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Earnings Management for Unloadable Equity Holdings and Earnings Response Coefficient

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Abstract

Earnings Management for Unloadable Equity Holdings and Earnings Response Coefficient

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Prior research examines the relation between the amount of annual option exercises and discretionary accruals, which are a conventional tool for earnings management. I differentiate from prior studies by exclusively focusing on the vested portion of equity-based compensation—specifically, exercisable stock options and vested restricted stocks. Bebchuck and Fried (2010) provide multiple anecdotal evidences such that managers holding vested equity compensation are tempted to influence stock prices in various manners because they can immediately unwind the equity incentive portion into cash. Another key difference of this paper form the prior literature is that I apply the concept of earnings response coefficients (ERCs hereafter) to the perverse relation between long-term equity incentive and short-term earnings management. I find that when the ERC is interacted with the equity incentive, I find the size of earnings management (in terms of performance-matched discretionary accruals) becomes significantly larger. I interpret that managers of firms with the higher ERC can enjoy more benefits from creating positive abnormal accruals because share prices respond to the greater extent on the earnings information. Next, the empirical analysis shows that earnings persistence impairs as the size of unloadable equity holdings grows and this negative association prevails particularly when the ERC is higher. The results collectively provide a

new insight to the earnings management literature from the perspective of earnings-return sensitivity.

Keywords: earnings management, equity-based compensation, unloadable equity, earnings response coefficient, earnings persistence

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1. Introduction

Although stock-based compensation has been widely used in the standard executives' pay arrangements since the 1980s and especially popular in the 1990s, for its role of improved firm performance, the use of stock-based compensation has come under scrutiny. Despite its intention of paying for long-term performance, the stock-based compensation in executive pay structure has raised concerns for rewarding executives actually for short-term results (Bebchuck and Fried 2010; Bhagat and Romano 2010). Stock-based compensation might encourage managers to excessively focus on short-term results. For example, managers rewarded with equity compensation might increase short-term stock prices in order to benefit from subsequently selling shares of their own firm. To maximize their private wealth, they are likely to engage in income-increasing earnings management to boost the short-term stock price although that may in fact deteriorate the firm value. This study extends prior studies that have examined the association between equity incentives and earnings management, by considering earnings response coefficient as a critical catalyst of earnings manipulation.

Prior research examines the relation between the amount of annual option exercises and discretionary accruals, which are a conventional tool for earnings management (Bartov and Mohanram 2004). Bergstresser and Philippon (2006) find evidence of a positive relation between option compensation and the use of discretionary accruals. Cheng and Warfield (2005) use meeting or just beating analysts' forecasts, as a proxy for the market consequences of earnings management, to show its relation with equity incentives. In addition, Burns and Kedia (2006) find that top managers with stock options that are more sensitive to stock price are likely to engage in a misreporting which results in a restatement. The recent research by

Armstrong et al. (2013) document managers' opportunistic behaviors of temporarily boosting the stock price before unwinding their equity incentive, by considering portfolio delta (the sensitivity of the manager's wealth to changes in stock price) and portfolio vega (the sensitivity of the manager's wealth to changes in risk). In short, prior studies have illuminated the link between earnings management and managerial incentives stemming from stock-based compensation.

My research corroborates this stream of research; however, I differentiate from prior studies by exclusively focusing on the vested portion of equity-based compensation—specifically, exercisable stock options and vested restricted stocks. Stock options and restricted stocks are typical forms of equity-linked compensation, and compose a significant portion in executive pay structure, almost 50 percent of total compensation in year 2008 (Frydman and Jenter 2010). For both types of equity-linked compensation, the original objective is to incentivize managers to maximize long-term shareholders value. However, such equity incentives can bring undesirable consequences in certain situations. For example, Bebchuck and Fried (2010) discuss that managers holding vested equity compensation are tempted to influence stock prices in various manners because they can immediately unwind the equity incentive portion into cash. In particular, when the manager accumulates a large amount of vested equity incentives through past periods, they are likely to undergo strong short-term incentives to boost the stock price by manipulating accounting earnings so as to increase the benefits from selling shares in the near future. Thus, the incentive to increase the stock price through income-increasing earnings management should be more tightly reflected with the exercisable options and vested shares than total equity compensation[1]. My empirical

[1] I note that the vested portion of equity-based compensation is not determined upon annual grants but represents the accumulated amount upon all of the past rewards because the latter implies the maximum size of managerial incentive to cash their share-linked wealth.

analysis shows that the size of earnings management[2] is greater for firms whose CEOs have larger amounts of vested equity-based compensation.

