

Executive Option Exercises and Financial Misreporting

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Abstract

Several recent papers document that the magnitude of potential gains from stock-based compensation is positively related to the likelihood of misreporting. In a sample of firms that announce restatements of their financial statements from 1997 to 2002, we examine whether managers *realize* these potential gains occurring from their accounting choices. After controlling for diversification needs and stock price impact, we find no significant evidence of higher option exercises by executives in the misreported years. However, for firms that are more likely to have made deliberate aggressive accounting choices, we find significant evidence of higher option exercises. For these firms, option exercises are higher by 20% to 60% in comparison to industry and size matched non-restating firms. Options exercises by executives are also increasing in the magnitude of the restatement as captured by the effect of the restatement on net income. These higher option exercises tend to be more pervasive and are not just confined to the CEO and CFO of the firm.

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I. Introduction

Several recent papers document that option compensation generates incentives for managers to adopt aggressive accounting practices to boost stock price.¹ Though the recent evidence documents the potential of large gains to managers, there is actually, limited evidence on the extent to which managers actually realize these potential gains from misreporting. In fact, a recent study by Carpenter and Remmers (2001), which focuses on the option exercises of managers, finds little evidence in support of informed exercises.

We examine the option exercise behavior by executives during periods of alleged misreporting where informed exercises are more likely to occur. Specifically, we examine the option exercises of the top five executives of 224 restating firms over the period 1997 to 2002. If managers deliberately adopt aggressive accounting practices, then anticipating a future drop in stock price, they should exercise significantly more options in the misreported period. Studying the misreported periods enables us to specifically address the issue of whether or not managers realize potential profits.

After controlling for firm performance and manager-diversification needs, we find *no* evidence of significantly greater exercises by executives during misreported periods relative to size-industry matched control firms. However, not all restatements are a result of aggressive accounting practices or deliberate GAAP violations -they might also arise due to an accounting error or misinterpretation of complex accounting regulations (see Palmrose and Scholz, 2002). Therefore, we use proxies for restatements more likely to be the result of aggressive accounting. For instance, the Treadway Commission report finds that the majority of financial reporting frauds involve overstating revenue and understating costs; we use restatements of these accounting items as a proxy for more aggressive accounting. In contrast to the full sample

¹ (See Cheng and Warfield (2002), Burns and Kedia (2006), Erickson, Hanlon and Maydew (2003), Johnson, Ryan and Tian (2003) and Bergstresser and Phillipon (2003))

results, executives of firms that restate due to revenue or cost improprieties exercise significantly more options than non-restating firms. Executives of these firms exercise 5.4% more of their exercisable options relative to industry and size matched non-restating firms. This is 60% higher than the average exercises of executives at control firms.²

In addition, we exclude firms that restate to comply with SAB 101. Several firms in our sample period restate to comply with the SEC's Staff Accounting Bulletin, No. 101 (SAB 101) titled "Revenue Recognition in Financial Statements". After excluding SAB-101 restating firms, we continue to find that executives exercise significantly more options than industry and size matched non-restating firms. Further, significant evidence of greater exercises exists for a sample of 35 firms charged with GAAP violations by the SEC. Finally, we collect data on the magnitude of restatement, i.e., the effect of the restatement on net income, to proxy for the severity of the restatement. Results indicate that executives of restating firms that overstate a higher fraction of their earnings exercise a larger fraction of their exercisable options. This effect is significant at the 1% level. We examine the effect of option exercises on managerial ownership, in line with Ofek and Yermack (2000), and find little evidence that stock obtained upon exercise is retained. In other words, executives realize the gains from their option exercises

Though executives exercise significantly higher fractions of their exercisable options, it appears that they fail to realize all of the gains. The highest exercises, by executives of firms under SEC investigation, are about 16.2% of exercisable options. This might be explained by the desire of executives not to attract attention and to keep exercises close to executives exercising for diversification motives (see Bergstresser and Phillipon (2003)).

The importance of these informed exercises can also be assessed by the dollar gains that executives realize. Executives at restating firms exercise on average 54,000 options in the misreported year. The average stock price declines by 33% from the misreported period to the

² On average executives of the respective control firms exercise 9.1% of the exercisable options. Higher exercises, to the tune of 5.4%, for restating firm years is approximately 60% higher than their control group.

year of announcement of restatement for these firms. Therefore an average executive gains to the tune of \$445,000 by exercising during the misreported period relative to waiting after the restatement is announced. After adjusting for control firms, gains to the executives of restating firms continue to be high, estimated to be about \$170,000.³

In summary, the evidence suggests that not all GAAP violations are associated with managers realizing large personal gains. At the same time, the problem of managers booking large personal gains resulting from misreporting is not just confined to a handful of firms under investigation of accounting fraud by the SEC, but is more widespread.

The rest of the paper is organized as follows: The next section discusses related literature, followed by a description of the data in Section III. Section IV examines option exercises by executives; Section V studies the effect of option exercises on managerial ownership and Section VI, the pervasiveness of option exercises. Section VII concludes.

II. Related Literature

The literature in the area of earnings management and executive compensation is large. Healy (1985) and Watts and Zimmerman (1986) were the first to document the effect of managerial compensation on earnings management, as captured by accounting accruals. More recently, Cheng and Warfield (2002), Gao and Shreives (2002), Ke (2002), and Bergstresser and Phillipon (2003) have shown that discretionary accruals are positively related to equity-based compensation.

Another stream of the literature studies a small but salient set of firms subject to Accounting and Auditing Enforcement Release (AAERs) to identify firms more likely to have

³ The restating firms included for this analysis are those that restate due to revenue and cost improprieties and not to comply with SAB 101. Similar results are obtained for other proxies of deliberate aggressive accounting practices. As out of the money options will not be exercised, the executive might not have to bear the entire 33% price decline. Consequently, our estimate is likely to be higher than the true gains. Executives in control firm exercise on average 37,500 options and experience a price increase of 6%. The excessive option exercise of 17,000 with the industry adjusted price drop of 40% implies a control adjusted gain of \$170,000.

deliberately managed earnings. The SEC has determined that these firms had the clear intent to deceive investors by using fraudulent accounting. Dechow, Sloan and Sweeney (1996) is one of the first papers to study firms subject to AAERS, finding no evidence that managers manipulate earnings for personal gain. In contrast, Beneish (1999) documents that managerial self-interest is a significant motivation for aggressive accounting practices in his sample. The informativeness of these studies is hindered by the fact that they study a time period predating the widespread use of options. More current studies of these firms find that the probability of accounting fraud is increasing in the percentage of compensation that is stock based (see Johnson, Ryan and Tian, 2003 and Erickson, Hanlon and Maydew, 2002).

Some recent papers use accounting restatements to capture the existence of earnings management (See Agarwal and Chadha, 2002; Richardson, Tuna and Wu, 2002; and Burns and Kedia, 2006). Studying a sample of restating firms offers a broader and less biased sample than AAERs while containing less noise than using accruals in distinguishing earnings management. Burns and Kedia (2006) who examine restatements, find that only stock options are positively and significantly associated with misreporting.

