**Hidden Gems: Performance-Expectation Revelations in Compensation Disclosures**

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**Abstract:** We investigate whether a compensation disclosure item, "unearned shares" from outstanding performance-based stock grants, reveals valuable information related to a firm's future performance. After classifying firms into "Maximum", "Target", and "Threshold" disclosure groups based on the level of unearned shares, we find that the "Maximum" group outperforms in profit and growth over the next two years, while the "Threshold" group underperforms. Investors and analysts are slow to incorporate the information into stock prices, and are later surprised around earnings announcements. A portfolio long the "Maximum" disclosure group and short the "Threshold" group earns significant positive abnormal returns for up to two years after the disclosures. Our results are robust to controlling for firm characteristics, risk factors, and past performance. Our findings suggest that firms' disclosures on the unearned shares of outstanding performance-based stock grants contain meaningful information about their assessments of potential long-term performance, and that the market is slow to process this soft information.

## 1. Introduction

Corporate disclosure plays a crucial role in the functioning of modern financial markets (Healy and Palepu 2001; Kothari, 2001). Market participants rely on disclosures for nuggets of information that may foreshadow a firm's future fortunes. Since the early 2000s, the SEC has been increasingly raising corporate reporting standards. Concurrently, a growing literature examines the information content of disclosures reported under the new rules and whether investors with limited attention are able to efficiently absorb such complex disclosures (Hirshleifer and Teoh, 2003; Li, 2010; De Franco, Wong, and Zhou, 2011; among others). In this paper, we examine whether a new compensation disclosure item, "unearned shares" from outstanding performance-based stock grants, first introduced by the SEC amendment of executive compensation disclosure in December 2006, reveals valuable information related to a firm's expected performance and subsequently affects the capital markets.

Over the past decade, executive compensation design has undergone significant changes in U.S., as public firms increasingly grant performance-based stocks that are tied to long-term firm performance (De Angelis and Grinstein, 2015; Li and Wang, 2016; Bettis, Bizjak Coles and Kalpathy, 2017, among others). Under these performance-based stock plans, executives are expected to receive different levels of payouts (i.e. threshold, target, or maximum) contingent on whether the firm will meet pre-specified performance hurdles by the end of the evaluation period. Coinciding with this trend, the 2006 SEC amendment mandates new detailed disclosures on performance-based equity grants in an effort to "improve the quality and usefulness of the information".[1] Under the new rules, firms must report the number of unearned shares that are not vested from outstanding performance stock grants in proxy statements each fiscal year end. For example, in early 2006 the CEO of IBM Corporation was awarded performance stocks contingent on meeting 2006-2009 cumulative EPS and cash flow goals. In the proxy statement for fiscal year 2006, IBM reported the maximum level of payout as "unearned shares" from this award in the outstanding equity award table.[2]

[1] https://www.sec.gov/news/press/2006/2006-123.htm
[2] See details of the disclosure from IBM Corporation in Appendix B.

Firms have expressed concerns over how to determine unearned shares before knowing whether the performance conditions will be satisfied by the end of the evaluation period. In response, the instruction from SEC states that unearned shares are determined "based on achieving threshold performance goals, except that if the previous fiscal year's performance has exceeded the threshold, the disclosure shall be based on the next higher performance measure (target or maximum) that exceeds the previous fiscal year's performance."[3]

However, firms often seem to deviate from the instruction of using "previous fiscal year's performance" to determine unearned shares. In its proxy statement for fiscal year 2006, IBM Corporation stated that given that performance goals are set over multi-year evaluation period, "measuring annual performance against these targets, which is required by the SEC rules, is not meaningful."(Appendix B). Firms also do not shy away from using performance expectations over the whole evaluation period to justify reported unearned share. For example, in its 2008 Proxy filing, Puget Energy, Inc. stated that "2008-2010 LTIP cycles were forecast to finish between target and maximum" and thus reported maximum number of unearned shares for its 2008-2010 performance stock grant.[4] Moreover, as the SEC instruction is unclear on what threshold (target) hurdle to use, firms may set interim performance hurdles that differ from the ones for the whole evaluation period (i.e. 3 year). These interim performance hurdles, often undisclosed, could reflect a firm's internal assessment of the probability of achieving final performance goals.[5] As a result, we expect that the disclosure of threshold, target, or maximum number of unearned shares could reveal firms' optimism (pessimism) of meeting performance hurdles in the future.

Even if firms only use previous fiscal year's performance to determine reported unearned shares from outstanding equity grants, the disclosure could still reveal valuable information about the firm. The

[3] SEC Final Rule, Release No. 33-8732A, November 7, 2006: www.sec.gov/rules/final/2006/33-8732a.pdf.
[4] https://www.sec.gov/Archives/edgar/data/81100/000108539209000007/f10k030309.htm
[5] For example, in the 2009 proxy filings, Eli Lilly & Co reported maximum value for unearned shares for the 2009-2010 performance stocks granted to CEO. The firm's reported 2009 EPS is $4.42 per share, well below the pre-specified threshold (target) hurdle of three-year cumulative EPS of $7.87 ($8.09). It stands to reason that Eli Lilly & Co either uses an interim EPS hurdle or use expected performance to determine "unearned shares" from the grant.

literature on performance-based incentive plans has shown that firms tend to choose performance measures that reflect their strategic priorities (De Angelis and Grinstein, 2015; Li and Wang, 2016). Thus, the firm-specific measurement used in these stock grants could better capture information related to CEO actions and firm performance over the long-run. As firms often withhold disclosure on the definition of the performance measures used, or allow undisclosed adjustment, it is thus impractical for outsiders to replicate these specific performance measures and evaluate the firm accordingly.[6]

The discussion so far assumes that firms voluntarily use "unearned shares" to convey information related to future performance to the capital markets. However, such disclosure may not always be informative if firms perceive that the cost overweighs the benefit (i.e. Grossman and Hart, 1980; Milgrom and Roberts, 1986; Verrecchia, 2001; Dye 2001; Leuz and Wysocki, 2016; among many others). An even less benign view is that self-serving managers may use the disclosed "unearned shares" opportunistically as a signal to the market (Kothari, 2001). For example, managers wishing to boost short-term stock prices may report "maximum" unearned shares to signal confidence in future performance. Under these circumstances, the disclosed unearned shares would contain either no information or misinformation about the firm's performance. In addition, if performance stock grants are set with easy hurdles to reward CEOs without performance, then the reported unearned shares are unlikely to contain meaningful information about a firm's present or future performance. For these reasons, it is not clear on an *a priori* basis whether the disclosure of unearned shares is in fact informative, leaving the question that can only be answered by empirical research.

Using U.S. public firms covered by the Execucomp database from 2006 to 2013, we construct a sample of 15,072 firm-year observations with valid accounting and compensation data. By comparing firms' disclosures on performance stocks granted to CEOs that year and the "unearned shares", supplemented by compensation discussion collected from the proxy statements, we classify the sample into four disclosure groups: Maximum, Target, Threshold, and control. Within the sample, 4,814 (31.9%) firm

[6] Firms may withhold disclosure to protect proprietary information, or simply because it is not required by current disclosure rules.

years report performance stock grants and unearned shares from these outstanding grants at the fiscal year end. Among them, 1,237 (25.7%) report the maximum level of unearned shares and are classified into the "Maximum" group; 2,953 (61.3%) report the target level of unearned shares and are classified into the "Target" group; while 624 (13%) report the lowest level and thus are classified in the "Threshold" group. The remaining 10,258 (68.1%) firm years are classified as the "control" group, as they do not have performance stocks granted to CEOs with valid unearned shares that year.

We first investigate the relation between unearned share disclosures and firms' past and future performance. For the fiscal year just ended, firms in the "Maximum" group report the highest return on assets (ROA), profit margin, and Q among the four groups. The "Target" group trails behind in these performance measures, while the "Threshold" group further behind. The control firms tend to be small, with ROA and profit margin similar to that of the "Target" group. The performance pattern is consistent with the idea that firms are at least in part following the SEC instruction to use "previous fiscal year's performance" to estimate unearned shares. Compared with the control firms, the superior (non-inferior) operating performance from the "Maximum" ("Target") signal group does not support the speculation that firms use performance stock grants with low hurdles to unfairly enrich CEOs.

Having established this link between unearned share disclosures and past performance, we move to the crucial issue of whether these disclosures are informative on future performance, conditional on the observed past performance. In the fiscal year following the disclosure, firms that report maximum unearned shares continue to outperform control firms with significantly higher ROA, Q, and sales growth rate, after controlling for past year performance, various firm and CEO characteristics, and firm and year fixed effect. In contrast, firms in the "Threshold" group significantly underperform up to two years following the disclosure, while the "Target" disclosure firms' future performances are generally comparable to that of the control firms. The evidence supports the conjecture that the reported "unearned shares" reveal additional information related to a firm's future performance that is not captured in current measures.

It is possible that self-serving CEOs manipulate earnings to maximize payments from their performance-based contracts. To investigate this possibility, we follow the literature and measure

discretionary accruals and real earnings management each firm year (Dechow, Ge, Larson and Sloan, 2011; Roychowdhury, 2006). We find that none of the three disclosure groups ("Maximum", "Target", or "Threshold") has higher discretionary accruals or real manipulation levels than that of the control group in the disclosure year or in the two following years. A comparison between the best performing firms, "Maximum", and the worst performing firms, "Threshold", also shows no difference in earnings management activities. Bennett, Bettis, Gopalan and Milbourn (2017) use a subsample of performance-based contracts with explicit accounting criteria and find evidence of earnings manipulation right around performance targets. Our findings suggest that that on average, the manipulation is not widespread across firms that use performance stock grants.

Given that the disclosure of unearned shares in proxy statements reveals valid performance expectations about a firm, a natural question follows: does the market efficiently incorporate such information into stock prices? To answer this question, we first investigate initial market reactions around proxy statement filing dates, when the information is first disclosed. We find that firms in the "Target" group have significantly positive abnormal returns around filing date, while the "Maximum" group on average experience lower abnormal return with mixed statistical significance. "Threshold" firms have insignificant abnormal returns are positive. These findings are surprising in that outside investors do not appear to fully incorporate the information on future firm performance expectation embedded in the disclosed "unearned shares" disclosure. If this is the case, we expect to find that these disclosures are predictive of future stock price returns, when the positive performance is finally revealed to the market through other channels, such as earnings announcements.

For this reason, we examine market reaction when firms announce earnings in the following fiscal year. Firms with "Maximum" disclosure experience significantly positive abnormal return around the earnings announcement day, indicating that the market is pleasantly surprised. Meanwhile, "Target" and "Threshold" firms' earnings announcement returns are indifferent from zero.

Even though the market does not fully incorporate information embedded in reported unearned shares, sophisticated participants such as financial analysts may be able to better interpret the disclosures.

However, we find that over the fiscal year following the disclosure in proxy filings, firms in the "Maximum" disclosure group report earnings that significantly beat analysts' consensus every quarter. "Target" group reports significant positive earnings surprises for up to three quarters after disclosure, but earnings surprise is close to zero by the fiscal year end. In contrast, the post-disclosure earnings surprises are usually negative, though not significant, for the "Threshold" group.