Another key difference of this study from the literature is that I apply earnings response coefficients (ERC hereafter) to the perverse relation between long-term equity incentive and short-term earnings management. Earnings management gets effective only if it can influence stock prices (Cheng and Warfield 2005). I expect that those managers who intend to sell shares in the subsequent periods are more strongly tempted to manipulate earnings upward, particularly when the capital market actively incorporate earnings information in forming the belief about the firm's future performance. To capture such environment, I turn to the concept of ERCs (Ball and Brown 1968). Provided with the variation in the magnitude of firm-level ERCs, I predict that managers of firms with the higher ERC have greater incentive to create positive abnormal accruals because such firms have stronger earnings-returns sensitivity than those with lower ERCs.

To test whether ERCs involve earnings management following the manager's unloadable equity, I construct the interaction term of the measure for equity incentives and the ERC and examine its relation with earnings management. Our empirical results show that there is no significant relation between earnings management and standalone ERCs. However, when the ERC is interacted with the managerial incentive (the vested portion of equity-linked compensation), I find the size of earnings management (in terms of performance-matched discretionary accruals) becomes significantly larger.[3] I extend the analysis on top five highly paid executives as my additional test and find consistent empirical findings as the analysis on CEOs.

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[2] I empirically measure the earnings management by performance-matched discretionary accruals suggested by Kothari et al. (2005). The details on the measure are presented in section 3.

[3] I measure the ERC in four different ways based on the literature and the results are the same. The details of ERC measurement are explained in section 3.

I also explore the implication of the equity-driven earnings management incentive on the earnings persistence. The literature has extensively documented impaired earnings quality stemming from improper accrual management. If earnings manipulation is to some extent a reflection of the perverse incentive by vested equity compensation, I can predict that earnings quality would get lower with such incentive. I examine whether earnings persistency varies according to the size of vested equity compensation for managers. When I divide the observations into three groups based on the magnitude of ERC, the results clearly indicate that earnings persistence is negatively associated with the size of unloadable equity compensation and this association prevails when the ERC is higher. This analysis provides additional evidence of the interaction of ERCs and managers' short-term earnings management incentive.

Bebchuck and Fried (2010) provide anecdotal evidence of how firms have struggled from the manager's opportunistic behaviors to engage in earnings manipulation upon the equity incentive schemes, and suggest several proposals to remedy the problem. The importance of long-term incentives is not merely the issue for academia recent government, the Obama administration in 2009, calls for reformation of executive compensation practices to more closely align compensation with long-term value creation. This perverse situation sprouting from careless equity incentive is an ongoing problem, and thus, I view the exercisable options and vested restricted stocks as the variables linked more directly to managers' dysfunctional incentive compared to prior research. Overall, my results provide a new insight to the earnings management literature from the perspective of earnings-return sensitivity. The remainder of the paper is organized as follows. In section 2, I review prior literature and develop the hypotheses. In section 3, I describe the sample data, empirical models, and variable measurement used in the analyses. Section 4 presents empirical results,

and section 5 concludes.

2. Hypotheses Development

Equity-based compensations are typically used to reduce the agency problem by aligning executives' and shareholders' interests. By tying executive compensation to stock price outcomes, managers are encouraged to make operating and investing decisions that maximize shareholder wealth (Jensen and Meckling 1976). Theoretically, as managers hold more shares and increase ownership, they are more likely to make decisions in the interests of shareholders and increase the future firm performance (McConnell and Servaes 1990; Core and Guay 1999). However, there have been concerns in both practice and academia because equity compensations often entice executives to focus on short-term performance sacrificing the firm's long-term value. Under typical arrangements for equity-linked compensation, managers obtain freedom to cash out their equity holdings after vesting. This ability can mislead managers to disclose favorable information more aggressively so that they can benefit more from the increase of short-term stock prices—the prices at which they can unload their vested shares and options. Such dysfunctional incentive is likely to aggravate when executives hold large amounts of cashable equity.

One way managers can influence the stock price of the firm is to manipulate reported performance by actively intervening in the financial reporting process (Subramanyam 1996). Prior studies have extensively documented the evidences supporting the association between equity incentives and earnings management. Bartov and Mohanram (2004) find that firms with large amount of annual option exercises are more likely to have higher discretionary accruals (as a result, higher reported earnings) in those years and, lower discretionary accruals and earnings in succeeding periods reflecting the reversal of inflated earnings.

Cheng and Warfield (2005) investigate how the firm's meeting or just beating analysts' forecasts relates to its manager's equity incentive. In addition, Burns and Kedia (2006) find that top managers with stock options that are more sensitive to stock price are likely to engage in a misreporting which results in a restatement. The recent research by Armstrong et al. (2013) extends this research stream on equity incentives and misreporting, by considering the incentive effects of portfolio delta (the sensitivity of the manager's wealth to changes in stock price) and portfolio vega (the sensitivity of the manager's wealth to changes in risk) for risk averse managers.