In summary, most of the recent literature documents that the potential of personal gain to executives arising from stock-based compensation significantly impacts accounting choice. Although several of the papers mentioned above document a positive association between stock based compensation and the likelihood of managing earnings, there is relatively little evidence on whether managers actually gain from these accounting choices. The two papers closest to this one are Bergstresser and Phillipon (2003) and Johnson, Ryan and Tian (2003) providing univariate evidence of a positive association between greater option exercises and earnings management; however, neither studies controls for the diversification needs of the executives or the possible impact of high stock returns on option exercises.

In this paper, we control for diversification needs as well as the effect of firm characteristics like stock prices, volatility, and governance in order to analyze option exercises in

misreported periods. Since the fraction of equity linked compensation has increased sharply over the past decade (Hall and Liebman, 1998) greater option exercises might result from the liquidity and diversification needs of the executives. In addition, option exercises are positively related to stock prices (see Heath, Huddart and Lang, 1999). By documenting realized managerial gains from accounting choices, we complement recent literature that shows the *potential* of personal gains from accounting choices. Evidence of the realization of that potential is consistent with the suspicion that personal gains provide incentives for aggressive accounting choices.

III. Data Description

The GAO October 2002 report to the Chairman, Committee on Banking, Housing and Urban Affairs of the U.S. Senate, titled “Financial Statement Restatements: Trends, Market Impacts, Regulatory Response, and Remaining Challenges,” identifies 919 announcements of accounting restatements by 845 firms over the period January 1997 to June 2002. These restatements are due to accounting irregularities resulting in material misstatements of financial reports.⁴ We use this list as the basis of this study.

Compensation data for the five most highly paid executives is obtained from the ExecuComp database, which covers firms from the S&P 1500. We focus on the top five executives because it is very likely that the collaboration of all or at least some of them is essential for implementing the misreporting. Even though some of these executives may not have been involved with the decision to misreport, they may observe that financial numbers do not reflect the reality on the ground and exercise based on that private information. Consequently,

⁴ GAO defined accounting irregularity as an instance where the company restates its financial statements because they were not fairly presented in accordance with GAAP. This includes material errors as well as fraud. Portions of this list were cross checked with lists compiled by the SEC, the Congressional Research Service and others at the GAO, when this information was available. As many restatements are routine and on account of acquisitions, divestitures and other corporate restructuring activities, it is important to isolate the firms that restate due of accounting irregularities. Wu (2002) also identifies a similar sample over a different time period, 1971-2000.

even their exercises during the misreported period can be partially attributed to their private information.

Conditioning on data availability in ExecuComp leads to the inclusion of firms larger than the average restating firm.⁵ Restatements from large firms are, however, more likely to concern policy makers and investors. We include only the first restatement announcement for firms that announce more than one restatement.⁶ The control group consists of non-restating firms with data in ExecuComp, that are in the same two digit SIC as the restating firm and with market value within 80% to 120% of the restating firm in the year prior to misreporting.

Managerial option exercises and opportunism should increase in the severity of earnings manipulation, i.e., in the proximity to deliberate GAAP violations. The more severe the earnings management, the greater is the impact of earnings management on the stock price and the larger the expected gain from managerial opportunism. We create proxies for the severity of the restatement and its proximity to deliberate and fraudulent earnings management based on 1) the accounting items restated and the reasons stated for the restatement, 2) the magnitude of the restatement as captured by its effect on net income, and 3) charges of GAAP violation by the SEC.

There are various reasons provided for the need for a revision in financial statements. Table 1, Panel A reports the distribution of restating firms by the reason of restatement. Restatements resulting from revenue recognition usually involve reporting revenue at a different time than allowed under GAAP rules or reporting fictitious revenues (Approximately 41%). Restatements due to improper accounting of goodwill, inventory valuation, and asset write-downs are classified under restructuring, assets and inventory and account for 17% of the restatements. Cost or expense related reasons for restatements usually involved improper cost recognition or

⁵ Firm size, firm profitability, and leverage ratios are significantly higher for restating firms included in the study relative to restating firms included in the GAO dataset but with no coverage in ExecuComp.

⁶ There were 27 restating firms with multiple announcements. Excluding these firms altogether does not materially affect our results.

other cost related improprieties (10% of the sample).⁷ The restatements increase over the period, with 18 restatements in 1997 and 84 in 2001 (See Panel B, Table 1).

If fraudulent financial reporting is more likely to be associated with revenue or cost related irregularities, then firms restating due to these reasons might be more likely to have made deliberate accounting choices. The report sponsored by the committee of Sponsoring Organizations (COSO) of the Treadway Commission, titled “Fraudulent Financial Reporting: 1987-1997 An Analysis of U.S. Public Companies” finds that a majority of financial reporting frauds involve overstating revenue. Cost or expense related items are second to revenue recognition in the frequency of reasons cited for restatement. These can also be used to manipulate operating earnings as demonstrated in the Worldcom restatement.⁸ We create a dummy, REV_COST, for firms that restate due to revenue and cost related improprieties taking the value one if the firm restates revenue and cost related reasons.

Some firms restate to comply with Staff Accounting Bulletin, No. 101 (SAB101) titled “Revenue Recognition in Financial Statements,” which was issued by the SEC in December 1999. The bulletin summarizes and clarifies the staff’s views in application of GAAP to revenue recognition in financial statements.⁹ As these firms restate to comply with the newly issued guidelines, the restatements are less likely to be fraudulent. We create a dummy for revenue and cost restatements that excludes firms announcing restatements to comply with the SAB101 guidelines. This dummy, referred to as NONSAB101, is closer to capturing deliberate GAAP violations.

⁷ Other reasons were acquisition and merger related restatements (involved the use of a wrong method to account for the merger/ acquisition or misreporting the related gains/ losses), and In-process research and development related restatements (involved the use of wrong methodologies to value in process research and development at the time of acquisition). Restatements due to reclassifications, related party transactions, improper accounting of derivatives were classified in the category other.

⁸ Worldcom announced that it incorrectly recorded certain operating expenses, to the tune of \$3.9 billion, as capital expenses, effectively overstating net income. Though cost or expense related restatements are not the second most frequent category in our sample they are in the full GAO sample.

⁹ The bulletins are not rules or interpretations of the Commission but rather represent practices followed by the Division of Corporate Finance and the Office of the Chief Accountant in administering the disclosure requirements of the Federal Securities Law. See <http://www.sec.gov/interps/account/sab101.htm> for further details.