As additional evidence supporting the hypothesis that the market does not efficiently incorporate performance expectations implied by unearned shares, we find that firms disclosing "Maximum" unearned shares experience significant positive abnormal stock returns up to two years after the disclosure. A long–short calendar time portfolio that invests in firms in the "Maximum" disclosure group and short firms in the "Threshold" group earns abnormal annual return of around 4.4% over two years. The abnormal returns cannot be explained by traditional risk factors, firm profitability, and post-earnings-announcement drift. Within the "Maximum" disclosure firm, only those report low earnings surprises (in the fiscal year prior to the disclosure) experience significant positive long-run abnormal return, while those with high earnings surprises only earn risk-adjusted return. The finding suggests that when performance expectation information conveyed in "unearned shares" seems inconsistent with past performance in the earnings announcement, the stock market underreacts to the disclosure of unearned shares.

Our paper adds to the important literature on the relation between accounting disclosures and the capital markets. Ever since the seminal work by Ball and Brown (1968) and Beaver (1968), researchers have investigated whether various accounting disclosures convey useful new information about a firm's financial performance (Kothari, 2001). We find that a relatively obscure item in compensation disclosure, unearned shares from outstanding equity grants, is strongly correlated with firms' future operating and stock performance. Our findings suggest that firms are willing to reveal performance-related information that goes beyond what is delivered in accounting numbers when discussing executive compensation.

We further add to the growing literature on the market's reaction to soft information. Several papers have shown that investors do not fully incorporate public information that is difficult to process and hard to verify, and that, subsequently, the underreaction leads to predictable abnormal stock market returns

(Stein, 2002; Cohen, Malloy, and Nguyen, 2017; Groen-Xu, Huang, and Lu; 2017; among others). In addition, with limited attention, investors may not expect to find performance-related information in an unlikely place, the compensation disclosures (Hirshleifer and Teoh, 2003). Our findings indicate that investors, including sophisticated financial analysts, do not fully incorporate information revealed in compensation discussions, especially when the soft information seems to differ from the hard information (i.e. past earnings).

Lastly, our paper also contributes to the compensation literature on performance-based incentive pay. Over the past decade, the design of executive compensation contracts has undergone a regime shift: an increasing percentage of firms tie executive pay to various long-term performance measures. Given the complexity of these contracts and limited disclosure, management presumably has discretion over the contract design and execution. Several recent papers have tried to shine lights on whether the shift towards performance-based contracts serve shareholder interests. De Angelis and Grinstein (2015) and Li and Wang (2016) find positive evidence that firms choose performance measures that promote strategic priorities, while Bennett, Bettis, Gopalan and Milbourn (2017) find evidence of earnings manipulation around performance targets. Our findings suggest that, on average, performance-based equity grants require meaningful performance hurdles to receive target or maximum payments, and that firms reveal valid perform performance expectations when discussing these plans.

## 2. Background and Hypothesis development

The 2006 SEC amendment on compensation disclosure mandates that in the "Outstanding Equity Awards at Fiscal Year End" table in proxy statements, firms must report unearned shares that are unvested from outstanding performance equity awards. In their initial feedback to the SEC, firms have suggested that "the table should not include unearned performance-based awards because it would be difficult to disclose a meaningful value before the performance conditions are satisfied."[7] The view suggests that firms expect to report unearned shares based on future firm performance by the end of the evaluation period. The

[7] https://www.sec.gov/Archives/edgar/data/81100/000108539209000007/f10k030309.htm

SEC's final rule is ambiguous on whether firms should reveal future performance expectation in unearned shares, as it only mandates that the reported unearned shares should be determined by comparing previous fiscal year's performance with the grant's performance hurdles (threshold and target).

Further adding to the murkiness of the reporting process, the SEC does not require firms to disclose full design details of performance-based compensation plans, such as the formula used to calculate each accounting measure used, or the specific performance hurdles for threshold, target, and maximum level of payment.[8] Some firms also allow undisclosed adjustments made by the compensation committee to modify the final payout from outstanding stock grants.[9] As a result, it would be almost impossible for either the SEC or any outside investor to verify how the reported unearned shares are estimated. Hence, the management would likely to perceive that the probability of SEC sanction for reporting any level of unearned shares, threshold, target, or maximum, is low.

Given the murkiness and the discretionary nature of this particular disclosure item, it is unclear whether the reported level of unearned shares are informative of expected firm performance by the end of the evaluation period. In proxy statements, many firms explicitly use performance expectations over the whole evaluation period to justify the reported unearned shares. If the disclosure indeed reflects the firm's internal assessment of the probability that future performance meeting the pre-specified performance criteria, then it leads to our first testable hypothesis:

*Hypothesis 1: Firms' future performance over the next one to two years should be positively correlated with the level of disclosed unearned shares.*

However, it is also possible that the disclosure contains no forward looking information related to firm performance due the following reasons. First, firms may not have the ability to accurately forecast their future performance despite their best effort. Second, firms may be unwilling to disclose forwarding

[8] Firms often cite protecting proprietary information as the reason for not disclosing performance hurdles. For example, in 2007 proxy statement, Kellogg Co. stated that "The specific targets and bandwidths set for the NEOs are not disclosed because we believe disclosure of this information would cause Kellogg competitive harm."
[9] For example, Kellogg Co. states in its 2007 proxy statement: "The Compensation Committee then uses a judgment-based methodology in exercising downward, negative discretion to determine the actual payout for each NEO."

looking information because of the potential costs of revealing proprietary information. For example, firms may feel that revealing such information would benefit potential competitors, or that using performance expectation to estimate unearned shares would not comply with the SEC rules. Third, managers may opportunistically use unearned shares as a signal to the market. For example, managers wishing to boost their companies' short-term stock prices may report "maximum" level of unearned shares regardless of performance in an effort to signal confidence in future performance, or refrain from reporting "threshold" level to withhold bad information. Fourth, the performance-based stock grants may be poorly designed to be informative, such as that the specific measures used could be unrelated to firm performance. Additionally, the performance hurdles could be set exceedingly low to extract rent for executives or prohibitively high that renders any interpretation meaningless. Under any of these circumstances, we expect that a firm's future performance would be unrelated with the level of unearned shares disclosed. It is possible that the performance-related information embedded in unearned shares is similar to that delivered in accounting statements, which are disclosed weeks before proxy filings, or other easily accessible public disclosures. In that case, the reported unearned shares contain no new information that could affect the capital market. If the level of unearned shares indeed contains additional forward looking information related to firm performance, an efficient market should fully absorb it at the time of disclosure (Fama, 1970). However, investors may not expect to find performance-related information in an unlikely place, compensation disclosure in proxy filings. Given investors' limited attention and the ability to process complex "soft" information, the market may underreact to the reported unearned shares and later be "surprised" when new accounting statements released to confirm the information (Stein, 2002; Cohen and Lou, 2012; Cohen, Malloy, and Nguyen, 2017; Groen-Xu, Huang, and Lu; 2017; Hirshleifer and Teoh, 2003). Based on this argument, our second testable hypothesis is as follows:

*Hypothesis 2 A: If the reported unearned shares contain new information related to the firm's future performance, investors may not fully absorb such information and the firm's stock return around future earnings announcement should be positively correlated with the level of disclosed unearned shares.*

*Hypothesis 2 B: Under the same line of argument, a firm's post-disclosure long-term abnormal stock return should be positively correlated with the level of disclosed unearned shares.*

Even though average investors may not be able to fully incorporate new information embedded in reported unearned shares, sophisticated participants such as financial analysts may be able to better interpret the disclosure given their focus on processing complex financial information about the firms that they cover. If this is the case, we expect the following:

*Hypothesis 2C: The post-disclosure analysts' earnings forecast error should not be correlated with the level of disclosed unearned shares.*

## 3. Data and Sample Description

To construct our sample, we start from all performance-based stock grants to CEOs that are covered in the ExecuComp database from 2006 to 2013. Under the new SEC amendment on executive compensation disclosure introduced in December 2006, firms are required to disclose all equity incentive plans awarded to top executives in the "Grants of Plan-based Awards" table in proxy statements. For each grant, firms would report its "estimated future payout" at threshold, target, or maximum level if available.[10] Firms are also required to disclose expected "number of Unearned Shares, Units or Other Rights" from any outstanding equity award in the "Outstanding Equity Awards at Fiscal Yearend" table in proxy statement.[11] We retrieve the estimated future payout and unearned share data from Execucomp.

### 3.1 Identifying Compensation Disclosure Groups

Based on the disclosure on outstanding stock awards and their implications on firm performance, we classify each firm year into four groups: Threshold, Target, Maximum, and the control group. For firm years with performance stock awards to CEOs and disclosed unearned shares, we compare the level of reported unearned shares with the award's expected payout levels. If the reported unearned shares equals

[10] If the award provides only a single estimated payment, it will be reported as the target payout.
[11] Outstanding awards are those "that have been granted but the ultimate outcomes of which have not yet been realized in effect represent potential amounts that the named executive officer might or might not realize, depending on the outcome for the measure or measures (for example, stock price or performance benchmarks) to which the award relates" (SEC Final Rule, Release No. 33-8732A).

to the threshold (target/maximum) level of the disclosed expected future payout from the stock grant, then the firm year is classified as "Threshold" (Target/Maximum). Appendix B shows an example that in the 2006 proxy statement, IBM reports 141,718 unearned shares from an outstanding stock award granted to the CEO on May 8th, 2006. The "Grants of Plan-based Awards" table has shown that this three-year grant has a target (maximum) expected payout of 94,475 (141,718) shares. As a result, we classify the firm-year as "Maximum" group.

For stock grants that cannot be classified by directly comparing reported unearned shares with the reported expected payout, we rely on hand-collected information from proxy statements to differentiate them.[12] If a firm has multiple outstanding stock awards that year, we classify that firm-year based on the award with the best performance implication. We further require each firm-year observations has non-missing SIC code and accounting data from Compustat to estimate total asset, return on asset (ROA), and profit margin. Our final sample consists of 15,072 firm-year observations in four compensation disclosure groups: 1,237 in the "Maximum" group, 2,953 in the "Target" group, 624 in "Threshold" group, and the remaining 10,258 firm years in the "control" group, as they do not have performance stocks granted to CEOs with valid unearned shares that year.