In contrast to the literature, I focus exclusively on the forms of stock-based holdings that are defined as "exercisable" or "vested" according to a vesting schedule of the particular executive—namely, exercisable stock options and vested restricted stocks. Under a standard stock option plan, a specified number of options becomes exercisable (i.e., vested) each year and remains exercisable forwards. Once they are vested, the manager can either hold the exercisable options or immediately exercise the options and sell their shares so as to unwind the equity incentive and convert them into cash. Restricted stock grants function in a very similar manner as stock options. When restricted stocks are received, the ownership of the stocks vests gradually. The problem with such equity incentive plans arises as the vesting period ends. If a manager has accumulated a large amount of vested equity incentive, he may have myopic incentive to manipulate earnings information to boost the stock price helping maximize the manager's private benefits from unloading the equity. Bebchuck and Fried (2010) provide anecdotal evidence of how firms have struggled from the manager's opportunistic behaviors to engage in earnings manipulation upon the equity incentive schemes, and suggest several proposals to remedy the problem. This perverse situation sprouting from careless equity incentive is an ongoing problem, and thus, I use the

exercisable options and vested restricted stocks that are more tightly linked to the manager's incentive to generate positive information for capital market aiming at stock price appreciation.

Considering the manager's short-term incentives to manage earnings and increase stock price, I examine the earnings-returns sensitivity by applying the earnings response coefficients (ERCs) on the relation between vested equity holding and earnings management. The ERC indicates the earnings-return relation; specifically, higher earnings changes are associated with higher stock returns for individual firms (Ball and Brown 1968). This can be measured as the slope coefficient of the returns-earnings regression (Collins and Kothari 1989; Collins et al. 1999; DeFond and Park 2001; Francis et al. 2002) and Chen et al. (2012) show that there is a considerable variation in the magnitude of firm-level ERC.

The primary goal of my research is to examine whether equity incentives driven by exercisable options and vested stocks lead executives to earnings management. For the managers who can sell their vested shares, maintaining the short-term stock price at a higher level for the time period around unwinding equity incentive is critical because, they are free to sell their stock holdings once exercisable or vested. Under this circumstance, it is important to assure whether using discretionary accruals to increase earnings would be effectively influence the security market favorably. In that regard, prior literature has examined if accounting accruals significantly influence the valuation of securities. Subramanyam (1996) finds that the market does price abnormal accruals, which are estimated using Jones (1991) model. Sloan (1996) and Collins and Hribar (2000a) find that the market overprices total accruals but, fails to fully incorporate the lower persistence of the accrual component of earnings. Teoh et al. (1998a, 1998b) and Rangan (1998) provide evidences for the overpricing abnormal accruals used to increase earnings before initial public offerings

(IPOs) or seasoned equity offerings. Xie (2001) shows that the market does not rationally impound publicly disclosed accounting information by overestimating abnormal accruals in more general setting. The overpricing of abnormal accruals in the financial market provides managers opportunistic incentives to manipulate earnings and the stock price.

Following the prior research on the role of accruals in pricing securities, DeFond and Park (2001) investigates the market's perception of the magnitude of earnings surprises that contain abnormal accruals and finds that it affects the slope coefficient of the returns-earnings regressions or ERC. The ERC shows an estimate of the change in a firm's stock price due to the information provided in a firm's earnings announcement. Since the ERCs exhibit cross-sectional variation (Collins and Kothari 1989) and its variation becomes apparent in recent periods after 2000 (Chen et al. 2012), how the market perceives about the accounting information containing abnormal accruals varies with a firm's magnitude of ERC. I expect that the propensity to use of discretionary accruals to manage earnings is greater for managers in the firms with higher ERCs, because the reported earnings are highly associated with the stock prices. As in the hypotheses, I further expect that for managers holding substantial amount of vested stocks and options thus, have greater incentives to manipulate earnings and increase the short-term stock price, their earnings management incentives appear to be stronger for those in the firms with higher ERCs. That is, magnitudes of ERCs expect to operate as a mediating variable in the relation between equity incentives and earnings management.

Applying the concept of ERC in the capital market valuation mechanism, I presume that the effect of using abnormal accruals to manage reported earnings on the stock price is stronger for firms with higher ERCs because such firms have stronger earnings-returns sensitivity compared to those with lower ERCs. In other words, in circumstances where the

stock price does not respond much to earnings information, managers are expected not to use earnings management to make a positive influence on the capital market even though they hold a large amount of vested restricted shares and exercisable stock options. Therefore, linking the firm-level ERC with earnings management incentives, I conjecture that a firm's ERC level plays a facilitating role in earnings management in association with the short-term equity incentive.