Our second proxy for the severity of a restatement is the magnitude of the misreporting. The magnitude of the restatement is the effect of the restatement on net income scaled by the restated net income. The greater is the reduction in net income due to the restatement the greater the effect of the accounting choices on stock prices and the higher the expected managerial option exercises.¹⁰ We collect data on the effect of the restatement on net income to which we refer as the magnitude of the restatement.¹¹ If a firm restates more than one year, the effect on net income is the average annual effect on net income, obtained by dividing the cumulative effect of the restatement on net income over the misreported period by the number of years that were restated. Approximately 90% of the restatements involve overstating net income in the year of misreporting. The size of the restatement is a non-trivial percentage of net income. For the average firm, the size of the restatement is a negative income adjustment of \$304 million or 20.5% of the absolute value of restated net income. The median value is lower at \$3.2 million or 5.38% of restated net income while the median sample firm restates one year of financial statements.

The final proxy for deliberate and material misstatement is based on the charge of a GAAP violation by the SEC. Of the 224 restating firms in our sample, 35 firms were charged by the SEC with GAAP violations and subject to AAERs. Since the sample includes firms that announced a restatement as late as June 25th 2002, this list of firms that were subject to SEC enforcement action is conservative as the SEC may still decide to charge more firms. The

¹⁰ We did not use the stock price reaction to the announcement of the restatement as a proxy for the severity of earnings management. In our sample, 147 (57%) announcements were confounded by the announcement of other events. The confounding events were usually quarter or year-end results, or earnings guidance. The confounding announcements appear to have an impact on the estimated CARS. The mean (-2,2) CAR for firms without confounding announcement was -11.13%, higher than the -7.62% for the firms with confounding announcements.

¹¹ The data was collected from the restatement announcement when available. For firms that do not announce the impact of the restatement on income, the data was obtained from the amended 10-ks filed with the SEC. Data on the size of the restatement could not be obtained for some firms. This was due to several reasons. Firstly, some firms did not report the impact of the restatement on income. Some firms included events (like restructuring charges, one-time charges) other than restatement in the amended earnings. This made it difficult to isolate the impact of the restatement on income. Some firms did not file an amended 10-k. We have excluded outlier observations where the size of the restatement was more than ten times restated net income.

dummy SECINVEST takes the value one when the restating firm is subject to an SEC investigation.

IV. Exercise of Stock Options

The extent of option exercises by managers is captured by two measures: 1) the fraction of total exercisable options that are exercised in a given year, and 2) the fraction of total realizable value that is realized in a given year. The first measure is defined as the ratio of options exercised to total exercisable options. Total exercisable options are the sum of unexercised exercisable options outstanding at the end of the year and the number of options exercised during the year. We compare option exercises by managers in misreported years to exercises in non-restating firm years. Non-restating firm-years consist of the corresponding calendar year of the control firm.

4.1 Univariate Evidence

If managers deliberately adopt aggressive accounting practices then managers should have significantly larger option exercises during misreported periods when the stock price is artificially high.¹² Executives exercise, on average, 12.1% of exercisable options in a year (see Table 2). The median value exercised is zero. The second measure is the ratio of total value of option exercises to total value realizable from options. Total value realizable from options is the sum of the total value of option exercises and the possible value of all in-the-money exercisable options at year-end. Executives realize 14.1% of the total value possible from option exercises.

As presented in Table 3, the executives of restating firms, on average, exercise 11.6% of their exercisable options, and realize 13.9% of the total value possible from in-the-money options. These values are significantly higher than 8.5% and 11.1% for non-restating firm years.

Significant differences in option exercises between non-restating and restating firms can also be

¹² Since announcements of restatements are followed by a significant price reaction, this assumption that the price is artificially higher is reasonable in the case of restatements. The GAO (2002) study reports an average -10% stock return over the two-day period around announcement.

seen when focusing on restatements more likely to have been deliberate. Executives of firms that restate due to revenue and cost related improprieties exercise on average 13.5% of their exercisable options and realize 17% of the total value possible from in-the-money options. This is higher than the 9.1% and 11.9%, respectively, for non-restating firms.

The difference between option exercises of restating and non-restating firms becomes larger when excluding firms that restate to comply with SAB101 guidelines. Executives exercise 14.7% of their exercisable options and 19.3% of the realizable value during the misreported period. This is significantly higher than exercises of non-restating firms. Though exercises are higher for firms that are charged with GAAP violations by the SEC relative to their control firms, the differences are not significant. Finally, we find univariate evidence of higher exercises for firms for which we have data on the effect of the restatement on net income.

The differences in average exercise patterns do not control for other factors that might be influencing stock option exercises of managers. Higher option exercises by executives of restating firms might result from higher stock prices for these firms during the misreported period. Heath, Huddart and Lang (1999) find that option exercises are substantially determined by stock prices, and, in particular, find that option exercises increase after the stock price exceeds the 52 week high reference point. Following Core and Guay (2001), we calculate the number of times in the fiscal year that the stock price exceeds the 52-week high (52HIGH). Similarly, we also calculate the number of times during the year that the price falls below the 52 week low (52LOW).

The stock price exceeds (fell below) the 52 week high (low) 6.3 (7.4) times for restating firm-years (See Table 3). Neither measure is significantly different from that for non-restating firm-years. However, the three-year stock return for restating firms in the misreported period is 18.1% and is significantly higher than the 14.6% for non-restating firms. In summary, it appears that restating firms had somewhat higher stock returns. The better stock price performance for

restating firm years might explain the higher observed exercises in restating firms. We control for this in regression results.

4.2 Multivariate Analysis

We estimate a multivariate Tobit model that controls for stock price performance and diversification needs of executives. The dependent variable is the fraction of options that are exercised. The independent variable of interest is a dummy that takes the value of one in the misreported year and zero otherwise. If misreported periods are associated with higher exercises the coefficient of the misreporting dummy should be positive and significant. We also include a dummy to capture the years after the announcement of the restatement. The average restating firm has a negative 10% stock price reaction to the announcement of the restatement (See GAO 2002) and is likely to be associated with loss of reputation as well as increased public scrutiny. Consequently, we expect lower exercises in the years after the announcement of the restatement.

To control for the diversification needs of executives, we include manager option and stock holdings. Option holding is measured as the ratio of total options held by the executive to shares outstanding (OPTOUT). Total options held is the sum of the number of options outstanding at the end of the year and the number of options exercised during the year. Since large option holdings will be associated with a greater need to exercise options for diversification we expect the coefficient of OPTOUT to be positive. Managerial stock holdings are also likely to influence exercise patterns. Substantial equity position in the firm might increase managerial incentives to diversify and thus exercise options early. However, diversification needs can be met by selling equity rather than exercising options early, so it is not clear that high managerial holding implies greater option exercises. For example, if large equity positions are associated with control benefits and, consequently, a lower desire for diversification, managers with large holdings may have lower option exercises. To capture the effect of equity ownership we include the fraction of the firm held by the manager, as well as its interaction with option holdings.