### 3.2 The Yearly and Industry Distributions of Compensation Disclosure Groups

Panel A of Table 1 shows annual distribution of each disclosure groups over 2006-2013 sample period. It is noteworthy that percentage of firms in the control group declines steadily over the years, from 78.3% in 2006 to 68.1% in 2013. The trend is consistent with earlier studies that firms increasingly use

[12] There are several reasons that a firm's reported unearned shares cannot be directly matched with the reported threshold, target, or maximum expected payout from the "Grants of Plan-based Awards" table. First, SEC does not require firms to report each stock grant separately based on grant date. As a result, if a firm reports aggregate unearned shares from multiple stock grants, we are unable to directly match the unearned shares with expected payout from each grant. For these observations, we collect detailed information of each stock grant from the footnotes of the "Outstanding Equity Awards at Fiscal Yearend" table. Second, some stock grants could vest ratably before the last performance year, or firms may experience stock split or restructure during the performance periods that changes their number of shares outstanding. We use hand collected data to adjust for the vesting schedule of stock grants and changes in the firm's number of shares. Third, some firms mix performance-based option grants with performance-based stock grants. We use hand-collected data from footnotes to exclude the option grants. Forth, some firms include disclosure of annual performance-based stock plan. Payments from these plans will be made at the fiscal year and thus not included in outstanding equity award table. We separate annual plans by reading the footnote after plan-based award table.

performance-based incentive contracts to incentivize CEOs (Gopalan, Milbourn, Song, and Thakor, 2014; Angelis and Grinstein, 2015; Li and Wang, 2016). Among firm-years with outstanding performance-based stock grants, 1,237 (25.7%) report unearned shares at the maximum expected payout level for at least one outstanding stock grant; 2,953 (61.4%) report target level of unearned shares; while 624 (13%) report at the lowest "Threshold" level. When firms grant a performance-based equity award, they usually use the target value at the grant date fair value based on the probable outcome of the performance measures. Thus the fact that 38.6% of firms report number of unearned shares that deviates from the target at the end of the fiscal year indicates firms are incorporating new information in the disclosure.

[Insert Table 1 Here]

In Panel B of Table 1, we report the industry distribution of compensation disclosure groups based on Fama-French 12 industry classification. We find that performance-based equity grants are widely used across industry, especially in mature industries (e.g. Utilities, Chemical and Allied Products, and Manufacturing). The distribution of threshold, target, and maximum disclosure groups is similar across industries.

**3.3 Sample Statistics**

Panel A of Table 2 presents descriptive statistics of the firm variables in our analysis. We classify firms into disclosure groups the end of fiscal year t. The firm related variables are calculated in year t, year t+1, and year t+2.

[Insert Table 2 Here]

Firms in the "Maximum", "Target", and "Threshold" groups do not differ in size or age. We first check firm performances across the three disclosure groups. We use four performance measures that are widely used in the literature: return on assets (ROA), profit margin, Q, and sales growth rate.[13] We find that in disclosure year (t), firms in the "Maximum" disclosure group have the highest average of ROA (15.6%), profit margin (23.1%), firm's Q (1.813) and sale growth (8.4%). In contrast, firms in the "Target" disclosure

[13] All the variables are winsorized at 1% and 99% percentile.

group trail behind in all four performance measures, while those in "Threshold" group on average have the lowest ROA, profit margin, Q and sale growth. Panel B and C presents the t-statistics of the average difference across firms in the three disclosure groups. Panel B and C show that compared with the other two groups, the outperformance of firms in the "Maximum" group is statisitically significant (at 1%) in all four performance measures. The pattern is inconsitent with the idea that performance stock grant is a rent-seeking tool to enrich CEOs without performance. Firms with high expected payouts from outstanding stock awards are those with the best performances.

We further examine firms' investment policies in year t. The "Maximum" and "Target" disclosure group have similar investment policy, measured by R&D and capital expenditure, indicating that the superior performance of the "Maximum" group is not driven by risky investment strategies. Confirming this point, we also find that firms in the "Maximum" group have sigificantly lower stock volatility (at 5%) than those in the "Target" group. The worst performing "Threshold" firms have similar capital expenditure as other groups but lower R&D spending. However, the market does not seem to consider these firms safe investments as they have higher stock volatility, though the difference is not statistically significant.

We further investigate future firm performance after the disclosure year across the three disclosure groups. As the majority of long-term performance plans use three year performance evaluation period, we estimate firm performances over the next two years after the disclosure year t. If the reported unearned shares contain information related to a firm's expected performance, we expect that the "Maximum" disclosure group will continue to outperform the other two groups. Supporiting this conjecture, we find that in both year t+1 and t+2, the "Maximum" disclosure group continues to have the highest ROA, profit margin, firm's Q, and sale growth rate, with the differences all significant at 1% level. The "Target" disclosure group lags behind in all four measures, and the "Threshold" group performs the worst. We also look at the future investment level and firm risk across different disclosure groups. Firms in the "Maximum" disclosure group do not cut investment over the next two years. They continue to have the highest capital expenditure and R&D spending and at the same time, have the lowest stock volatility level among firms that dislose unearned shares. In contrast, firms in the "Threshold" group cut capial expenditure and R&D over the next

two years, and their stock volatility continue to rise. Overall, the evidence strongly suggests that the disclosed level of "unearned shares" reveals information that correlates with a firm's current and future performance.

Compared to firms with outstanding stock awards, firms in the control group are yonger and smaller, engage in more R&D, and have high growth rate and stock volatility. These firms also enjoy high sales growth rate and high Q, while their ROA and profit margin are in line with that of the "Target" group. The finding is consistent with that in earlier literature that young and high growth firms are less likely to adopt long-term performance-based incentives (Angelis and Grinstein, 2015; Li and Wang, 2016).

## 4. Empirical Methodology and Main Results

### 4.1 Compensation Disclosure Groups and Future Operating Performance

In this section, we study the association between compensation disclosure and firms' future operating performance using multivariate analysis. We regress future firm performances on indicator variables compensation disclosure groups and control variables suggested in the prior literature. The regression specification is defined as follows:

$$\text{Firm Performance}_{i,t+n} = \alpha + \beta_1 \text{Maximum}_{i,t} + \beta_2 \text{Target}_{i,t} + \beta_3 \text{Threshold}_{i,t} + \beta_4 \text{Control Variables}_{i,t} + \text{Firm}_i + \text{Yr}_t + \varepsilon_{i,t}$$

We again measure the firm performance using ROA, Firm's Q, profit margin and sales growth, at one year (t+1) and two years (t+2) after the disclosure of the unearned shares. The key variables of interest are the indicators for compensation disclosure, defined as 0/1 binary variables for "Maximum", "Target", and "Threshold" groups. The coefficient on each binary variable is interpreted as the difference between the corresponding disclosure group against the control group. Following earlier studies, we include the following control variables: firm size, book leverage, capital expenditure, firm age, S&P 500 indicator; firm volatility; and analyst coverage. Additionally, we control for CEO and board characteristics: CEO ownership %, tenure, CEO age, board independence, director ownership %; and whether a CEO also served as the chairman of a firm. As a firm's accounting performance may be time persistent, we further control

for the firm's current year performance. All the control variables are measured at the end of fiscal year t. We also control for firm fixed effects and year fixed effects.

[Insert Table 3 Here]

Table 3 reports regression results of the four performance specificationa. Focusing on the binary indicator for compensation disclosure groups, we find that firms in "Maximum" group show superior performance in the year after disclosing unearned shares. Confirming the results in univariat analysis, the coefficient on the "Maximum" indicator is positive and significant for ROA (at 1% significance), firm's Q (at 1% significance), and sales growth (at 10% significance). Additionally, firms in the "Threshold" group experiance poor future firm performance over the next two years, as the coefficients on the "Threshold" indicator is negative and mostly significant. The coefficient on "Target" variable is insignificant across performance specifications, suggesting that the future performance of firms in "Target" disclosure group is on par compared with those in the control group. We further conduct F-tests for differences in estimated regression coefficients between the "Maximum" and "Threshold" groups. The F-statistic of the coefficient difference is significant at 1% in all four performance specifications, confirming that firms disclose "Maximum" level of unearned shares outperform those disclose "Threshold" unearned shares up to two years after the disclosure. The evidence is consistent with the conjecture that the disclosure level of unearned shares reveals information related to a firm's future performance, and the informaiton is not captured by the firm's current year performance and other observable characterisitics.

**4.2 Compensation Disclosure Group and Earnings Quality**

Earlier studies suggest that executives engage in earnings management to meet or beat the pre-established compensation goals (Bergstresser and Philippon, 2006; Cheng, Harford and Zhang 2015; Bennett, Bettis, Gopalan and Milbourn 2017). In this section, we examine earnings quality of each disclosure group.

Following the literature, we use two measures for earnings management. First, we estimate the abnormal discretionary accruals at the firm-year level using the modified Jones model (Jones, 1991, Dechow, Sloan and Sweeney, 1995; Dechow, Ge, Larson and Sloan, 2011). Second, we estimate real

earnings management each firm every year as firms may change real operational and investment activities to inflate earnings numbers (Roychowdury 2006; Cohen, Dey and Lys, 2008). The real earnings management consists of abnormal cash flow from operation, abnormal production costs, and the abnormal discretionay expenses. Then we estimate the following specification of earning quality:

$$\text{Earnings Management}_{i,t+n} = \alpha + \beta_1 \text{Maximum}_{i,t} + \beta_2 \text{Target}_{i,t} + \beta_3 \text{Threshold}_{i,t} + \beta_4 \text{Controls}_{i,t} + \text{Firm}_i + \text{Yr}_t + \varepsilon_{i,t}$$

Again, we measure earnings management up to two years after the disclosure year (year t) of unearned shares. To control for systematic variation in earning management, we follow the literature and control for the following firm characteristics: ROA; firm size, book leverage, and firm's Q. We also control for CEO age, tenure, and stock ownership as executive characteristics and managerial ownership have been shown to affect earnings management (Cheng and Warfiled, 2005). All regressions include firm and year fixed effects.

[Insert Table 4 Here]

Columns (1) to (3) of Table 4 reports the regression results on firm's use of discretionary accrual in the disclosure year (t), and the two years after. Compared to firms in the control group, we do not find evidence that firms from any of the disclosure group use discretionary accual to inflate earnings in disclosure year or after. The coefficients on "Maximum", "Target", or "Threshold" indicator variables are either insignificant, or when they are significant, are negative. The F test also fails to find any difference in use of discretionary accuals between firms in the "Maximum" group and firms in the "Threshold" group. Among the control variables, we find that firms with low leverage or high growth opportunities are likely to have signficantly higher discretionary accruals. These findings are consistent with findings in prior literature (Roychowdhury,2006; Wang, 2006; Cheng and Warfiled 2005). In addition, consistent with Ali and Zhang (2014), we find that CEOs are more likely to engage in accrual management in their early careers as the coefficients on CEO tenure are significantly negative in year t and year t+1 regressions.

Columns (4) to (6) of Table 4 reports multivariate regression analysis for real earnings management. Compared with the control group, we find no evidence that firms report "Maximum" or "Target" unearned

shares engage in real earnings management activities to boost their performance in disclosure year or in the two years after. In fact, the coefficient on the "Target" indicator is negative and significant in disclosure year and the year after, indicating lower level of real earnings management compared with that of control group. Interestingly, firms that disclose "Threashold" level of unearned shares significantly increase real earnings management in the year after disclosure. The result suggests that executives in underperforming firms may use earnings management to pass the threshold hurdle and avoid punishment (Bennett et al. 2017), or underperforming firms are forced to significantly cut investments as shown in Table 2. But overall, the F-statistics at the end of Panel B shows that the differences in real earnings management between the "Maximum" and the "Threshold" group are not significant in all three years. Consistent with Roychodhury (2006), we find that firms with large size, positive past operating performance, and high growth opportunities are positively related to real earnings management.

Ovarll, results presented in Table 4 suggest that the superior performances from firms with the "Maximum" level of unearned shares are not driven by earnings management activities. The earnings quality of firms using performance-based equity awards are in general comparable to those without equity awards.