H1: The magnitude of income-increasing earnings management stemming from vested equity holding is positively associated with the earnings-returns sensitivity.

In addition, I explore the implication of the equity-driven earnings management incentive on the earnings persistence. The literature has extensively documented impaired earnings quality stemming from improper accrual management. If earnings manipulation is to some extent a reflection of the perverse incentive by vested equity compensation, I can predict that earnings quality would get lower with such incentive. I examine whether earnings persistency varies according to the size of vested equity compensation for managers.

I further expect that the size of impairment in earnings persistence is a function of the ERC. The rationale is that earnings manipulation for short-term price increase should prevail when the stock market is very sensitive to earnings changes based on the previous hypothesis. Thus, in my second hypothesis, I predict that earnings persistence is negatively associated with the size of unloadable equity compensation particularly when the ERC is higher.

H2: Earnings persistence is lower in the periods when the managers hold a larger

amount of vested equity, and this negative association gets stronger in the firms with higher ERCs.

3. Sample Selection and Variable Measurement

3.1 Sample

I am interested in examining whether managers rewarded with stock-based compensation exercise income-increasing earnings manipulation to inflate the stock prices. At the fiscal-year end managers may have various forms of equity-based holdings, but I exclusively focus on exercisable options and vested stocks for their earnings management incentives. I obtain the stock-based compensation data from the Standard & Poor's ExecuComp database for the years 1993-2012[4]. I exclude the firm-years missing both the data of exercisable options and vested stocks, which result in the sample size to 35,195 firm-year observations with 3,401 firms.

Next, I retrieve all other financial data from Compustat to develop the major proxy for the income-increasing earnings management, performance-matched discretionary accruals strictly followed by Kothari et al. (2005), and control variables. I collect data from Compustat for estimating discretionary abnormal accruals.

I also need to estimate the earnings response coefficient (ERC). The data necessary for ERCs is obtained from Compustat database for the period 1984-2012. I estimate the ERC for each firm for the years 1993-2012 on a rolling basis of 10 years. I employ three prior studies to improve the validity of the ERC measurement that are based on Francis et al.

[4] The Standard & Poor's ExecuComp database starts from year 1992. I exclude the year 1992 followed by prior studies on CEO compensation since there is a small number of observations on exercisable options and vested stocks.

(2002), Ali and Zarowin (1992) and Collins and Kothari (1989), respectively.[5] Based on the ERC estimation method presented in Francis et al. (2002), I calculate *ERC1* and *ERC2* which results in 24,638 firm-year observations. *ERC3*, estimated based on Ali and Zarowin (1992), includes 28,776 firm-year observations. In addition, *ERC4* is calculated based on the methodology presented in Collins and Kothari (1989)'s paper and results in 6,749 observations.

Finally, I merge the sample for CEO stock-based compensation, discretionary accruals, the estimated ERCs and control variables to test my hypotheses. The merging procedure results in an incremental loss of observations because of non-matching and missing data, specifically due to a rolling regression of 10 years to estimate the ERC and due to lack of observations in CEO vested portion of stock-based compensation. The final sample can be classified into three based on the three different methods to obtain ERCs. The first sample with *ERC1* and *ERC2* results in 14,998 firm-year observations, the second sample with *ERC3* results in 11,301 firm-year observations and the third sample with *ERC4* results in 3,284 firm-year observations.

3.2 Variable Measurement

3.2.1. Equity incentive

A large number of prior studies examining the effect of equity incentives on earnings management have used the value of executives' stock option portfolios or restricted stock holdings or stock ownership or combination of these elements to generate variables for equity-based incentives. Core and Guay (2002) use the dollar change in the value of stock or option holdings that would come from a one percentage point increase in the company stock

[5] Details of the ERC estimation methods are presented in section 3.2.3.

price that is termed as portfolio delta. "Incentive ratio" (portfolio delta scaled by total compensation) is proposed by Bergstresser and Philippon (2006), thereafter many researchers have adopted this measure (e.g., Jiang et al. 2010; Kim et al. 2011). Similarly, Cornett et al. (2008) use the grants of new stock options and Cheng and Warfield (2005) use the amount of stock ownership as their primary measure for equity incentives.

In my analysis pertinent to the short-term price increasing incentive, I exclusively focus on the vested portion of equity-linked compensation—the value of exercisable stock options and vested restricted stocks—because, managers holding these forms of equity are allowed to immediately cash them out. The literature in agency theory suggests self-interested managers take full advantage of equity dispositions and tend to engage in accrual earnings managements. I define *VESTED_EQ* as the value of exercisable options and vested restricted stocks which have been awarded through the past periods.[6] I scale *VESTED_EQ* by total compensation (*TDC1* in the Execucomp database) which is composed of salary, bonus, stock option grants, restricted stock grants, long-term incentive plan payouts, and other annual compensation. For the easier interpretation of the results, I use normalized value of *VESTED_EQ*.