Next, we control for the effect of firm performance on executive option exercises. The number of price highs (lows) is the number of times the stock price exceeds (falls below) the 52-week high (low) in the year. This captures reference points in the stock performance that have been shown to impact the exercise decisions of executives. We also include stock returns to control for firm performance. Firm size and industry are controlled for as our control firms are matched on these criteria. We include Tobin Q to control for growth opportunities. We include stock volatility to control for firm risk characteristics. Greater volatility increases the cost of exercising options early, thus it will be associated with fewer early exercises. Year dummies are included to control for any time effects in the exercise of stock options.

Table 4 presents results of the Tobit regressions. Consistent with the univariate evidence, option exercises by executives in the misreported period are higher for all restating firms, although this difference is not significant. However, firms that restate due to revenue and cost reasons have significantly higher exercises in the misreported period. Executives of these firms exercise on average 5.4% more of their exercisable options in the misreported period,¹³ 70% higher than the average exercise of 9.1% by executives of non-restating firms. Further, when excluding firms that restate to comply with SAB 101, we find that managers exercise 8.3% more of their exercisable options in the misreported period. These higher exercises are significant at the 1% level. Executives in firms that are charged with GAAP violations by the SEC also exercise 6.78% more of their exercisable options in comparison to non-restating firms. We find no significant evidence that option exercises decline after the announcement of the restatement with the exception of firms under investigation by the SEC. This suggests that the potential loss of

¹³ The estimated marginal effect is 0.054. The marginal effect is given by $\frac{\partial E[y_i | x_i]}{\partial x_i}$. This is different from the estimated coefficient β , which captures $\frac{\partial E[y_i^* | x_i]}{\partial x_i}$

reputation or increased scrutiny associated with a restatement that may cause lower exercises is mostly observed in extreme cases when the firm is also subjected to an SEC investigation.

Firm performance has a significant impact on exercise patterns. The coefficient of 52HIGH is positive and significant while that of 52LOW is negative and significant. Not surprisingly, the coefficients of stock returns and Tobin Q are positive and significant, indicating that better firm performance is associated with higher option exercises. As expected, higher volatility is associated with lower option exercises. Option exercises are also positively related to the manager's option holdings. The greater is the fraction of options outstanding the more likely the manager is to exercise for diversification purposes. Exercises are negatively related to manager's equity holdings suggesting that large equity holdings generate control benefits and negatively effect diversification needs. Moreover, the desired diversification can be easily achieved by the sale of equity.

4.2.2 Board Structure and Option Exercises

We also control for firm characteristics other than performance that might impact exercise decisions of executives. Better-governed firms with outsider dominated boards might be more successful at reducing opportunistic actions by managers. To control for governance, we include the fraction of outsiders on the board. The data on board structure was obtained primarily from the Investor Responsibility Research Center (IRRC).¹⁴ Higher fraction of outsiders on the board is associated with better governance especially in discrete firm events like CEO termination (See Weisbach (1988)). As Yermack (1996) finds that small boards are better monitors, we also include a dummy for small boards to examine its impact of executive option exercises.

¹⁴ The IRRC data on board structure was supplemented by other sources to ensure the maximum coverage for sample and control firms. We thank Ivan Brick, N.K. Chidambaran and James Linck for providing us with the board data that was privately collected and analyzed in their papers.

We find that the coefficient of fraction of outside directors is positive and highly significant implying larger exercises in the presence of outsider dominated boards.¹⁵ To understand this unexpected result further, we examine whether the impact of an increase in the outside directors depends on the number of outside directors already on the board. As seen in Table 4b, we find that when the fraction of outside directors is low, an increase in the number of outside directors is associated with a decrease in executive option exercises consistent with increased and more effective board monitoring. The fraction of outside directors is considered to be low if it is less than 0.3 approximately 10% of the sample. However, when fraction outside representation is not low an increase in the number of outside directors is associated with an increase in option exercises. This might occur if incentive alignment and board monitoring are substitutes. In other words, when the board monitoring is high, as captured by a high fraction of independent directors, then managers can have large options exercises without raising concerns. High option exercises may not be possible if incentive compensation is the dominant governance mechanism as might be the case with weak boards.

Consistent with board monitoring and incentive compensation being substitutes, we find that small boards are associated with greater exercises. When boards are effective, as captured by smaller boards, executives can exercise higher options without raising concerns. Even after controlling for board structure, we continue to find significant evidence that restating firm years are associated with higher option exercises though both the estimated coefficient, as well as the, significance of the coefficients are somewhat lower than before.

4.2.3 Magnitude of Restatement and other measure of Exercise

We study the effect of the magnitude of restatement on option exercises in a sample of firms that overstate net income in the misreported period. As Table 1 shows, approximately 90% of restatements involve a reduction in net income. The magnitude of restatement is a negative

¹⁵ These results are not reported in the paper for brevity.

number and captures the negative revision to net income for firms that overstated earnings in the misreported period. The coefficient of the magnitude of restatement is negative and significant (see Table 4a, Col 5), implying that option exercises are increasing with the magnitude of the restatement. This effect is highly significant (at less than 1% level). This result is consistent with the notion that restatements that have a sizable impact on reported net income are likely to have a larger impact on stock prices and, consequently, allow managers to gain more.

A similar picture emerges when the dependent variable is the value of the option exercises to total value realizable from in-the-money options. As can be seen in Table 4c, there is significant evidence that executives in firms that restate due to revenue and cost reasons realize a higher fraction of the total value realizable from option exercises. Higher option exercises in the misreported period continue to be significant when we exclude SAB 101 firms and examine firms that are the subject of a SEC investigation. Consistent with evidence in Table 4a, we find that exercises are increasing in the magnitude of the restatement.

In summary, we find evidence of higher option exercise for firms that are more likely to have deliberately adopted aggressive accounting practices. Further, option exercises are increasing in the magnitude of the restatement. The greater the impact (negative) of the restatement on net income, the higher are option exercises by executives in the misreported period.

Our evidence of informed option exercises by executives is in contrast to the earlier results by Carpenter and Remmers (2001). Carpenter and Remmers (2001) examine patterns of option exercises by insiders and find little evidence that exercises precede poor stock price performance over the period 1992-1995. They argue that a potential explanation for the lack of evidence of informed exercises by insiders is that a large fraction of exercises are motivated by diversification and liquidity reasons rather than opportunism. By examining option exercises of managers in misreported years we are able to focus on a window where managers have an information advantage. A larger fraction of manager's exercises in this misreported period are

likely a result of opportunism rather than diversification and liquidity reasons. Comparing them to a control group allows us to isolate diversification and liquidity related exercises from opportunistic ones. This may explain why our results are different from Carpenter and Remmers (2001). It is also possible that opportunistic exercises are prevalent only prior to major corporate events. Finally, Carpenter and Remmer's sample ends in 1995, and consequently they are able to capture only three years since the 1993 enactment of the law that allowed managers to sell their stock contemporaneous with option exercises. It is possible that the small window also contributed to their lack of findings.