**4.3 Compensation Disclosure Group and Stock Market Reaction**

The firm performance and earning quality analysis above has shown that a firm's disclosed level of unearned shares from outstanding equity awards contains valid information relating to its future performances. We next explore whether the market could incorporate such information into stock price when it is first released, that is, when the proxy statement is filed with the SEC. If the market fully incorporates the information revealed in unearned shares, we would expect that firms in different compensation disclosure groups would face different stock market reactions around proxy statement filing date.

We conduct an event study for firms in the three disclosure groups around their proxy statement filing dates. Following Brown and Warner (1985), we calculate daily abnormal return using both the market adjusted returns model (MAR) and the market model (MM). We report the average cumulative abnormal

return (CARs) for each disclosure group at [-1,+1] and [0,+1] event window, where day 0 is the filing date. Panel A of Table 5 presents the results.

[Insert Table 5 Here]

For firms in the "Maximum" disclosure group, the market reaction is significantly positive (at 10% and 5%) only under the MAR model. When applying the MM model, the abnormal return is indifferent from zero at -0.05% over the three-day event window, or at 0.02% over the two-day window. In contrast, firms in the "Target" disclosure group show strong positive abnormal returns in both event windows regardless of the model used. The magnitude of the CARs from the "Target" group is much higher than that of the "Maximum" group. In addition, firms in the "Threshold" group have positive filing date abnormal returns that is on par in magnitude with that of the "Target" group, even though it is not statistically significant. This documented initial market reaction pattern is inconsistent with earlier evidence that "Maximum" disclosure group will outperform over the next two years. Our finding is consistent with earlier literature that with investors' limited attention, the market is often slow to react to public information that is difficult to process and hard to verify (Cohen and Frazzini, 2008; Groen-Xu, Huang, and Lu; 2017).

If the market fails to incorporate performance-related information embedded in unearned shares disclosure when it is released, then we expect that investors will react when firm performance is directly revealed later. Ealier literature has shown that even though information about a firm's performance will be gradually released through various channels, a firm's earnings announcement still contain significant incremental information (Ball and Brown, 1968; Denis and Sarin, 2001). Thus, we examine market reation around earnings announcement day for fiscal year t+1 across different compensation disclosure groups.

Panel B of table 5 presents the results. We find that firms in the "Maximum" disclosure group have positive and significant CARs using both MAR model and the MM model. The three-day CAR ranges from 0.54% to 0.58%, while the tw-day CAR ranges from 0.49% to 0.59%, all at 1% significance. We do not find any significant market reaction in both the "Target" and the "Threshold" groups. These results suggest that investors are positively surprized by "Maximum" group's performance one year after the disclosure.

### 4.4 Compensation Disclosure Group and Earning Surprise

Even though the evidence suggests that the market does not fully incorporate information embedded in the level of unearned shares, sophisticated participants, such as financial analyst, may be able to better interpret the disclosure. Professional financial analysts are delegated with the task of producing accurate forecasts of company earnings and should have superior financial knowledge to process firm disclosure than average investors (Womack, 1996). In this section, we examine whether analysts can fully incorporate the disclosure information of unearned performance shares in their earnings forecast.

Following Livnat and Mendenhall (2006), we measure earnings surprise as standard unexpected earning (SUE), estimated as the difference between a firm's acual earnings and the median analysts' earnings forecasts, scaled by its stock price at the end of the quarter. Analysts' earnings forecast must be reported in I/B/E/S 90 days prior to the earnings announcement date. For each analyst, we only keep the most recent forecast. Table 6 presents quarterly earning surprises up to four quarters after the compensation disclosure across "Maximum", "Target", and "Threshold" groups.

[Insert Table 6 Here]

Columne (1) shows that firms in the "Maximum" disclosure group have strong positive SUE at 1% significance level in all four quarters after the compensation disclosue. Column (2) shows that firms in the "Target" group also experience positive earnings surprises, but the SUE became insignificant at the fiscal year end after the the disclosure of unearned shares. The "Threshold" group mostly have negative quarterly earnings surprises, though they are not statistically signficant probably due to small sample size. Column (4) shows that the differences in SUEs between the "Maximum" and "Threshold" disclosure groups are mostly signficant over the year after dislcosure. The results support the conjectur that analysts tend to underestimate future performances of firms that report maximum level of unearned shares from performance equty grants, while underestimate those that only report threshold level of unearned shares. The pattern indicates that professional financial analysts, like the rest of the market, do not fully incorporate performance-related information imbeded in compensation disclosure.

### 4.5 Compensation Disclosure Group and Firm Long-run Stock Performance

Finally, we examine long-run stock performance following the disclosure of unearned shares from outstanding performance equity awards. If the disclosure contain valuable information related to a firm's future performance and the market is slow to incorporate the informatiton, we expect to see predicatble abnormal stock returns for different disclosure groups.

#### 4.5.1 Stock Performance from Calendar-Time Portfolio

We first use a calendar-time portfolio approach with firms sorted based on their disclosure groups. We estimate three-month, six-month, one-year, and two-year long-run abnormal returns after compensation disclosure. For each compensation disclosure group, we form four equal-weighted portfolios every month starting from April 2007 to December 2014; the portfolios include all companies in the specific disclosure group that filed proxy statements within the preceding 3, 6, 12, or 24 months.[14] The portfolio is rebalanced monthly. We use both Fama-French three-factor and Carhart four-factor risk models to estimate montly portfolio abnormal returns (Fama and French, 1996; Charhart, 1997 ).

[Insert Table 7 Here]

Table 7 reports the calendar-time portfolio regression results. Firms that disclose "Maximum" unearned shares show the most significant positive abnormal returns, ranging from an average monthly alpha of 0.585% over three months to 0.212% average month alpha up to two years post-proxy filing. Firms with "Target" unearned shares also earn positive abnormal return after disclosure, albeit slightly less significant that that of the "Maximum" group. The monthly alpha for "Target" group averages around 31 basis points over six months to 27 basis points over two years after disclosure. This finding holds both for three- and four-factor alphas. In contrast, the monthly abnormal returns from the "Threshold" group are negative over two years after disclosure, though not statistically significant.

[14] We start from April 2007 since firms with fiscal year end in December generally file proxy statement within three months after the fiscal year end.

We further form zero-cost portfolios by long firms in the "Maximum" group and short firms in the "Threshold" group every month. The monthly abnormal returns from these long-short portfolios are large and significant under 6-month, 12-month and 24-month adjustment specifications. For example, using both the 3-factor and the 4-factor models, the magnitude of the monthly abnormal return from the 6-month calendar-time long-short portfolio is around 64 basis point (at 5% significance), which translates to 7.68% annually. The magnitude of monthly abnormal return drops to 36.7 and 36.5 basis points, respectively (at 5% significance), or roughly 4.4% annually, from the 24-month calendar-time long-short portfolio. The decreasing trend in abnormal returns over longer horizon suggests that investors gradually realize the superior performance from firms with "Maximum" unearned shares and incorporate the information into stock price. By comparing loadings on the risk factors between the "Maximum" and the "Threshold" groups, we find that firms in the "Maximum" disclosure group are likely to have lower market risk and higher growth rate.

As we documented earlier, firms in the "Maximum" disclosure group on average have better performance at the time of the disclosure, while those in the "Threshold" group perform the worst among all groups. Research as early as Ball and Brown (1968) has found that a firm's stock return continues to drift upward after good news and downward after bad news. Studies also document that the post-earnings-announcement drift (PEAD), generally lasts up to three months after earnings announcement, persists in recent decades (Green, Hand, and Zhang, 2013; Mcland and Pontiff, 2016). Thus, the PEAD effect could potentially drive the post-disclosure abnormal returns from firms within the "Maximum" and "Threshold" group. To isolate the PEAD effect, we double sort firms into six subgroups based on above- and below-median SUE at the end of the disclosure year (fiscal year t) and the three compensation disclosure groups. We re-examine the post-disclosure three-month abnormal return for each subgroup. If PEAD indeed drives the abnormal portfolio return results that we observe, we expect that only firms with high SUE will have positive abnormal returns.

[Insert Table 8 Here]

Table 8 reports the regression results of 3-month calendar-time abnormal portfolio return from all six subgroups. The results show that firms in the "Maximum" disclosure group only have significantly positive abnormal returns when SUE is below median. The 3-factor abnormal return from the "Maximum" disclosure and low SUE group is 98.4 basis point (at 1% significance), or 11.8% annually; and the 4-factor abnormal return is of similar magnitude. While when firms have high SUE, the "Maximum" disclosure group does not generate abnormal returns. These results show that PEAD effect cannot explain the stock market returns from firms with "Maximum" unearned shares. Instead, the abnormal return seems to be driven by market's initial underreaction to a firm's disclosed soft information (unearned shares) when it differs from the hard information (earnings).

### 4.5.2 Stock Performance with Fama-Macbeth Regression

As further robustness check, we run Fama-Macbeth regression to examine the relation between a firm's compensation disclosure and future stock return using the following model:

$$\mathbf{R_{i,t} = \beta x_{ij} + \varepsilon_{t,j}}$$

The dependent variable is a firms' monthly stock returns. The key independent variables are indicators for the three compensation disclosure groups, Maximum, Target, and Threshold, based on the unearned performance shares disclosed at the end of last fiscal year in year t-1. Following Fama and French (1993) and Novy-Marx (2013), we control for firm size (market equity), measured at lagged six months to avoid taking unintentional position in momentum; book to market ratio with book equity measured at the end of last fiscal year in year t-1 and market equity measured with six-month lag; past one-month stock return (Return (-1,0)); and past 12-month to 2-month cumulative stock returns (Return (-12,-2)).

[Insert Table 9 Here]

Column (1) of Table 9 reports the Fama-Macbeth regression results of baseline specification. Compared to firms in the control group, firms in "Maximum" group generate positive monthly returns at 0.233% at 5% significance level, while firms in the "Threshold" group generate negative monthly return at -0.56% at 1% significance level. Moreover, F-test shows significant difference in coefficients between the

"Maximum" and "Threshold" group. These results are consistent with earlier findings using the calendar-time portfolio approach.

Beyond traditional risk factors, recent studies have found that profitability can strongly predict cross sectional stock returns (Novy-Marx, 2013). Our earlier findings show that firms disclose "Maximum" ("Threshold") unearned shares also report high (low) ROA and profit margin. Thus, it is possible that the documented post-disclosure abnormal stock return pattern is driven by the gross profitability premium. To test this explanation, we include gross profitability as an additional control variable in the Fama-Macbeth regression. Column (2) of Table 9 shows that firms in the "Maximum" ("Threshold") disclosure group still earn significant positive (negative) abnormal return after controlling for gross profitability. Meanwhile, the significant positive coefficient on gross profitability confirms that it carries a premium.

Lastly, we add earnings surprise in the regression to control for potential post-earning announcement drift, as firms' compensation disclosure follows earnings disclosure. Column (3) of Table 9 shows that the abnormal returns generated by firms within the "Maximum" group do not diminish after controlling both gross profitabilities and earning surprise, suggesting that "Maximum" level of unearned shares contains information that is not caputed by either gross profitability or earnings surprises. However, the coefficient on "Threshold" disclosure group is negative but no longer significant. It is possible that investors are more sensitive to news of earnings miss.

