value.

Table 5. Results of the event study and cross-sectional analysis

Panel A: shows the mean and median cumulative average abnormal return (*CAAR*) percent over the three-day announcement window from day $t - 1$ through day $t + 1$ utilizing the Fama and French (1993) three-factor model as the abnormal return generating process.

Group/subgroup	N	Mean *CAAR*	Median *CAAR*
Total sample	453	-0.166	-0.264
Discloses changes in compensation structure	108	0.759***	0.704***
Does not disclose changes in compensation structure	379	-0.387	-0.329

[1] One may argue that *IVMP* and *EXTUW* could serve as proxies for the amount of option expense avoided on the grounds that under FAS 123, if the company accelerates vesting of in-the-money options, the company needs to recognize the fair value of these options as an expense. As such, there are no accounting benefits associated with accelerating vesting of in-the-money options, although such benefits are associated with accelerating vesting of underwater options. As a result, a firm has the more underwater options, the more likely the firm is to accelerate. However, this argument has doubtful validity for the following two reasons: first, an option does not need to be deeply underwater for the company to be able to avoid recognition. An option only needs to be in-the-money to give the company the ability to disclose the expense and avoid recognition; and second, the B-S value, and thereby the option expense, is a positive function of share price. Thus, the more deeply underwater the option is, the lower its value and the lower the amount of expense recognized. The results are more consistent with these proxies as providing support for the economic-benefits hypothesis than they are proxies for the management-of-financial-reporting expense hypothesis.

Table 5 (cont.). Results of the event study and cross-sectional analysis

$$CAAR3 = \beta_0 + \beta_1 (EXPAVDEQ) + \beta_2 (RSAOP) + \beta_3 (DEXPEN) + \beta_4 (BONCC) + \beta_5 (PSHROWN) +$$

$$+ \beta_6 (DIRINDEP) + \beta_7 (DCHANGE) + \beta_8 (IVMP) + \beta_9 (DRESTR) + \beta_{10} (PEMOA) + \beta_{11} (HTHC) + \varepsilon.$$

Panel B: shows the results of a cross–sectional analysis of the market reaction. The regression model is shown above. The dependent variable is the three-day average abnormal return (*CAAR3*). *EXPAVDEQ* is the option expense avoided as a result of acceleration divided by market value of equity. *RSAOP* equals the restricted stock awards relative to the value of the Black-Scholes options. *DEXPEN* is a dummy variable equal to one if the company has expensed options (prior to FAS 123R's implementation) and is zero otherwise. *BONCC* is the annual cash bonus divided by total current compensation. *PSHROWN* is the percentage of shares held by executives and board members. *DIRINDEP* is the percentage of independent board members relative to all board members. *DCHANGE* is a dummy variable that equals one if the company discloses that acceleration is done to alter compensation structure away from options and is zero otherwise. *IVMP* is the intrinsic value of options divided by the five-day average market price preceding the announcement day. *DRESTR* is a dummy variable equal to one if the company restricts the exercisability of the accelerated options until the options reach their original vesting date and is zero otherwise. *PEMOA* is the percentage of accelerated options held by (non top-five executive) employees. *HTHC* is a dummy variable equal to one if the company is in the hi-tech or health-care sector and is zero otherwise. ε is the standard error of the regression. t-stat (white t-stat) is the standard t-test (white t-test) statistic testing if the parameter estimate is significantly different from zero; na indicates not applicable.

Variable	Predicted sign	Model 1			Model 2		
		Parameter estimate	t-stat	White t-stat	Parameter estimate	t-stat	White t-stat
Intercept	na	0.022	1.820*	1.843*	-0.024	-1.120	-1.121
1.1. Management-of-financial-reporting hypothesis							
EXPAVDEQ	Positive	-0.305	-1.530	-1.752	-0.083	-0.240	-0.282
1.2. Optimal-contracting hypothesis							
RSAOP	Negative	-0.049	-4.897***	-3.725***	-0.050	-2.70**	-2.650**
DEXPEN	Negative	-0.010	-0.510	-0.774	-0.022	-0.740	-1.176
BONCC	Negative	0.030	2.270**	2.244**	0.029	1.440	1.478
PSHROWN	Positive	0.043	2.670**	2.793***	0.063	2.680**	2.855***
DIRINDEP	Positive	-0.001	-0.190	-0.042	-0.003	-0.200	-0.279
DCHANGE	Positive	0.033	5.190***	5.347***	0.040	4.040***	4.202***
1.3. Positive economic-benefits hypothesis							
IVMP	Positive	0.006	2.870***	2.655***	0.004	1.450	2.500**
DRESTR	Positive	na	na	na	0.025	3.050***	2.753***
PEMOA	Positive	na	na	na	0.057	3.400***	3.742***
1.4. Control variables							
HTHC	Positive	0.005	0.860	0.295	-0.003	-0.390	-0.364
R-Square		0.180			0.280		
Adj. *R*-Square		0.157			0.232		
F-Value		7.900***			5.810***		
No. Obs.		453			350		

Notes: ***, ** and * indicates significance at the 0.1%, 1% and 5% level, respectively.

Panel B reports the results of the cross-sectional analysis, where the dependent variable is the three-day announcement period *CAAR3*. Subsection 1.1. shows that the *EXPAVDEQ* parameter estimate is negative. It is marginally significant at the 10 percent level in Model 1, although it is not significant in Model 2. These results are contrary to the expectations under the management-of-financial-reporting hypothesis. Rather, they suggest that investors already incorporate these scaled, option expense savings into their estimate of share prices.