V. Effect of Exercises on Managerial Ownership

Managers that exercise their stock options can either retain the stock they acquired as a result of exercises or sell the acquired stock. If they sell the stock they acquire on exercise they can lock in the higher stock prices achieved as a result of financial misreporting. However, if they hold the stock instead of selling it, they will bear the cost of the stock price decline upon the discovery and announcement of the restatement. In this case, higher option exercises documented earlier are likely not to be a reflection of opportunism, and motives other than personal monetary gains may explain the accounting choices of managers.¹⁶

As we do not have data on the whether the stock acquired at exercise was sold or not, we try to ascertain this from an examination of changes in managerial ownership in line with Ofek and Yermack (2000). If shares acquired through the exercise of stock options are retained there should be a corresponding increase in managerial ownership in periods of exercise. On the other hand, if the shares acquired through exercises are sold then there should be no discernable effect of option exercises on managerial ownership.

¹⁶ Managers may gain in several other ways from financial misreporting, like raising capital at a lower cost of capital, ensuring continued employment or a better reports from capital markets and analysts.

We control for the effect of stock option grants and restricted stock awards on the change in managerial ownership. The number of restricted stock granted is obtained by dividing the value of restricted stock granted by the year-end stock price. All values for grants, exercises, restricted stock and stock are adjusted for stock splits and stated in 2001 units.¹⁷ We exclude “reload” options.

The mean and median ownership (number of shares owned /shares outstanding) is 1% and 0.05% respectively. Though the median annual change in managerial ownership is a gain of 0.64 thousand shares, the average is a reduction of 135.4 thousand shares.¹⁸ Average value of stock options granted is 151 thousand; of options exercised, 65 thousand; and of restricted stock awarded, 7.6 thousand (See Table 2). As there is considerable skewness in ownership changes, we use a log transformation of ownership changes as our dependent variable. This is obtained by subtracting the log of ownership at the beginning of the year from the log ownership at the end of the year.¹⁹

We find that the coefficient of option exercises is not significant (See Table 5), i.e., option exercises on average are not associated with an increase in managerial ownership. As managerial ownership would have increased if managers held the stock acquired on exercise, this implies that stock options are likely associated with the sale of the acquired stock. The coefficient of the interaction of option exercises with the misreporting dummy is also not significant. The effect of exercises on managerial ownership does not appear to differ between restating and non-restating firm year. In other words, like the non-restating firm years, option exercises in restating firm years is most likely accompanied by sale of the acquired stock. However, it must be noted that this is not a comprehensive model for changes in ownership and the explanatory power of the

¹⁷ For firms that did not have 2001 compensation we convert all the data items to the common units of the last year for which data is available on ExecuComp.

¹⁸ Ofek and Yermack (2000) report changes in ownership and other data in 1996 units. The numbers here are in 2001 units. Therefore, our numbers are not comparable to those in Ofek and Yermack (2000).

¹⁹ When beginning and end of year ownership were both zero, log ownership change was defined as zero.

independent variables is low. We are using an admittedly rudimentary means to access ownership consequences of exercises.

Though the explanatory power of the independent variables is low, it is interesting to note that the coefficient of the misreporting dummy is also insignificant. Though managers have higher option exercises, it appears that they do not reduce their net ownership level. This is somewhat surprising because they could potentially increase their personal gains if they, along with selling the stock acquired from exercise, also sold their existing stock. However, it appears that opportunism is confined to option exercises and not observed in the sale of existing equity holdings. This could arise if exercise of options is easier to justify than sale of existing equity stakes (Bebchuk and Bar-Gill, 2003 and Burns and Kedia, 2006). Several firms cite diversification, estate planning, payment of taxes, among other reasons to explain the exercise of options by their executives while simultaneously emphasizing that the executive's equity stake in the firm has not been affected.²⁰ Another possible explanation for the lack of significant reduction of equity stakes in restating firms may lie in the increasing importance of stock options. As stock options constitute a large fraction of executive wealth tied in the firm, the required amount of opportunistic selling can now simply be achieved by exercise of options.

VI. Executive Rank and Option Exercises

The evidence presented above documents that executives of restating firms exercise significantly more options in the misreported years in comparison to non-restating firms. In this section, we examine whether this higher exercise by executives of restating firms is confined to only a few executives or is more widespread. The pervasiveness of opportunistic exercises is not

²⁰ For e.g., in the following quote from PR Newswire, dated Sept 8th, 2003, and titled "FARO Technologies Reports Executives Stock Sale Plan And Related Party Loan Repayment" where the CEO explains his option exercises as "This option exercise will allow Greg and I to somewhat diversify our holdings, without changing our core (non option-related) share holdings which remain at 3.7% and 25.4% of total outstanding shares, respectively. " said Simon Raab, President and CEO.

only important for accessing the magnitude of the problem but also relevant to monitors of the firm, like boards and institutional shareholders, in detecting unusual exercise patterns.

Table 6 presents summary statistics on the number of executives who exercise options. An average of 2.71 executives exercise options in the misreported years for all restating firms. This is higher than the 2.2 executives for non-restating firms and significant at the 10% level. Though more executives exercise during the misreported periods relative to control firms for all classifications of restatements, the differences are not always significant.

It is unlikely that firms adopt aggressive accounting practices without the consent of the CEO and CFO. Though the CEO and CFO are likely to be involved, it is not clear whether all top five executives are active in the choice of accounting practices. Table 7 displays option exercises by CEO and CFO and the other executives.²¹ We find that executives of restating firms, irrespective of their function, have higher exercises relative to control firms. However, the magnitude of the higher exercises and their significance is somewhat higher for CEO and CFOs.

VII. Conclusion

We document that executives of firms likely to have deliberately adopted aggressive accounting practices exercise significantly more options in the misreported years in comparison to non-restating firms. Further, option exercises by executives are increasing in the magnitude of the restatement. Importantly, we do not find that all restating firms are associated with higher option exercises by managers.

The paper is one of the first to provide evidence of informed option exercises by managers. The prior evidence on opportunistic insider sales is mostly around major corporate

²¹ ExecuComp does not always identify an executive as CFO. In the absence of an explicit CFO categorization, we read through the descriptions to identify the executive associated with finance function in the firm.

events like dividend initiations and bankruptcy announcements.²² Unlike corporate events that happen with low frequency, the use of stock options has become widespread. This suggests a much higher incidence of the opportunistic use of private information. This has implication not only for the use of stock options in compensation contracts but also for the disclosure and regulatory oversight of insider option exercises.

²² See John and Lang (1991) for dividend initiations, Loderer and Sheehan (1989), Gosnell, Keown, and Pinkerton (1992), Sehyun and Bradley (1997) for bankruptcy, Karpoff and Lee (1991)) for equity issuances and Seyhun (1986), Noe (1999) for others.

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Table 1
Restatement Characteristics

Panel A: Reasons for Restatement

The GAO (2002) study classifies the reasons for restating financial statements into nine categories. The following table displays the distribution of restating firms in our sample by reason of restatement.