3.2.2. Measure of earnings management

I use discretionary accruals, which is a conventional measure for earnings management. I adopt the performance-matched modified Jones model following the procedure proposed in Kothari et al. (2005) to calculate discretionary accruals. I match each firm-year observations with another firm from the same Fama and French 48 industry

[6] If CEO exercisable options is missing then, I only use vested restricted stocks and vice versa due to lack observations in the value of exercisable options and vested restricted shares. I exclude the firm years missing both.

classifications with the closest return on assets each year. I then calculate performance-matched discretionary accruals, *DA*, by taking the difference between the unadjusted *DA* and the return on the asset-matched firm's *DA*.

I adopt the signed discretionary accruals (*DA*) as my proxy for the outcome of opportunistic income-increasing earnings management. The sign of discretionary accruals either positive or negative indicates whether the discretionary accruals are used as income-increasing or income-decreasing accruals, respectively. In this study, income-increasing accruals play an important role for executives holding vested stocks and options because managers, before selling their shares, have incentive to increase the reported earnings and hence the short-term stock price. Therefore, I use the signed discretionary accruals as the measure of earnings management.

3.2.3. Earnings Response Coefficients (ERC)

To determine the firm-level ERC, I employ three different approaches. First, I take the earnings-return sensitivity from Francis et al. (2002)'s models as follows:

$$AR_{it} = \alpha_{0,it} + \alpha_{1,it} UE_{it} + \xi_{it} \quad (1)$$

$$stdAR_{it} = \alpha_{0,it} + \alpha_{1,it} UE_{it} + \xi_{it} \quad (2)$$

where AR_{it} is the abnormal return for firm *i* and year *t*, $stdAR_{it}$ is AR_{it} divided by the standard deviation of firm *i*'s signed abnormal returns on all trading days in year *t*, and UE_{it} is price-scaled unexpected earnings conveyed by firm *i*'s earnings report in year *t*. While Francis et al. (2002) measure the unexpected earnings UE_{it} in two different ways (annual random-walk difference and the difference between earnings and the most recent analyst forecast), I take the former method. I estimate the ERC coefficient for each firm, $\alpha_{1,it}$, on a

rolling basis of 10 years.[7] I denote $\alpha_{1,it}$ estimates in equation (1) by *ERC1* and those in equation (2) by *ERC2*.

Next, I measure ERCs by considering both permanent and transitory components of earnings information. As suggested by Ali and Zarowin's (1992) moving average process of annual earnings, I add the level variable of earnings (earnings per share scaled by the beginning-of-year share price) to the change variable (UE_{it}) in equation (1) as follows:

$$AR_{it} = \delta_{0,t} + \delta_{1,t}\,(X_{it} - X_{it-1})/P_{it-1} + \delta_{2,t}X_{it}/P_{it-1} + u_{it} \qquad (3)$$

where $AR_{i,t}$ is the abnormal return, $X_{i,t}$ is earnings per share, $X_{i,t} - X_{i,t-1}$ is changes in earnings per share, $P_{i,t-1}$ is the stock price in the beginning of year used as a scale variable for firm i in year t. Theoretically, Easton and Harris (1991) first suggest that both earnings changes and level have explanatory power when they are included simultaneously in a regression of annual returns on earnings. The earnings levels work as an additional measure for unexpected earnings when the previous year's earnings are not purely permanent, and thereby contribute to the explanatory power of earnings-returns model. Considering both permanent and transitory components contained in earnings, the sum of the coefficients on all proxies for earnings, that is the sum of $\delta_{1,t}$ and $\delta_{2,t}$, defines as *ERC3*.

In my final ERC specification, I consider the reverse causality between earnings and stock returns as well. To obtain the earnings-return sensitivity based on the reverse causality, I adopt Collins and Kothari's (1989) model as follows:

$$\%\Delta X_{it} = \gamma_{0,t} + \gamma_{1,t}\,R_{it} + \gamma_{2,t}\,MB_{it} * R_{it} + \gamma_{2,t}\,Beta_{it} * R_{it} + \varepsilon_{it} \qquad (4)$$

where $\%\Delta X_{it}$ are the change in EPS from year *t*-1 to t divided, respectively by share price at the beginning of the period and by the EPS for the prior year, R_{it} is annual return, MB_{it} is market to book value of equity ratio calculated at the beginning of year *t*, and $Beta_{it}$ is

[7] By taking the rolling estimation approach, I allow each firm's ERC can vary over time.

market model systematic risk. I denote $\gamma_{1,t}$ in equation (4) as *ERC4*.