Subsection 1.2. indicates that *RSAOP* is negative, as anticipated under the optimal-contracting hypothesis, and is statistically significant. This suggests a higher market reaction for accelerators with a lower ratio of *RSA*s relative to options (options were overweighted) and who are more likely to substitute restricted stock awards for *ESO*s. The parameter estimate for the *BONCC* variable is positive, contrary to expectations. It is significant in Model 1, but not in Model 2. *PSHROWN* is positive and statistically significant in both models. This suggests that accelerating firms with a higher percentage of shares owned by management and board members prior to FAS 123R (evidencing a greater alignment of interest with shareholders) are more likely to accelerate for the purpose of reaching a new optimal contract that will reduce the agency problem in response to new accounting policy. This result is thereby consistent with the optimal-contracting hypothesis. *DCHANGE* (a dummy variable equal to one if the company disclosed that acceleration is part of a strategy to alter compensation structure and is zero otherwise) is positive

and statistically significant in both models. This result suggests that the market attaches a higher valuation to accelerators with the intention to reduce, eliminate or underweight options in their compensation structures, also consistent with the optimal-contracting hypothesis.

Subsection 1.3. shows that the proxies for the positive economic-benefits hypothesis from acceleration, *IVMP*, *DRESTR* and *PEMOA*, are all positive as predicted and statistically significant. This argument suggests that the more deeply underwater options are the lower their incentive and retention ability. Thus, the cost of these options is disproportionate compared to their perceived value to the employee. *IVMP* is positive and significant, thus acceleration to restore employee morale is associated with a positive valuation effect. This is consistent with the positive economic-benefits hypothesis. Management and boards of accelerating firms, whose motives are to restore employee morale and to maintain incentive and retention functions, rather than enhance their private benefits, are more likely to restrict exercisability. *DRESTR* is positive and statistically significant, suggesting that the capital market places a higher value on accelerators who restrict the exercisability of options, consistent with the positive economic-benefits hypothesis. *PEMOA*, the percentage of accelerated options held by employees, is positive and significant. This suggests that firms choosing to accelerate options held largely by employees, relative to the top-five executives, are more likely to be interested in incentivizing employees, rather than enhancing management private benefits. This finding is also consistent with the economic benefits associated with accelerated vesting of ESOs. Finally, regression Model 1 and Model 2 explain 15.7 (23.2) percent of the variation with F-values of 7.90 (5.81), respectively. Both values are statistically significant at the 0.10 percent level, which can be considered reasonable indicators of explanatory power given that (noisy) daily return data serve as the basis for the calculation of the dependent variable.

Summary and conclusions

This research examines the link between changes in accounting policy and the reapportionment of equity compensation in management contracts. Specifically, if such a link exists, how do these changes motivate firms to alter their optimal compensation contracts?

The univariate analysis results regarding compensation indicate that the change in accounting policy from FAS 123 to FAS 123R motivates management and boards to alter compensation structure away from stock options and toward restricted stock awards and other current compensation. This change in compensation structure is significantly more pronounced for accelerating firms than for the control group. Further, the univariate analysis indicates that the percentage of stock owned by management and board members, as well as the percentage of outside board members, is significantly higher for accelerating firms than non-accelerators. All of these results are consistent with acceleration undertaken to minimize agency costs, as suggested by the optimal-contracting hypothesis. Options of accelerating firms are found to be significantly more deeply underwater. Accelerating firms also grant more options to rank-and-file employees than do their non-accelerating counterparts. Thus, the positive economic-benefits hypothesis is supported by this analysis.

The logistic regression results indicate that companies displaying the following characteristics are more likely to accelerate the vesting of ESOs: overweighted (underweighted) options (restricted stock awards), a higher percentage of underwater options, a higher percentage of options held by employees, smaller company size, operating in the hi-tech or health-care sector, and a larger amount of option expense. These results are consistent with the argument that for accelerators, the cost of accelerated options does not justify their incentive and retention functions, as evidenced by higher option expenses. This motivates these companies to move toward more optimal and efficient compensation contracts in an effort to restore the incentives and increase employee morale. Conversely, the results do not support the management-of-financial-reporting hypothesis that acceleration is undertaken to enhance the private benefits of management and the board, nor do the results provide evidence that a lack of effective corporate governance structure leads to the acceleration of option vesting.

The results of the market reaction and cross-sectional analysis suggest that the market rewards companies that initiated acceleration as a strategy to move toward an optimal and efficient compensation structure contract by eliminating, decreasing, and/or substituting restricted stock awards for stock options, in response to the implementation of FAS 123R. Further, the analysis suggests that acceleration was undertaken to generate positive economic benefits in the form of increased motivational and retention benefits. Conversely, the results do not support the hypothesis that acceleration is motivated by efforts to manage financial reporting for the private benefit of these firms' managements and boards of directors.

The interpretation of the findings offers three conclusions as to why firms chose to accelerate the

vesting of their options prior to the implementation of FAS 123R, which requires expensing of stock option expense rather than the footnote recognition required under FAS 123. First, acceleration is not undertaken to manage option expense recognition so that management option compensation costs are minimized or made less visible to shareholders. Second, the accelerating firms that overweighted options in their compensation structure utilize the implementation of FAS 123R as a deadline to make changes in the relative *ESO* versus *RSA* components, in an attempt to achieve a more optimal compensation structure. Finally, the evidence also indicates that firms accelerate to increase the motivational and retention attributes of employee stock options, which is presumably why such options were part of the compensation package in the first place.

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