Reason for Restatement	Number of firms	% of Restating Firms in Sample
Acquisition and Merger	17	8
Cost or Expense	22	10
In-Process Research and Development	10	4
Other	22	10
Reclassification	9	4
Related Party Transactions	8	3
Restructuring, Asset or Inventory	37	17
Revenue Recognition	92	41
Securities Related	7	3
Total	224	

Panel B: Distribution of Restatement Announcements over Time

This table summarizes the distribution of the restatement announcement over the years.

Year of Announced Restatement	Number of firms identified by GAO	Number of firms in the Sample	% of identified restating firms included in sample
1997	92	18	19.6
1998	102	18	17.6
1999	174	49	28.2
2000	201	46	22.9
2001	225	84	37.3
2002	125	42	33.6

Panel C: Distribution of Misreported Years and Magnitude of Restatement

Annual Impact on Net Income (Size) is the effect of the restatement on Net income. For restatements that involved more than one year this is the average annual effect on net income. The numbers displayed are in millions of dollars. In columns 4 and 5, size is normalized by the absolute value of restated net income.

Column 5 displays the distribution for the subset of restating firms that overstated earnings.

	Number of years restated	Annual Impact on Net Income (Size)	Size / Net Income (%)	Size/ NI (%) Overstated earnings
Q1	1.00	-19	-33.06	-37.07
Mean	1.51	-304	-20.51	-25.61
Median	1.00	-3.2	-5.38	-8.99
Q3	2.00	0	0.0	-0.21
N	196	176	176	159

Table 2**Summary Statistics for Data**

This table reports summary statistics for our data. Options exercised are the number of options exercised by the executive during the year. Exercisable options are the sum of exercisable unexercised options outstanding at the end of the year and the number of options exercised during the year. Value realizable from options is the sum of the value of in-the-money options outstanding at the end of the year and the value of options exercised during the year. Total options are the sum of options outstanding at the end of the year and options exercised during the year. Number of options granted, number of options exercised, and the number of restricted stock awarded are all expressed in 2001 units. Change in ownership is the annual change in the number of shares owned by the executive and is calculated as end of period ownership minus beginning of period ownership. The change is also in 2001 units. Number of highs (lows) is the number of times the stock price exceeded (fell below) the 52-week high (low) in the year. Three year returns are the cumulative returns including dividends obtained from ExecuComp. Volatility is the 60 month stock volatility used to compute Black-Scholes value of options in ExecuComp.

	Mean	Median	Standard Deviation	Number of Observations
<u>Measures of Option Exercises</u>				
Options Exercised / Exercisable Options	0.121	0.0	0.21	11899
Value of Options exercised/ Value realizable from options	0.141	0.0	0.251	11899
<u>Managerial Option and Stock Ownership</u>				
Options Exercised / Total Options	0.069	0.0	0.135	13099
Total Options / Shares Outstanding	0.0372	0.0025	0.004	14377
Shares Owned / Shares Outstanding	0.011	0.0005	0.0001	13674
Number of Options Granted (000s)	151.202	31.98	649.91	17954
Number of Options Exercised (000s)	64.507	0.0	401.871	14389
Number of Restricted Stock awarded (000s)	7.651	0.0	64.506	17786
Change in Ownership (000s)	-135.54	0.602	5694.82	9548
<u>Firm Characteristics</u>				
Log of Total Assets	7.10	7.04	1.75	17799
Sales (millions)	4601	1076	11207	17777
Tobin Q	2.41	1.66	2.94	17408
Long term Debt/ Total Assets	0.186	0.164	0.168	17651
Number of Highs	8.421	5	10.22	17653
Number of Lows	5.273	2	7.721	17653
3 year Returns	16.161	12.78	33.288	16029
Volatility	0.399	0.36	0.188	16029
Fraction of independent directors on the board	0.702	0.714	0.2	15769
Board Size	9.67	9.0	3.02	10672

Table 3
Differences in Restating and Non-restating Firms

All restating firms are those that announce restating their financial statements over the period January 1997 to June 2002. Revenue and cost restatements include only firms restating due to revenue and cost improprieties. Revenue and Cost –SAB 101 includes firms that restate due to revenue and cost improprieties but excludes firms that restate to comply with SAB 101 guidelines. Firms under SEC investigations include firms that are charged of GAAP violations by the SEC. Magnitude of restatement is the subset for which the ratio of the effect of the restatement on net income to restated net income is available. The mean value for restating firms is calculated over the misreported years. Mean for non-restating firms is over the same calendar years in which the matched restating firm misreported. Exercisable options are the sum of unexercised exercisable options outstanding at the end of the year and the options exercised during the year. *, **, *** represent significance at the 10%, 5% and 1% level.

	Mean			Number of Restating Executive Years
	Restating Executive Years	Non-restating Executive Years	T-Statistic for the difference	
Options Exercised / Exercisable Options				
All Restating Firms	0.116	0.085	3.42***	1015
Revenue and Cost Restatements	0.135	0.091	3.22***	480
Revenue and Cost – SAB101	0.147	0.086	3.89***	357
Firms under SEC Investigation	0.162	0.135	1.04	168
Magnitude of Restatement	0.128	0.083	4.24***	786
Value of Exercises/ (Value of Exercises + Value of In-the-Money Options at the end of Year)				
All Restating Firms	0.139	0.111	2.49**	1015
Revenue and Cost Restatements	0.170	0.119	2.90***	480
Revenue and Cost – SAB101	0.193	0.125	3.31***	357
Firms under SEC Investigation	0.189	0.151	1.27	168
Magnitude of Restatement	0.154	0.116	3.29***	786
Number of Times in the Year the Stock Price Exceeds the 52 Week High				
All Restating Firms	6.336	6.523	-0.451	1015
Revenue and Cost Restatements	5.847	6.183	-0.576	480
Revenue and Cost – SAB101	5.983	6.026	-0.064	357
Firms under SEC Investigation	7.232	8.268	-0.927	168
Magnitude of Restatement	6.639	6.639	0.001	786
Number of Times in the Year the Stock Price Falls Below the 52 Week Low				
All Restating Firms	7.399	7.187	0.505	1015
Revenue and Cost Restatements	7.414	7.638	-0.372	480
Revenue and Cost – SAB101	6.655	7.893	-1.891*	357
Firms under SEC Investigation	6.101	5.550	0.572	168
Magnitude of Restatement	7.248	6.457	1.694*	786
Three Year Total Shareholder Return				
All Restating Firms	18.106	14.629	2.150**	953
Revenue and Cost Restatements	17.254	14.716	1.076	455
Revenue and Cost - SAB101	18.332	15.541	1.018	334
Firms under SEC Investigation	24.757	18.887	1.563	162
Magnitude of Restatement	19.502	14.469	2.640***	733