## 5. Conclusion

Following new SEC rules in 2006, firms are required to disclose their unearned shares from outstanding performance stock grants to CEOs at the end of the fiscal year. As many firms show inclination to incorporate their internal assessments of firm future performance when determining the unearned shares, we investigate whether such disclosures indeed contain meaningful forward-looking information about the firm and lead to subsequent effects in the capital markets.

We find that firms with "Threshold", "Target" and "Maximum" levels of unearned shares perform differently after the disclosure year. Firms that report the "Maximum" ("Threshold") unearned shares

experience the best (worst) performance in ROA, Firm Q, and sale growth after controlling for past performance, various firm and CEO characteristics and firm and year fixed effects. Further analysis shows that the difference in accounting performance is not driven by earnings management.

Given the strong association between the disclosed level of unearned shares and future firm performance, investors seem to fail to fully incorporate the embedded information in firms' stock prices. At the time of compensation disclosures, the market exchibits underaction, and is later surprised around earnings announcement dates. Even sophisticated financial analysts fail to fully incorporate the good performance news embedded in compensation disclosure. Over the long-run, we find that investors can earn significant risk-adjusted returns by buying firms disclosing "Maximum" level of unearned shares and shorting those disclosing "Threshold" unearned shares.

Our research highlights an important piece of information related to firm performance buried in CEO compensation disclosure. It serves to help both researchers and practitioners to better incorporate firm disclosures into firm valuation. Our findings additionally shine a more positive light on recent developments in executive incentive compensation design. Firms now use more performance-based incentive pay and are willing to truthfully reveal internal performance expectations related to these incentives. However, it is difficult for investors to process complex soft information embedded in incentive pay, especially when it appears to differ from other easy to get hard information.

**Appendix A. Variable Definition**

| Variables | Definition | Data Source |
|---|---|---|
| Board Independent | The ratio of the number of outsider directors over the number of all directors. | ISS (Risk Metrics) |
| Capital Expense | The ratio of capital expenditure over book value of total assets. | Compustat |
| CEO Age | The natural logarithm of the executive age in the given year t | Execucomp |
| CEO Ownership | The CEO's share ownership in the firm during fiscal year t. | Execucomp |
| CEO Tenure | The number of years the executive being appointed as CEO | Execucomp |
| CEO/Chairman | A dummy variable equals 1 if the CEO is also the chairman in the firm during fiscal year t, and 0 otherwise. | ISS (Risk Metrics) |
| Director Share Holding | The directors' total shareholding in the firm during fiscal year t. | ISS (Risk Metrics) |
| Discretionary Accruals (Modified Jones) | Following Dechow, Ge, Larson and Sloan (2011), we calculate the modified Jones model discretionary accruals by estimating the following regression within each two-digit SIC industry: working capital accruals = $\alpha+\beta(1/\text{beginning assets})+\gamma(\Delta\text{sales}-\Delta\text{rec})/\text{beginning assets}+\rho\Delta\text{PPE}/\text{beginning assets}+\varepsilon$. The residuals are the modified Jones model discretionary accruals. | Compustat |
| Firm Annual Returns | The cumulative buy and hold return during the fiscal year t | CRSP/Compustat |
| Firm Tobin's q | The ratio of market value of total assets over book value of total assets. | Compustat |
| Log (Firm Age) | The natural logarithm of one plus the number of years that firm listed in Compustat. | Compustat |
| Size | The logarithm of total book value of asset at the end of fiscal year | Compustat |
| Leverage | The ratio of the sum of long-term (dltt) and short-term debt (dlc) to the book value of assets | Compustat |
| # Analysts | The natural logarithm of the number of analysts from I/B/E/S following firm I during fiscal year t. | I/B/E/S |
| Maximum / Target / Threshold Group | Firm discloses at maximum, target, or threshold level of unearned shares in the outstanding equity awards table | Execucomp; Proxy Statement |
| Profit Margin | The ratio of Operating income before interest, depreciation, and tax (oibdp) to the total value of revenue at the end of the fiscal year t | Compustat |
| R&D/Total Assets | The ratio of research and development expenditure over book value of assets. Missing R&D expenses are set to 0. | Compustat |
| Real Earnings Management | Following Roychowdhury (2006), we estimate Real Activity Earnings Management as the sum of abnormal cash flow from opertion (CFO), abnormal discretionary expenses, and abnormal production costs. | Compustat |
| S&P 500 | A dummy variable equals one if the firm is in the S&P500 in year t, and 0 otherwise. | |
| ROA | The ratio of Operating income before interest, depreciation, and tax (oibdp) at the end of the fiscal year t to the book value of asset at the beginning of the fiscal year t | Compustat |

*Continued*

***Appendix A continues***

| | | |
|---|---|---|
| Sales Growth | The change of sale over a year over the sales at the beginning of fiscal year | Compustat |
| Standard Unexpected Earnings (SUE) | Following Livnat, Richard and Mendenhall (2006), we calculate the SUE as the difference between actual earnings per share and analysts median forecasts reported 90 days prior to the earnings announcement date, scaled by price per share. | Compustat/I/B/E/S |
| Target Group | Firm discloses at target level of the equity incentive plan awards in the outstanding equity awards table are disclosed at target level at the end of fiscal year t | Execucomp; Proxy Statement |
| Threshold Group | Firm discloses at threshold level if the equity incentive plan awards in the outstanding equity awards table are disclosed at threshold level at the end of fiscal year t | Execucomp; Proxy Statement |
| Total Assets ($ Million) | The total book value of asset at the end of the fiscal year | Compustat |
| Total Compensation ($ Thousand) | The TDC1 reported in Execucomp as the sum of salary, bonus, other annual compensation, long-term incentive payouts, other cash payouts and total value of restricted stock option awards | Execucomp |
| Volatility | The stock return volatility calculated as annualized volatility of daily stock returns during the year | Compustat |

**Appendix B. An Example of Performance-based Stock Plan: IBM Co.**

In 2006, IBM Co. granted the CEO a performance-based stock plan (PSUs) contingent on two business objectives over 2006-2008 period. The general terms of the plan is stated in the firm's 2006 proxy statement and summarized below:

1. **Vesting Schedule:** Executive officers are awarded a number of PSUs each year at the beginning of year 2006. The performance period for the awards is January 1, 2006 through December 31, 2008.
2. **Performance Targets:** At the beginning of 2006, compensation committee set up the performance targets for the PSUs based on two business objectives: Cumulative earnings per share (weighted 80%) and Cumulative cash flow (weighted 20%). At the end of the three-year performance period, the Compensation Committee approves the determination of actual performance relative to pre-established targets.
3. **Payout Calculations:** At the end of the performance period, the number of PSUs is adjusted up or down based on the approved actual performance relative to the pre-established targets. Payout of PSUs is determined by separately assessing performance against each of the pre-established targets. Payout will not be made for performance below the threshold level.

- The *Threshold number of PSUs* is 25% of the target number and will be earned for the achievement of 70% of both objectives. 80% of *the Threshold number* will be earned *If only* the cumulative EPS is met at the threshold level and the cash flow is not met. 20% of the *Threshold number* will be earned if only the cash flow is met at the threshold level and cumulative EPS is not met.
- The *Target number of PSUs* will be earned if 100% of both objectives are achieved.
- The *Maximum number of PSUs* is 150% of the target number and will be earned for the achievement of 120% of both objectives.

In the 2006 Grants of Plan-Based Awards Table, the PSUs are listed from column (f) to column (h):

| | | Estimated Future Payouts Under Equity Incentive Plan Awards | | |
|---|---|---|---|---|
| Name (a) | Grant Date (b) | Threshold (#) (f) | Target (#) (g) | Maximum (#) (h) |
| S.J. Palmisano (CEO) | 05/08/2006 | 23,619 | 94,475 | 141,713 |

In the 2006 Outstanding Equity Awards At Fiscal Year-End Table, IBM Co. reports the number of unearned shares, unites or other rights that have not vested under any equity incentive plan in column (i). The PSUs are one of the equity incentive plans and thus the *unearned shares of PSUs* are reported in column (i) of the outstanding equity award table.

| Name (a) | Grant Date | Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (#) (i) |
|---|---|---|
| S.J. Palmisano (CEO) | 05/08/2006 | 141,713 |

Mr. Palmisano has *unearned PSUs* as 141,713 shares at the end of fiscal year 2006. The unearned shares is disclosed at the *maximum level* based on the 2006 grants of plan-based award table.

In the proxy statement, IBM Co. discusses the number of unearned PSUs as: "Amounts in column (i) of the 2006 Outstanding Equity Awards at Fiscal Year-End Table reflect the maximum number possible for each PSU award." In addition, the firm states: "The performance criteria for IBM's PSU program is based on cumulative three-year rolling targets. Therefore, measuring annual performance against these targets, which is required by the SEC rules, is not meaningful."

**References**


Ali, A. and W. Zhang, 2015. CEO tenure and earnings management. *Journal of Accounting and Economics.* 59(1), 60-79.

Ball, R. and P. Brown, 1968. An empirical evaluation of accounting income numbers. *Journal of Accounting Research.* 6, 159–177.

Beaver, W., 1968. The information content of annual earnings announcements. *Journal of Accounting Research Supplement.* 6, 67–92.

Bennett, B., JC Bettis, R Gopalan, and T Milbourn. 2017. Compensation goals and firm performance. Journal of Financial Economics 124, 307-330.

Bergstresser, D. and T. Philippon. 2006. CEO incentives and earnings management. *Journal of Financial Economics*, 80, 511-529.

Bettis, C., J. Bizjak, J. Coles, and S. Kalpathy. 2010. Stock and option grants with performance-based vesting provisions. *Review of Financial Studies* 23, 3849–88.

Brown, S., and J. Warner. 1985. Using daily stock returns: The case of event studies. *Journal of Financial Economics*. 8: 205-258.

Carhart, M. M. 1997. On Persistence in Mutual Fund Performance. *The Journal of Finance*, 52: 57–82.

Cheng Y., J. Harford, and T. Zhang. 2015. Bonus-driven repurchases. *Journal of Financial and Quantitative Analysis*, 50, 447-475.

Cheng, Q. and T.D. Warfield. 2005. Equity Incentives and Earnings Management. *The Accounting Review*. 80 (2), 441-476.

Cohen, D., A. Dey, and T. Lys. 2008. Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes-Oxley Periods. *The Accounting Review*, 83(3), 757-787.

Cohen, L., and A. Frazzini, 2008. Economic links and predictable returns. *Journal of Finance* 63, 1977 - 2011.

Cohen, L. and D. Lou. 2012. Complicated Firms. *Journal of Financial Economics* 104, 383-400.

Cohen, L., Malloy, C., Nguyen, Q., 2017. Lazy Prices. *Working paper*.

De Angelis, D., and Y. Grinstein, 2014. Performance Terms in CEO Compensation Contracts. *Review of Finance.* 19, 619–651.

De Franco, G., F. Wong, and Y. Zhou, 2011. Accounting adjustments and the valuation of financial statement note information in 10-K filings. *The Accounting Review* 86, 1577–1604.

Dechow, P.M., Sloan, and R., Sweeney, A., 1995. Detecting earnings management. *The Accounting Review.* 70,193–225.