To estimate ERCs for firm i, I use rolling regressions. In each earnings-returns model, I estimate the ERC coefficients multiple times for each firm *i* with ten-year window. For example, the data from year 1984 to 1993 is used in equation (1) to estimate ERC1 for firm i in year 1993 ($\alpha_{1,i\ 1993}$), the data from 1985 to 1994 for ($\alpha_{1,i\ 1994}$), and so on.

3.2.4. Control variables

In addition to the test variables, *VESTED_EQ*, *DA* and *ERC1-4*, I include various control variables that are known to affect CEO earnings management incentives. (e.g., Armstrong et al. 2010; Armstrong et al. 2013). Following prior research, I control for firm size (*SIZE*), growth opportunities (*MB*), leverage (*LEV*), past accounting performance (*ROA*), sales growth (*SALES_GROWTH*), firm age (*FIRMAGE*), capital intensity (*CAPEX*), fixed assets or tangible assets (*TANGIBILITY*), R&D expense (*R&D*) and its dummy (*D_R&D*). *SALES _GROWTH* addresses the possibility that poorly performing firms commit earnings manipulation in order to increase the growth in sales or the opposite possibility that highly growing firms use discretionary accruals to sustain their position. I include numerous controls to reflect various aspects of firm characteristics.

I control for both year and industry by including year dummies for the sample period 1993-2012 and industry dummies based on Fama and French 48 industry classifications.[8]

4. Empirical Design and Results

4.1. Descriptive statistics

[8] I use the same Fama and French 48 industry classifications as in discretionary accruals estimation.

Table 1 presents descriptive statistics for the key variables and controls. Panel A relates to the sample for the first two measures for ERC (*ERC1* and *ERC2*) which are estimated through the methods presented in Francis et al. (2002). Panel B presents the sample for *ERC3* from Ali and Zarowin (1992) and Panel C for *ERC4* from Collins and Kothari (1989). The mean value of *VESTED_EQ* in Panel A, Table 1 is 1.56, which means the vested equity compensation accumulated through the past periods is on average 56% larger than the executive managers' current total compensation. Its median value of 0.543 indicates that the accumulatively vested shares amount to more than 50% of the current total pay. These numbers for *VESTED_EQ* are similar in Panel B and Panel C, and suggest the managers usually hold a significant amount of equity that is subject to immediate unwinding.

The mean of discretionary accruals (*DA*) is -0.048 in Panel A, which is close to zero, manifesting similar statistics to those reported in previous studies. Panel B and C reports the mean of discretionary accruals as -0.018 and -0.072, respectively. The ERCs estimated at the firm level have different mean and median values across the four different specifications due to different estimation methodologies. Also, ERC values vary substantially widely among sample firms for all of the four estimation methods. This ensures the main analyses that examine the impact of the firm-level ERC magnitude on the earnings management.

[Insert Table 1]

Table 2 presents Pearson correlation coefficients across the main and control variables. The four ERC measures, *ERC1* through *ERC4*, show in general positive correlation with one another at 5% significance levels, but they do not have any significant correlation with the earnings management variables.

[Insert Table 2]

4.2. Empirical Results

4.2.1. The effect of ERC on the association between the manager's vested equity holding and earnings management (H1)

The first hypothesis anticipates that a firm's ERC plays a facilitating role in earnings management in association with the short-term equity incentive. To test H2, my main test variable is $VESTED\_EQ_{it} \times ERC_{it}$ and regress the interaction term on the earnings management measure, *DA*:

$$DA_{it} = \beta_0 + \boldsymbol{\beta_1 ERC_{it-1}} + \boldsymbol{\beta_2 VESTED\_EQ_{it} \times ERC_{it-1}} + \beta_3 VESTED\_EQ_{it} + \beta_4 DA_{it-1} + \beta_5 SIZE_{it} + \beta_6 MB_{it} + \beta_7 LEV_{it} + \beta_8 ROA_{it} + \beta_9 SALES\_GROWTH_{it} + \beta_{10} FIRMAGE + \beta_{11} CAPEX_{it} + \beta_{12} TANGIBILITY_{it} + \beta_{13} R\&D + \beta_{14} D\_R\&D_{it} + \varepsilon_{it} \quad (5)$$

where ERC_{it} is firm-level earnings response coefficient in year *t*. In this empirical specification, the primary focus is on β_2, the coefficient estimate on the interaction term $VESTED\_EQ_{i,t} \times ERC_{i,t}$. The interaction term is meaningful because the manager's income-increasing earnings management would be more instrumental in boosting share prices provided with a higher ERC. Following the prediction in H1, I expect the coefficient β_2 to be positive.