Table 4**Tobit Estimation of Executive Option Exercises**

The dependent variable is the ratio of options exercised to exercisable options. Exercisable options are defined as the sum of exercisable unexercised options outstanding at the end of year and the number of options exercised during the year. Fraction of options held is the ratio of total options held to shares outstanding. Total Options held is the sum of options outstanding at the end of the year and the options exercised during the year. Fractional ownership is the fraction of the firm held by the executive. Fraction of outsiders is the number of independent directors divided by total number of board members. Number of price highs (lows) is the number of times in the year the stock price exceeded (fell below) the 52 week high (low). Return is the three-year total shareholder return. Volatility of stock is over the past 60 months. Misreport dummy takes the value one for the years that were restated. After dummy takes the value one for years after the announcement of a restatement. Magnitude is the ratio of the annual effect of the restatement on net income to absolute value of net income. The columns differ in the proxies of restatements used. Column 1 includes all restating firms, Column 2 includes firms that restate due to revenue and cost improprieties, Column 3 excludes firms that restate to comply with SAB 101 guidelines and Column 4 includes firms charged of GAAP violations by the SEC. Finally, Column 5 controls for the magnitude of the restatement on exercises. Year Effects were included but have not been reported here. P values are reported in parenthesis below. *, **, *** represent significant at the 10%, 5% and 1% level.

	All Restating Firms	Revenue and Cost Restatements	Revenue and Cost – SAB 101	Firms under SEC Investigation	Magnitude
Fraction of Options Held (1)	0.002*** (0.006)	0.001** (0.011)	0.001** (0.013)	0.002*** (0.00)	0.001** (0.013)
Fractional Ownership (2)	-0.002*** (0.0)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)
Option*Ownership (1 x 2)	0.027 (0.65)	0.025 (0.67)	0.024 (0.69)	0.028 (0.65)	0.035 (0.56)
Misreport Dummy	0.01 (0.53)	0.056** (0.024)	0.086*** (0.00)	0.07* (0.068)	
After Dummy	0.022 (0.33)	-0.024 (0.468)	-0.014 (0.68)	-0.07* (0.10)	-0.016 (0.65)
Magnitude					-0.20** (0.05)
Number of Price Highs	0.005*** (0.000)	0.005*** (0.000)	0.005*** (0.000)	0.005*** (0.000)	0.005*** (0.000)
Number of Price Low	-0.005*** (0.000)	-0.005*** (0.000)	-0.005*** (0.000)	-0.005*** (0.000)	-0.005*** (0.000)
Returns	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
Volatility	-0.124*** (0.000)	-0.12*** (0.000)	-0.121*** (0.000)	-0.112*** (0.000)	-0.127*** (0.000)
Tobin Q	0.036*** (0.000)	0.036*** (0.000)	0.036*** (0.000)	0.036*** (0.000)	0.036*** (0.000)
Year dummies	Yes	Yes	Yes	Yes	Yes
Number of Observations	9896	9896	9896	9896	9844
R Square	0.0728	0.0732	0.0735	0.0732	0.0720

Table 4 B**Board Structure and Executive Option Exercises**

This table displays partial results from a Tobit estimation. The dependent variable is the ratio of options exercised to exercisable options. Exercisable options are defined as the sum of exercisable unexercised options outstanding at the end of year and the number of options exercised during the year. The regression also included (not displayed in the table) the ratio of options held to shares outstanding, ratio of managerial equity holdings to shares outstanding, interaction of option holdings and equity holdings, fraction of outsiders on the board, number of price highs and lows, three year stock returns, Tobin Q, and volatility. Misreport dummy takes the value one for the years that were restated. After dummy takes the value one for years after the announcement of a restatement. H_outside Director (L_outside directors) is the fraction of independent directors on the board for firms with high (low) fraction of outside directors. Small board size is a dummy that takes the value one when board size is less than 7. Model 1 to 4 differ in the proxies of restatements used. Column 1 includes all restating firms, Column 2 includes firms that restate due to revenue and cost improprieties, Column 3 excludes firms that restate to comply with SAB 101 guidelines and Column 4 includes firms charged of GAAP violations by the SEC. Finally, Column 5 examines the effect of the magnitude of the restatement on exercises. Magnitude of the restatement is the ratio of the annual effect of the restatement on net income to absolute value of restated net income. Year Effects were included but have not been reported here. P values are reported in parenthesis below. *, **, *** represent significant at the 10%, 5% and 1% level.

	All Restating Firms		Revenue and Cost Restatements		Revenue and Cost – SAB 101		Firms under SEC Investigation		Magnitude	
Misreport Dummy	0.0132 (0.47)	0.014 (0.44)	0.044* (0.08)	0.044* (0.08)	0.076*** (0.0)	0.077*** (0.0)	0.044 (0.25)	0.046 (0.25)		
After Dummy	0.013 (0.57)	0.012 (0.60)	-0.036 (0.27)	-0.038 (0.24)	-0.025 (0.46)	-0.027 (0.42)	-0.086** (0.04)	-0.086** (0.04)	-0.026 (0.43)	-0.028 (0.39)
Magnitude									-0.238** (0.018)	-0.23** (0.02)
H_Outside Director	0.106*** (0.0)	0.11*** (0.0)	0.106*** (0.0)	0.11*** (0.0)	0.105*** (0.0)	0.11*** (0.0)	0.108*** (0.0)	0.12*** (0.0)	0.104*** (0.0)	0.1*** (0.0)
L_Outside Director	-0.40** (0.016)	-0.39** (0.021)	-0.42** (0.014)	-0.40** (0.018)	-0.43** (0.014)	-0.41** (0.014)	-0.40** (0.018)	-0.38** (0.022)	-0.46*** (0.0)	-0.44*** (0.01)
Small Board Size		0.049*** (0.0)		0.050*** (0.0)		0.05*** (0.0)		0.05*** (0.0)		0.05*** (0.0)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	8873	8873	8873	8873	8873	8873	8873	8873	8832	8832
R Square	0.0786	0.0793	0.079	0.0797	0.0793	0.080	0.0791	0.0798	0.0784	0.0792

Table 4 C**Tobit Estimation of Executive Option Exercises: Measure II**

This table displays partial results from a Tobit estimation. The dependent variable is the ratio of the value of options exercised during the year to value realizable from option exercises. Value realizable from option exercises is the sum of the value realized from option exercises during the year and the possible value of in-the-money options outstanding at the end of the year. The regression also included (not displayed in the table) the ratio of options held to shares outstanding, ratio of managerial equity holdings to shares outstanding, interaction of option holdings and equity holdings, fraction of outsiders on the board, number of price highs and lows, three year stock returns, Tobin Q, and volatility. Misreport dummy takes the value one for the years that were restated. After dummy takes the value one for years after the announcement of a restatement. H_outside Director (L_outside directors) is the fraction of independent directors on the board for firms with high (low) fraction of outside directors. Small board size is a dummy that takes the value one when board size is less than 7. Model 1 to 4 differ in the proxies of restatements used. Column 1 includes all restating firms, Column 2 includes firms that restate due to revenue and cost improprieties, Column 3 excludes firms that restate to comply with SAB 101 guidelines and Column 4 includes firms charged of GAAP violations by the SEC. Finally, Column 5 examines the effect of the magnitude of the restatement on exercises. Magnitude of the restatement is the ratio of the annual effect of the restatement on net income to absolute value of restated net income. Year Effects were included but have not been reported here. P values are reported in parenthesis below. *, **, *** represent significant at the 10%, 5% and 1% level.