Dechow, P. M., W. Ge, C. R. Larson, and R. G. Sloan. 2011. Predicting Material Accounting Misstatements. *Contemporary Accounting Research.* 28, 17–82.

Dechow, P.M., and Skinner, D.J., 2000. Earnings management: reconciling the views of accounting academics, practitioners and regulators. *Accounting Horizons* 14, 235–250.

Fama, E. F., and French, K. R. 1997. Industry costs of equity. *Journal of Financial Economics*. *43*(2), 153–193.

Fama, E.F., and MacBeth, J.D., 1973. Risk, return, and equilibrium: empirical tests. *Journal of Political Economy*. 81, 607-636.

Gaver, J., Gaver, K., and Battistel, G. 1992. The Stock Market Reaction to Performance Plan Adoptions. *The Accounting Review*. 67(1), 172-182.

Green J. Hand J. R. M. Zhang X. F. 2013. The supraview of return predictive signals. *Review of Accounting Studies.* 18:692–730.

Groen-Xu, M., P. Huang, and Y. Lu, 2017. Do CEOs Deserve Their Raises? Evidence from Stock Returns after Subjective Performance Reviews. *Working Paper*.

Grossman, S.J. and O. Hart, 1980. Disclosure laws and takeover bids. *Journal of Finance.* 35, 323–334.

Gopalan, R., Milbourn, T., Song, F., and Thakor, A. V., 2014. Duration of Executive Compensation. *Journal of Finance*, 69(6), 2777–2817.

Healy, P., Hutton, A., Palepu, K., 1999. Stock performance and intermediation changes surrounding sustained increases in disclosure. *Contemporary Accounting Research*. 16, 485–520.

Jones, J., 1991. Earnings management during import relief investigations. *Journal of Accounting Research* 29,193–228

Kothari, S.P., 2001. Capital markets research in accounting. *Journal of Accounting and Economics*. 31, 105–231.

Leuz, C., Wysocki, P., 2016. The economics of disclosure and financial reporting regulation: Evidence and suggestions for future research. *Journal of Accounting Research*. 54, 525–622.

Li, Z., and L.Wang, 2016. Executive Incentives Contingent on Long-term Accounting Performance. *Review of Financial Studies* (2016) *29* (6), 1586-1633.

Livnat, J. and Mendenhall, R. R. 2006. Comparing the Post–Earnings Announcement Drift for Surprises Calculated from Analyst and Time Series Forecasts. *Journal of Accounting Research*. 44: 177–205.

McLean R. D. and Pontiff J. 2015. Does academic research destroy stock return predictability? *Journal of Finance*. 71(1), 5-32.

Milgrom, P. and J. Roberts, 1986. Relying on the information of interested parties. *Rand Journal of Economics.* 17, 18–32.

Novy-Marx R. 2013. The other side of value: The gross profitability premium. *Journal of Financial*

*Economics.* 108. 1-28.

Stein, Jeremy C. 2002. Information Production and Capital Allocation: Decentralized vs. Hierarchical Firms. *Journal of Finance.* 57, 1891-1921.

Roychowdhury, S., 2006. Earnings Management through Real Activities Manipulation. *Journal of Accounting and Economics.* 42(3): 335-370.

Verrecchia, R.E., 2001. Essays on disclosure. *Journal of Accounting and Economics.* 32, 97–180.

Wang, D., 2006, Founding Family Ownership and Earnings Quality. *Journal of Accounting Research*, 44: 619–656.

**Table 1 Summary Statistics of Disclosure Classification**

Panel A of Table1 presents the annual distribution of each disclosure classification for "Unearned shares" from performance-based stock grants from 2006 to 2013. Panel B presents the distribution of each disclosure classification within Fama-French 12 industry.

**Panel A Disclosure Classification Over Time**

| Year | # of Firms | Maximum | Target | Threshold | Control |
|---|---|---|---|---|---|
| 2006 | 1,791 | 5.1% | 14.2% | 2.4% | 78.3% |
| 2007 | 2,045 | 5.9% | 17.1% | 3.8% | 73.3% |
| 2008 | 1,978 | 6.4% | 16.8% | 4.7% | 72.1% |
| 2009 | 1,939 | 7.4% | 15.7% | 3.6% | 73.3% |
| 2010 | 1,902 | 8.0% | 18.6% | 4.0% | 69.4% |
| 2011 | 1,851 | 10.5% | 20.4% | 4.3% | 64.8% |
| 2012 | 1,800 | 10.6% | 25.9% | 4.8% | 58.7% |
| 2013 | 1,766 | 12.5% | 29.1% | 5.7% | 52.8% |
| **Total/Grant** | 15,072 | 8.2% | 19.6% | 4.1% | 68.1% |

**Panel B Disclosure Classification Distribution across Industry**

| Industry Categories | N. Firms | Maximum | Target | Threshold | Control |
|---|---|---|---|---|---|
| Consumer NonDurables | 871 | 9.4% | 18.1% | 5.2% | 67.3% |
| Consumer Durables | 428 | 7.9% | 15.7% | 4.4% | 72.0% |
| Manufacturing | 1,712 | 10.1% | 25.1% | 5.7% | 59.1% |
| Energy | 641 | 8.9% | 25.0% | 2.7% | 63.5% |
| Chemicals and Allied Products | 457 | 11.8% | 27.4% | 4.8% | 56.0% |
| Business Equipment | 2,795 | 6.7% | 15.5% | 2.3% | 75.5% |
| Telephone and Television Transmission | 372 | 9.7% | 18.5% | 5.4% | 66.4% |
| Utilities | 637 | 19.9% | 41.3% | 11.8% | 27.0% |
| Wholesale, Retail, and Some Services | 1,761 | 6.8% | 17.7% | 4.7% | 70.8% |
| Healthcare, Medical Equipment, and Drugs | 1,261 | 5.6% | 14.8% | 2.9% | 76.7% |
| Finance | 2,264 | 6.9% | 18.8% | 3.2% | 71.1% |
| Others | 1,873 | 7.4% | 17.4% | 3.8% | 71.3% |
| **Total/Grant** | 15,072 | 8.2% | 19.6% | 4.1% | 68.1% |

**Table 2 Disclosure Classification and Firm Characteristics**

Table 2 Panel A presents summary statistics of firms with each disclosure classification for "Unearned shares" from performance-based stock grants. Table 2 panel B to Panel D presents t-statics in mean difference of each firm variables between maximum group and the other three groups. P-values are presented in parentheses. Year t is the fiscal year that the "Unearned shares" are reported. All variables are defined as in Appendix A.

Panel A. Summary Statistic in Firm Characteristics

| Groups | N | Size | ROA | Profit Margin | Firm's Q | Sales Growth | Capital Exp. | R&D | Stock Volatility | Firm Age |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Year t*** | | | | | | | | | | |
| **Maximum** | 1,237 | 8.512 | 0.156 | 0.231 | 1.813 | 0.084 | 0.046 | 0.019 | 0.376 | 32.34 |
| **Target** | 2,953 | 8.482 | 0.134 | 0.208 | 1.558 | 0.061 | 0.045 | 0.019 | 0.389 | 32.22 |
| **Threshold** | 624 | 8.319 | 0.129 | 0.194 | 1.469 | 0.049 | 0.045 | 0.016 | 0.390 | 32.60 |
| **Control** | 10,258 | 7.377 | 0.134 | 0.192 | 1.805 | 0.093 | 0.043 | 0.030 | 0.460 | 23.19 |
| ***Year t+1*** | | | | | | | | | | |
| **Maximum** | 1,237 | 8.603 | 0.154 | 0.230 | 1.824 | 0.069 | 0.048 | 0.020 | 0.362 | |
| **Target** | 2,953 | 8.555 | 0.130 | 0.206 | 1.566 | 0.053 | 0.044 | 0.019 | 0.375 | |
| **Threshold** | 624 | 8.369 | 0.122 | 0.185 | 1.454 | 0.019 | 0.043 | 0.015 | 0.401 | |
| **Control** | 10,258 | 7.465 | 0.133 | 0.193 | 1.779 | 0.076 | 0.042 | 0.029 | 0.462 | |
| ***Year t+2*** | | | | | | | | | | |
| **Maximum** | 1,237 | 8.695 | 0.147 | 0.223 | 1.817 | 0.045 | 0.047 | 0.019 | 0.350 | |
| **Target** | 2,953 | 8.629 | 0.126 | 0.202 | 1.570 | 0.037 | 0.043 | 0.018 | 0.375 | |
| **Threshold** | 624 | 8.420 | 0.117 | 0.181 | 1.488 | 0.015 | 0.041 | 0.014 | 0.404 | |
| **Control** | 10,258 | 7.548 | 0.131 | 0.195 | 1.762 | 0.063 | 0.041 | 0.029 | 0.460 | |

Panel B. t-statistic of mean difference between maximum and target groups.

| Variable | Years | Size | ROA | Profit Margin | Firm's Q | Sales Growth | Capital Exp. | R&D | Stock Volatility |
|---|---|---|---|---|---|---|---|---|---|
| t-statistic | *Year t* | 0.56 | 6.95 | 3.99 | 8.68 | 3.71 | 0.71 | 0.46 | -1.95 |
| P-value | | 0.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.48 | 0.65 | 0.05 |
| t-statistic | *Year t+1* | 0.89 | 7.65 | 4.12 | 8.45 | 2.53 | 2.25 | 0.65 | -1.91 |
| P-value | | 0.38 | 0.00 | 0.00 | 0.00 | 0.01 | 0.02 | 0.52 | 0.06 |
| t-statistic | *Year t+2* | 1.177 | 6.673 | 3.495 | 7.857 | 1.171 | 2.371 | 0.770 | -3.445 |
| P-value | | 0.239 | 0.000 | 0.000 | 0.000 | 0.242 | 0.018 | 0.441 | 0.001 |

Panel C. t-statistic of mean difference between maximum and threshold groups.

| Groups | Years | Size | ROA | Profit Margin | Firm's Q | Sales Growth | Capital Exp. | R&D | Stock Volatility |
|---|---|---|---|---|---|---|---|---|---|
| t-statistic | *Year t* | 2.49 | 5.62 | 4.56 | 7.41 | 4.03 | 0.57 | 1.90 | -1.46 |
| P-value | | 0.013 | 0.000 | 0.000 | 0.000 | 0.000 | 0.570 | 0.057 | 0.144 |
| t-statistic | *Year t+1* | 2.99 | 6.82 | 5.66 | 7.71 | 5.53 | 2.15 | 2.41 | -3.90 |
| P-value | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.02 | 0.00 |
| t-statistic | *Year t+2* | 3.458 | 6.304 | 5.033 | 6.675 | 3.242 | 2.669 | 2.478 | -5.100 |
| P-value | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 |