Table 3 presents the results of equations (5). Column (1), (3), (5) and (7) represent the empirical results without both year and fixed effects and column (2), (4), (6) and (8) are with both fixed effects. Consistent with my prediction, the interaction term $VESTED\_EQ_{it} \times ERC_{it}$ obtains significantly positive coefficient estimates across the three ERC measures out

of four different ERC measures. For instance in column (2), *ERC1* produces β_2 of 0.0102 with discretionary accruals as the dependent variable with both year and industry fixed effects. The coefficient on standalone $VESTED\_EQ_{i,t}$ loses its statistical significance implying that ERC operates as a catalyst to the CEO's income-increasing earnings management incentives. This shows that as a firm's estimated ERC increases, a manager who holds vested options and stocks ($VESTED\_EQ_{i,t}$) has stronger incentive to engage in earnings management manipulating accruals. Consistent with H1, *ERC2* and *ERC3* (only on the test without both fixed effects) present similar patterns as the empirical results on *ERC1*, showing positive and significant coefficient on the interaction term $VESTED\_EQ_{it} \times ERC_{it}$. In column (6), the test on *ERC3* with both fixed effects, however shows positive but insignificant coefficient on the interaction term. The analyses with *ERC4* also present positive coefficient on the interaction term but with low statistical significance.

Interestingly, the coefficient for ERC_{it} (β_1) is mostly not significantly associated with discretionary accruals. This result suggests that ERC itself does not have any influence on the manager's earnings management incentive but it plays a role of catalyst when interacted with the equity compensation available for unloading. That is, the managers' dysfunctional behavior seeking for a short-term price appraisal must be understood with the earnings-returns sensitivity. Although the literature documents small ERCs in empirical tests, my findings suggest that the valuation coefficient of earnings is important for certain contexts such as the managers' unwinding equity incentive.

[Insert Table 3]

4.2.2. Earnings persistence (H2)

To examine the second hypothesis, I use the simple earnings time-series model by interacting the previous period's earnings with the vested equity holding as in equation (10) below, and test if the coefficient of the interaction term, ψ_2, has a negative value using a pooled sample.

$$EPS_{it} = \psi_0 + \psi_1 EPS_{it-1} + \psi_2 EPS_{it-1} * VESTED\_EQ_{it-1} + \psi_3 VESTED\_EQ_{it-1} + \psi_4 NEG_{it-1} + \psi_5 EPS_{it-1} * NEG_{it-1} + \varepsilon_{it} \quad (6)^9$$

Because I expect that $VESTED\_EQ$ undermines earnings quality only when the ERC is sufficiently large as in the previous analyses, I trisect the entire sample observations with respect to the ERC value. I expect a significantly negative ψ_2 for the highest ERC subsample but a non-significant estimate of ψ_2 for the lowest ERC subsample.

Table 4 reports the results from the pooling regression on equation (6). When I determine ERCs based on Francis et al.'s (2002) approach, i.e., ERC1 and ERC2, there is a monotonic decrease in ψ_2 as the subsample group shifts from low ERCs to the high. I divide the sample based on the magnitude of ERC into three subsamples (*T1*, *T2* and *T3*). The empirical findings show that the subsample with high ERCs (*T3*) clearly shows an impairment in earnings persistence given the CEO's vested portion of equity based compensation. When I replicate the tests by dividing the sample into two, I find consistent results. When I estimate ERCs based on Ali and Zarowin's (1992) approach, i.e., ERC3, there is no salient monotonic decreasing persistence of earnings as the subsample group moves from low ERCs to the high. I only find a decline in earnings persistence in the subsample in the middle in term of ERC magnitude (*T2*), but with low statistical significance.[10]

[9] The loss indicator NEG and its interaction with EPS are included as in the earnings persistence literature. For instance, see Atwood et al. (2010).

[10] I perform the test of earnings persistency with *ERC4*, which determined based on Collins and Kothari's (1989) approach. In Table 3, I find that the analysis on the CEO's earnings management incentives tested with *ERC4* weakly supports the hypothesis and additionally find insignificant results on the analysis of earnings persistence.

[Insert Table 4]

4.2.3. Additional test on the effect of ERC on the association between the top five executives' vested equity holding and earnings management

I extend my prediction on the implication of a firm's ERC in earnings management in relation with top five executives' short-term equity incentives. I select top five executives who are typically the firm's five highest-paid officers followed by prior research. (e.g., Hall and Murphy 2003). Top executives are also rewarded with substantial amount of stock-based compensation, and thus I conjecture that they have similar dysfunctional incentives to manage earnings and increase stock prices for their benefits. Therefore, I repeat the analysis in Table 3 using Eq. (5) after determining top five highly paid executives and test whether ERC still plays a facilitating role in earnings management in association with the short-term equity incentive.