	All Restating Firms	Revenue and Cost Restatements	Revenue and Cost – SAB 101	Firms under SEC Investigation	Magnitude
Misreport Dummy	0.013 (0.59)	0.062** (0.05)	0.11*** (0.0)	0.081 (0.11)	
After Dummy	0.032 (0.28)	-0.062 (0.14)	-0.05 (0.25)	-0.10* (0.07)	-0.052 (0.23)
Magnitude					-0.39*** (0.0)
H_Outside Director	0.14*** (0.0)	0.14*** (0.0)	0.14*** (0.0)	0.14*** (0.0)	0.13*** (0.0)
L_Outside Director	-0.48** (0.028)	-0.50** (0.022)	-0.52** (0.017)	-0.48** (0.027)	-0.57*** (0.01)
Small Board Size	0.065*** (0.0)	0.066*** (0.0)	0.066*** (0.0)	0.066*** (0.0)	0.065*** (0.0)
Year dummies	Yes	Yes	Yes	Yes	Yes
Number of Observations	8873	8873	8873	8873	8832
R Square	0.0619	0.0624	0.0627	0.0623	0.0624

TABLE 5
Annual Changes in Executive Ownership

The dependent variable is the log change in executive ownership levels. It is defined as the log difference in the number of shares owned at the end of the year and those owned at the beginning of the year adjusted for stock splits. Misreport dummy takes the value one for restated years. Returns is the three year cumulative stock return including dividends. Column 1 to 4 differ in the proxies of restatements used. Column 1 includes all restating firms, Column 2 includes firms that restate due to revenue and cost improprieties, Column 3 excludes firms that restate to comply with SAB 101 guidelines and Column 4 includes firms charged of GAAP violations by the SEC. Year Effects were included but have not been reported here. P values are reported in parenthesis below. *,**,*** represent significant at the 10%, 5% and 1% level.

	All Restating Firms	Revenue and Cost Restatements	Revenue and Cost – SAB 101	Firms under SEC Investigation
Number of options granted (x 1000)	0.021 (0.144)	0.0225 (0.125)	0.0225 (0.127)	0.0225 (0.122)
Number of options exercised (x 1000)	0.0233 (0.272)	0.0278 (0.196)	0.0276 (0.199)	0.0268 (0.204)
Number of restricted stock awarded (x 1000)	0.983*** (0.0)	0.988*** (0.0)	0.988*** (0.0)	0.991*** (0.0)
Returns	-0.0002 (0.16)	-0.0002 (0.194)	-0.0002 (0.194)	-0.0002 (0.198)
Options exercised * Misreport dummy (x 1000)	0.124 (0.376)	-0.031 (0.71)	-0.027 (0.74)	-0.047 (0.954)
Misreport dummy	0.0257 (0.41)	0.0269 (0.56)	0.0189 (0.72)	-0.0467 (0.50)
R square	0.0074	0.0071	0.0071	0.0071
Number of observations	8957	8957	8957	8957

Table 6**Pervasiveness of Executive Exercises**

This table documents differences in restating and non-restating firms in the number of executives who exercise options. The category revenue and cost restatement consists of restating firms that announce restatements due to revenue and cost related irregularities. NONSAB 101 excludes firms that restate in order to comply with the SAB 101 guidelines from the above category. Firms under SEC investigations are firms charged of GAAP violations by the SEC. Magnitude of the restatement is the group of firms for which effect of the restatement on net income is available. The averages for restating firms are for the misreported years. The average values for non-restating firms are over the calendar years in which the matched restated firm misreported. *, **, *** represent significance at the 10%, 5% and 1% level.

	Mean		T-statistic of the Difference in Means	Number of Restating Firms
	Restating Firms	Non-restating Firms		
All Restating Firms	2.7125	2.1986	1.72*	160
Revenue and Cost Restatements	2.6707	2.0519	1.57	82
NONSAB 101	3.0000	2.0862	1.95*	60
Firms under SEC Investigations	3.6800	3.1818	0.52	25
Magnitude of Restatement	3.0085	2.2981	1.93*	118

Table 7
Analysis by Rank

This table documents differences in restating and non-restating firms by the rank and functional responsibility of the executives who exercise options. Options exercised are the number of options exercised by the executive during the year. Exercisable options are the sum of exercisable unexercised options outstanding at the end of the year and the number of options exercised during the year. Value realizable from options is the sum of the possible value of in-the-money options outstanding at the end of the year and the value of options exercised during the year. The category revenue and cost restatement consists of restating firms that announce restatements due to revenue and cost related irregularities. NONSAB 101 excludes firms that restate in order to comply with the SAB 101 guidelines from the above category. Firms under SEC investigations are firms charged of GAAP violations by the SEC. Magnitude of the restatement is the group of firms for which effect of the restatement on net income is available. The averages for restating firms are for the misreported years. The average values for non-restating firms are over the same calendar years for which the matched restated firm misreported. *,**,*** represent significance at the 10%, 5% and 1% level.

	<u>Options Exercised/ Exercisable Options</u>			<u>Value of Exercised options/ Value Realizable from options</u>				
	<u>Misreported years</u>	<u>Control firms</u>	<u>T-statistic of Difference in Means</u>	<u>Misreported years</u>	<u>Control firms</u>	<u>T-statistic of Difference in Means</u>	<u>N restating</u>	<u>N control</u>
<u>Exercises for CEOs, CFOs, or finance functions</u>								
All restatements	0.1120	0.0682	3.13***	0.1332	0.0957	2.14**	367	286
Revenue and Cost	0.1222	0.0631	3.02***	0.1625	0.0963	2.48**	178	155
Non Sab 101	0.1439	0.0642	3.39***	0.1861	0.1079	2.42**	132	118
Sec Investigations	0.1414	0.1017	1.01	0.1791	0.1406	0.75	60	43
Magnitude	0.1214	0.0651	3.5***	0.1496	0.0903	2.97***	288	226
<u>Exercises by other top 5 executives</u>								
All restatements	0.1168	0.0904	2.36**	0.1422	0.1165	1.85*	679	604
Revenue and Cost	0.1405	0.1008	2.24**	0.1739	0.1261	2.17**	313	305
Non Sab 101	0.1465	0.0947	2.56***	0.1957	0.1301	2.51**	236	230
Sec Investigations	0.1739	0.1471	0.79	0.1945	0.1531	1.10	108	107
Magnitude	0.1293	0.0911	2.89***	0.1543	0.1199	2.13**	526	465