Panel D. t-statistic of mean difference between maximum and control groups

| Groups | Years | Size | ROA | Profit Margin | Firm's Q | Sales Growth | Capital Exp. | R&D | Stock Volatility |
|---|---|---|---|---|---|---|---|---|---|
| t-statistic | *Year t* | 22.08 | 6.16 | 6.48 | 0.21 | -1.26 | 2.45 | -6.47 | -12.31 |
| P-value | | 0.00 | 0.00 | 0.00 | 0.83 | 0.21 | 0.01 | 0.00 | 0.00 |
| t-statistic | *Year t+1* | 21.87 | 6.09 | 6.20 | 1.30 | -1.01 | 3.71 | -5.93 | -14.40 |
| P-value | | 0.00 | 0.00 | 0.00 | 0.19 | 0.31 | 0.00 | 0.00 | 0.00 |
| t-statistic | *Year t+2* | 21.66 | 4.75 | 4.56 | 1.62 | -2.75 | 3.76 | -6.09 | -15.73 |
| P-value | | 0.00 | 0.00 | 0.00 | 0.11 | 0.01 | 0.00 | 0.00 | 0.00 |

**Table 3 Disclosure Classification and Future Operating Performance**

This table presents OLS regressions of firm's future operating performance on disclosure classification for "Unearned shares" from performance-based stock grants. The independent variables are measured in year t, the fiscal year that the "Unearned shares" are reported in proxy statement. All variables are defined as in Appendix A. All regressions include year fixed effect and firm fixed effect. The standard errors are robust and adjusted for firm clustering. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

| | ROA | | Firm's Q | | Sales Growth | | Profit Margin | |
|---|---|---|---|---|---|---|---|---|
| *VARIABLES* | Year t+1 | Year t+2 | Year t+1 | Year t+2 | Year t+1 | Year t+2 | Year t+1 | Year t+2 |
| Maximum | 0.008*** | 0.004 | 0.040* | 0.024 | 0.016* | 0.004 | 0.002 | -0.009 |
| | (0.002) | (0.003) | (0.022) | (0.027) | (0.009) | (0.008) | (0.005) | (0.006) |
| Target | 0.001 | -0.000 | -0.026* | -0.008 | 0.009 | 0.007 | 0.001 | -0.005 |
| | (0.002) | (0.002) | (0.015) | (0.017) | (0.007) | (0.007) | (0.004) | (0.005) |
| Threshold | -0.003 | -0.007* | -0.041** | -0.009 | -0.023** | -0.017* | -0.013** | -0.025*** |
| | (0.003) | (0.004) | (0.021) | (0.027) | (0.010) | (0.009) | (0.006) | (0.008) |
| ROA | 0.329*** | 0.041* | | | | | | |
| | (0.022) | (0.025) | | | | | | |
| Firm's Q | | | 0.383*** | 0.104*** | | | | |
| | | | (0.027) | (0.031) | | | | |
| Sales Growth | | | | | -0.016 | -0.113*** | | |
| | | | | | (0.018) | (0.016) | | |
| Profit Margin | | | | | | | 0.206*** | -0.037 |
| | | | | | | | (0.035) | (0.045) |
| Size | -0.068*** | -0.061*** | -0.221*** | -0.216*** | -0.111*** | -0.191*** | -0.044*** | -0.062*** |
| | (0.004) | (0.005) | (0.032) | (0.039) | (0.013) | (0.012) | (0.007) | (0.009) |
| Leverage | -0.008 | -0.000 | 0.000 | -0.175 | 0.148*** | 0.030 | 0.023 | -0.055** |
| | (0.011) | (0.012) | (0.110) | (0.142) | (0.039) | (0.033) | (0.022) | (0.024) |
| Capital Exp. | 0.014 | -0.041 | -1.078*** | -1.048*** | -0.439*** | -0.213** | -0.004 | 0.055 |
| | (0.043) | (0.038) | (0.282) | (0.335) | (0.111) | (0.101) | (0.085) | (0.091) |
| Log(Firm Age) | 0.008 | 0.007 | 0.065 | -0.061 | -0.056** | 0.097*** | -0.024 | -0.009 |
| | (0.009) | (0.011) | (0.089) | (0.111) | (0.026) | (0.027) | (0.017) | (0.024) |
| S&P 500 | 0.008** | 0.000 | 0.042 | 0.038 | -0.021 | 0.003 | -0.000 | -0.008 |
| | (0.003) | (0.005) | (0.038) | (0.045) | (0.013) | (0.012) | (0.007) | (0.010) |
| Volatility | 0.000 | 0.001 | 0.028 | -0.007 | -0.038* | -0.026 | 0.034** | 0.047*** |
| | (0.006) | (0.006) | (0.035) | (0.041) | (0.020) | (0.017) | (0.014) | (0.014) |
| # Analyst | -0.000 | -0.000 | -0.003 | -0.015 | -0.001 | -0.004 | 0.002 | -0.000 |
| | (0.001) | (0.001) | (0.009) | (0.010) | (0.003) | (0.003) | (0.002) | (0.002) |
| CEO | -0.042 | -0.027 | -0.186 | 0.122 | -0.073 | 0.008 | -0.114* | -0.017 |
| Ownership | (0.033) | (0.038) | (0.284) | (0.390) | (0.105) | (0.095) | (0.067) | (0.060) |
| CEO Tenure | -0.002 | 0.002 | 0.007 | 0.021 | -0.004 | 0.002 | -0.003 | 0.004 |
| | (0.001) | (0.002) | (0.013) | (0.015) | (0.005) | (0.005) | (0.003) | (0.004) |
| CEO Age | 0.012 | 0.014 | 0.083 | 0.093 | -0.003 | 0.011 | 0.009 | -0.000 |
| | (0.011) | (0.014) | (0.101) | (0.131) | (0.035) | (0.034) | (0.019) | (0.024) |
| Board | -0.010 | 0.007 | -0.021 | -0.100 | -0.048 | 0.038 | -0.005 | 0.004 |
| Independent | (0.011) | (0.014) | (0.092) | (0.110) | (0.041) | (0.036) | (0.022) | (0.030) |
| Director | -0.039*** | -0.024* | -0.201* | -0.165 | -0.034 | 0.022 | 0.001 | -0.072* |
| Ownership | (0.011) | (0.014) | (0.122) | (0.139) | (0.037) | (0.048) | (0.041) | (0.041) |
| CEO/Chairman | 0.001 | -0.003 | -0.014 | -0.012 | 0.009 | 0.000 | 0.005 | -0.005 |
| | (0.002) | (0.002) | (0.016) | (0.019) | (0.007) | (0.006) | (0.004) | (0.005) |
| Constant | 0.572*** | 0.530*** | 2.361*** | 2.874*** | 1.224*** | 1.225*** | 0.553*** | 0.698*** |
| | (0.058) | (0.074) | (0.560) | (0.694) | (0.179) | (0.175) | (0.103) | (0.141) |

***Continues***

***Table 3 Continues***

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| F-tests βMaximum ≠ βThreshold | | | | | | | | |
| F-Statistic | 9.99*** | 8.53*** | 10.80*** | 1.00 | 10.66*** | 4.49** | 5.65** | 3.62* |
| P-Value | 0.00 | 0.00 | 0.00 | 0.32 | 0.00 | 0.03 | 0.02 | 0.06 |
| $R^2$ | 0.839 | 0.803 | 0.865 | 0.844 | 0.365 | 0.391 | 0.776 | 0.730 |
| Obs. | 10,134 | 9,717 | 10,473 | 10,005 | 10,638 | 10,219 | 10,134 | 9,717 |

**Table 4 Disclosure Classification and Earnings Quality**

This table presents OLS regressions of firm's earnings quality on disclosure classification for "Unearned shares" from performance-based stock grants. Panel A presents results using discretionary accrual as a measure of earnings quality. Panel B presents results using real earnings management as a measure of earnings quality. Year t is defined as the fiscal year that the "Unearned shares" are reported in proxy statement. All accounting and CEO related independent variables are measured in the year lagged to the dependent variable. All variables are defined as in Appendix A. All regressions include year fixed effect and firm fixed effect. The standard errors are robust and adjusted for firm clustering. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

| | ***Discretionary Accrual (Modified Jones)*** | | | ***Real Earnings Management*** | | |
|---|---|---|---|---|---|---|
| | ***Year t*** | ***Year t+1*** | ***Year t+2*** | ***Year t*** | ***Year t+1*** | ***Year t+2*** |
| Maximum | -0.003 | -0.004 | 0.004 | 0.031 | 0.009 | -0.008 |
| | (0.002) | (0.002) | (0.003) | (0.035) | (0.034) | (0.036) |
| Target | -0.002 | -0.001 | 0.002 | -0.026 | -0.037* | 0.007 |
| | (0.002) | (0.002) | (0.002) | (0.021) | (0.021) | (0.024) |
| Threshold | -0.000 | -0.002 | 0.002 | 0.019 | 0.066* | 0.063 |
| | (0.003) | (0.002) | (0.003) | (0.040) | (0.040) | (0.051) |
| Size | -0.002 | -0.002 | -0.006* | 0.272*** | 0.261*** | 0.224*** |
| | (0.003) | (0.003) | (0.003) | (0.037) | (0.034) | (0.043) |
| Leverage | -0.026*** | -0.027*** | -0.031*** | -0.104 | -0.095 | -0.123 |
| | (0.008) | (0.008) | (0.010) | (0.110) | (0.107) | (0.123) |
| ROA | 0.017 | 0.017 | 0.003 | 0.296** | 0.249** | 0.280* |
| | (0.012) | (0.012) | (0.016) | (0.132) | (0.126) | (0.158) |
| Firm Q | 0.006*** | 0.006*** | 0.007*** | -0.074*** | -0.070*** | -0.070*** |
| | (0.001) | (0.001) | (0.002) | (0.016) | (0.015) | (0.018) |
| CEO Age | 0.007 | 0.009 | 0.013 | 0.190 | 0.179 | 0.207 |
| | (0.009) | (0.009) | (0.015) | (0.127) | (0.120) | (0.160) |
| CEO Tenure | -0.002** | -0.002** | -0.000 | -0.041** | -0.039** | -0.033 |
| | (0.001) | (0.001) | (0.002) | (0.018) | (0.017) | (0.026) |
| CEO Ownership | -0.026 | -0.027 | -0.024 | -0.164 | -0.163 | -0.357 |
| | (0.025) | (0.025) | (0.032) | (0.376) | (0.347) | (0.310) |
| Constant | -0.016 | -0.025 | -0.013 | -2.579*** | -2.451*** | -2.327*** |
| | (0.038) | (0.037) | (0.057) | (0.570) | (0.534) | (0.692) |
| F-tests βMaximum ≠ βThreshold | | | | | | |
| F-Statistic | 0.87 | 0.37 | 0.31 | 0.07 | 1.56 | 1.58 |
| P-Value | 0.35 | 0.55 | 0.58 | 0.79 | 0.21 | 0.21 |
| $R^2$ | 0.194 | 0.194 | 0.246 | 0.456 | 0.462 | 0.514 |
| Obs. | 11,542 | 11,661 | 8,869 | 10,354 | 10,451 | 7,951 |

**Table 5 Disclosure Classification and Market Reaction**

This table presents firms' abnormal returns around proxy statement filing day for fiscal year t or earnings announcement day for fiscal year t+1. The event day abnormal return is calculated using either the market adjusted model (MAR) or the market model (MM). Under MAR, we compute the daily abnormal return by subtracting the observed return on the CRSP-equal weight market index for day t. Under the MM, the daily abnormal return equals to the daily actual stock return adjusted for CAPM model with estimation period from -255 to -46 trading days relative to the filing date. We then calculate the firms' cumulative abnormal return (CARs) as the summation of daily abnormal return in the selected event windows. We require that the firm has at least 30 non-missing trading days during the estimation periods. Year t is defined as the fiscal year that the "Unearned shares" are reported in proxy statement. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

Panel A: Market Reaction around Proxy Statement Filing Date

| | **Year t Proxy Statement Filing Day** | | | |
|---|---|---|---|---|
| | Window (-1, 1) | | Window (0, 1) | |
| | MAR | MM | MAR | MM |
| Maximum | 0.13%* | -0.05% | 0.17%** | 0.02% |
| Target | 0.28%*** | 0.19%*** | 0.20%*** | 0.16%*** |
| Threshold | 0.25% | 0.22% | 0.16% | 0.15% |

Panel B: Market Reaction around Earning Announcement Date

| | **Year t+1 Earnings Announcement Day** | | | |
|---|---|---|---|---|
| | Window (-1, 1) | | Window (0, 1) | |
| | MAR | MM | MAR | MM |
| Maximum | 0.58%*** | 0.50%*** | 0.54%*** | 0.49%*** |
| Target | 0.07% | 0.01% | -0.07% | -0.09% |
| Threshold | 0.12% | 0.12% | -0.12% | -0.08% |

**Table 6 Disclosure Classification and Earnings Surprise**

This table presents firms' disclosure classification for "Unearned shares" from performance-based stock grants in year t and subsequent earnings surprise each quarter. Year t is defined as the fiscal year that the "Unearned shares" are reported in proxy statement. Earnings surprise is measured as the standardized unexpected earnings (SUE) using analysts' expectations. All variables are defined as in Appendix A. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

| Year t+1 Quarter | Maximum | Target | Threshold | Maximum - Threshold |
|---|---|---|---|---|
| 1 | 0.09%*** | 0.06%*** | 0.04% | 0.05% |
| | (7.51) | (4.42) | (0.83) | (1.29) |
| 2 | 0.08%*** | 0.08%*** | -0.05% | 0.14%*** |
| | (6.22) | (6.23) | (-0.90) | (3.01) |
| 3 | 0.08%*** | 0.09%*** | -0.05% | 0.13%*** |
| | (5.18) | (7.02) | (-0.88) | (2.78) |
| 4 | 0.08%*** | 0.02% | -0.02% | 0.10%** |
| | (4.32) | (1.34) | (-0.32) | (1.99) |

**Table 7 Disclosure Classification and Long-run Abnormal Return**

This table presents calendar-time factor regression results of portfolios consisting of firms for each disclosure classification. Every month from April 2007 to December 2014, for each Maximum, Target, or Threshold classification group, we form equal-weighting portfolio with firms that have filed proxy statements with the SEC in the previous three-month, six-month, one-year, or two-year period. The dependent variable is the monthly excess return of the portfolio over one-month T-bill rate. We use the Fama and French (1993) three-factor model and Carhart (1997) four-factor model as our factor models, and measure portfolio underperformance as the intercept (α) from the factor regressions. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

| | Fama-French 3 Factor Model | | | | | Carhart 4 Factor Mode | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **α (%)** | MKT | SMB | HML | Adj. $R^2$ | **α (%)** | MKT | SMB | HML | UMD | Adj. $R^2$ |
| ***Three Month Portfolio*** | | | | | | | | | | | |
| Maximum | **0.585**** | 1.053*** | 0.628*** | -0.103 | 0.872 | **0.585**** | 1.020*** | 0.631*** | -0.184* | -0.120** | 0.881 |
| Target | **0.180** | 1.159*** | 0.660*** | -0.034 | 0.908 | **0.183** | 1.115*** | 0.665*** | -0.138 | -0.157*** | 0.920 |
| Threshold | **0.079** | 1.187*** | 0.672*** | 0.128 | 0.790 | **0.082** | 1.140*** | 0.678*** | 0.015 | -0.170** | 0.802 |
| Max - Min | **0.450** | -0.123 | -0.072 | -0.246 | 0.075 | **0.451** | -0.111 | -0.073 | -0.216 | 0.045 | 0.078 |
| ***Six Month Portfolio*** | | | | | | | | | | | |
| Maximum | **0.314*** | 1.024*** | 0.513*** | -0.028 | 0.930 | **0.316**** | 0.993*** | 0.517*** | -0.103 | -0.113*** | 0.938 |
| Target | **0.310** | 1.139*** | 0.551*** | 0.112 | 0.928 | **0.313*** | 1.088*** | 0.558*** | -0.011 | -0.186*** | 0.946 |
| Threshold | **-0.326** | 1.202*** | 0.550*** | 0.401*** | 0.896 | **-0.323** | 1.159*** | 0.555*** | 0.299*** | -0.154*** | 0.906 |
| Max - Min | **0.640**** | -0.178*** | -0.036 | -0.428*** | 0.319 | **0.639**** | -0.166** | -0.038 | -0.402*** | 0.040 | 0.323 |
| ***One Year Portfolio*** | | | | | | | | | | | |
| Maximum | **0.254**** | 1.025*** | 0.424*** | 0.083* | 0.963 | **0.256**** | 0.996*** | 0.428*** | 0.013 | -0.106*** | 0.971 |
| Target | **0.240*** | 1.111*** | 0.523*** | 0.241*** | 0.959 | **0.244**** | 1.057*** | 0.530*** | 0.113** | -0.193*** | 0.980 |
| Threshold | **-0.190** | 1.192*** | 0.583*** | 0.459*** | 0.918 | **-0.185** | 1.109*** | 0.594*** | 0.262*** | -0.297*** | 0.954 |
| Max - Min | **0.444**** | -0.167*** | -0.159* | -0.376*** | 0.497 | **0.441***** | -0.114*** | -0.166** | -0.249*** | 0.191*** | 0.645 |
| ***Two Year Portfolio*** | | | | | | | | | | | |
| Maximum | **0.212*** | 1.071*** | 0.416*** | 0.108** | 0.959 | **0.215**** | 1.029*** | 0.422*** | 0.008 | -0.151*** | 0.974 |
| Target | **0.266*** | 1.112*** | 0.508*** | 0.272*** | 0.956 | **0.270***** | 1.054*** | 0.515*** | 0.135*** | -0.206*** | 0.978 |
| Threshold | **-0.155** | 1.211*** | 0.507*** | 0.536*** | 0.925 | **-0.150** | 1.126*** | 0.518*** | 0.334*** | -0.305*** | 0.963 |
| Max - Min | **0.367**** | -0.140*** | -0.091 | -0.427*** | 0.521 | **0.365**** | -0.097*** | -0.096 | -0.325*** | 0.154*** | 0.632 |

**Table 8 Disclosure Classification, Abnormal Returns, and Earnings Surprise**

This table presents calendar-time factor regression results of portfolios consisting of firms for each disclosure classification and earnings surprise (SUE) group. We sort the sample independently into six subgroups based on the three disclosure classification and above/below median SUE. Within each subgroup, every month from April 2007 to December 2014, we form equal-weighting portfolio with firms that have filed proxy statements in the previous three-month period. The dependent variable is the monthly excess return of the portfolio over one-month T-bill rate. We use the Fama and French (1993) three-factor model and Carhart (1997) four-factor model as our factor models, and measure portfolio underperformance as the intercept (α) from the factor regressions. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

| | Fama-French 3 Factor Model | | | | | Carhart 4 Factor Mode | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **α (%)** | MKT | SMB | HML | Adj. $R^2$ | **α (%)** | MKT | SMB | HML | UMD | Adj. $R^2$ |
| ***Low SUE*** | | | | | | | | | | | |
| Maximum | **0.984**** | 0.978*** | 0.482** | -0.077 | 0.598 | **0.972**** | 0.919*** | 0.493** | -0.212 | -0.205** | 0.619 |
| Target | **0.436** | 1.135*** | 0.452*** | 0.201 | 0.826 | **0.441** | 1.058*** | 0.462*** | 0.017 | -0.277*** | 0.862 |
| Threshold | **0.301** | 1.273*** | 0.532* | 0.182 | 0.643 | **0.303** | 1.253*** | 0.531* | 0.127 | -0.081 | 0.646 |
| Max - Min | **0.776** | -0.154 | 0.062 | -0.179 | 0.019 | **0.775** | -0.194 | 0.066 | -0.277 | -0.147 | 0.028 |
| ***High SUE*** | | | | | | | | | | | |
| Maximum | **0.013** | 1.149*** | 0.672*** | -0.131 | 0.724 | **0.012** | 1.141*** | 0.673*** | -0.152 | -0.032 | 0.724 |
| Target | **0.357** | 1.113*** | 1.028*** | -0.176 | 0.752 | **0.356** | 1.074*** | 1.031*** | -0.271 | -0.142* | 0.760 |
| Threshold | **0.369** | 1.130*** | 0.790*** | 0.331* | 0.758 | **0.365** | 1.121*** | 0.791*** | 0.311 | -0.031 | 0.758 |
| Max - Min | **-0.349** | 0.057 | -0.098 | -0.452* | 0.047 | **-0.349** | 0.059 | -0.098 | -0.447* | 0.007 | 0.047 |

**Table 9 Fama and MacBeth Regression of Returns on Disclosure Classifications**

This table presents results from Fama and MacBeth regressions of monthly returns on disclosure classifications, as well as firm gross profitability and firm earing surprise. We sort firms with "Unearned Shares" into Maximum, Target, Threshold and Control groups from the end of last fiscal year in year t-1. Gross profitability is also measured at the end of last fiscal year in year t-1. Earning surprise (SUE) is measured from last fiscal quarter for each month. Regressions include controls for book-to-market (log (B/M), size (log (ME)), and past stock performance measured as stock return from last one month (-1, 0), and from last 12 months (-12,-2), respectively. The regression sample is from July 1, 2007 to December 31, 2014. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

| | **Monthly Return (%)** | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Maximum | 0.233** | 0.247** | 0.285** |
| | (0.098) | (0.101) | (0.124) |
| Target | 0.137* | 0.119 | 0.107 |
| | (0.077) | (0.074) | (0.105) |
| Threshold | -0.516*** | -0.528*** | -0.221 |
| | (0.169) | (0.171) | (0.245) |
| Gross Profitability | | 0.894** | 0.451 |
| | | (0.383) | (0.395) |
| Earnings Surprise | | | 1.111*** |
| | | | (0.227) |
| Log(B/M) | -0.174 | -0.022 | 0.063 |
| | (0.125) | (0.127) | (0.153) |
| Log(ME) | -0.181** | -0.154** | -0.219*** |
| | (0.077) | (0.074) | (0.082) |
| Return (-1,0) | -1.023 | -1.085 | -1.155 |
| | (0.740) | (0.750) | (0.843) |
| Return (-12,-2) | -0.280 | -0.381 | -0.715 |
| | (0.679) | (0.697) | (0.730) |
| Constant | 1.636 | 1.231 | 2.022* |
| | (1.011) | (1.007) | (1.090) |
| F-tests $\beta_{Maximum} \neq \beta_{Threshold}$ | | | |
| F-Statistic | 17.76 | 18.99 | 5.01 |
| P-Value | 0.00 | 0.00 | 0.03 |