The results are presented in Table 5 and remains qualitatively identical to those currently analyzed only with CEOs. Across all four measures of ERC, coefficient on the interaction term $VESTED\_EQ_{it} \times ERC_{it}$ is positive but, only two measures of ERC out of four show statistical significance at 10% level.[11] The results incrementally support the previous finding that the executives' income-increasing earnings management would be more instrumental in increasing share prices provided with a higher ERC.

[Insert Table 5]

Thus, I exclude the results from the main table.

[11] The weak statistical significance in the test with top five executives might be attributed to different incentives between top executives and CEOs.

5. Conclusion

Prior research examines the relation between the amount of annual option exercises and discretionary accruals, which are a conventional tool for earnings management. Bebchuck and Fried (2010) provide anecdotal evidence of how firms have struggled from the manager's opportunistic behaviors to engage in earnings manipulation upon the equity incentive schemes, and suggest several proposals to remedy the problem. This perverse situation sprouting from careless equity incentive is an ongoing problem, and thus, I investigate whether or not the exercisable options and vested restricted stocks are linked to the manager's incentive to generate positive information for capital market aiming at stock price appreciation.

I perform two analyses to examine the relation between unloadable equity (exercisable stock options and vested restricted stocks) and earnings management. First, I find that when the ERC is interacted with the equity incentive, I find the size of earnings management (in terms of discretionary accruals) becomes significantly larger. I interpret that CEOs of firms with the higher ERC can enjoy more benefits from creating positive abnormal accruals because share prices respond to the greater extent on the earnings information. I additionally repeat my analysis using top five highly paid executives and, find slightly weak but supporting evidence on executives' earnings management incentives given higher ERCs. Next, my empirical analysis shows that earnings persistence impairs as the size of unloadable equity holdings grows and this negative association prevails particularly when the ERC is higher.

In contrast to the literature, I focus exclusively on the forms of stock-based holdings that are defined as "exercisable" or "vested" according to a vesting schedule of the particular

executive—namely, exercisable stock options and vested restricted stocks. Managers holding large amounts of unloadable equity from their incentive compensation schemes are tempted to influence stock prices in various manners because they can immediately unwind the equity incentive into cash. Thus, I view the exercisable options and vested restricted stocks as the variables linked more directly to managers' dysfunctional incentive compared to prior research. Another key difference of this study from the previous literature is that I apply earnings response coefficients (ERCs hereafter) to the perverse relation between long-term equity incentive and short-term earnings management. The results collectively provide a new insight to the earnings management literature from the perspective of earnings-return sensitivity.

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Table 1. Descriptive statistics

Panel A. Distributions for the sample firms used for ERC1-2 tests (N=14,998)

	Mean	Std. Dev	25%	Median	75%
DA	-0.048	1.439	-0.103	-0.009	0.068
ERC1	0.052	0.746	-0.235	0.030	0.311
ERC2	2.685	36.553	-9.962	1.191	14.812
VESTED_EQ	1.560	3.136	0.086	0.543	1.675
Normalized VESTED_EQ	0.000	0.999	-0.453	-0.318	0.044
SIZE	7.740	1.542	6.665	7.674	8.767
MB	2.937	2.873	1.444	2.136	3.310
LEV	0.226	0.196	0.067	0.183	0.346
ROA	0.055	0.087	0.024	0.054	0.095
SALES_GROWTH	0.084	0.226	-0.007	0.067	0.151
FIRMAGE	41.910	16.004	27.000	43.000	56.000
CAPEX	0.063	0.059	0.025	0.046	0.080
TANGIBILITY	0.324	0.235	0.134	0.259	0.487
R&D	0.039	0.162	0.000	0.000	0.032
D_R&D	0.525	0.499	0.000	1.000	1.000

Panel B. Distributions for the sample firms used for ERC3 test (N=11,301)

	Mean	Std. Dev	25%	Median	75%
DA	-0.018	1.425	-0.095	-0.007	0.069
ERC3	2.596	6.221	-0.336	1.770	5.041
VESTED_EQ	1.493	2.970	0.071	0.517	1.602
Normalized VESTED_EQ	0.000	0.999	-0.445	-0.320	0.044
SIZE	7.678	1.616	6.568	7.669	8.759
MB	2.876	2.925	1.398	2.045	3.165
LEV	0.246	0.202	0.082	0.204	0.376
ROA	0.047	0.097	0.020	0.047	0.087
SALES_GROWTH	0.092	0.257	-0.009	0.066	0.155
FIRMAGE	42.550	16.625	26.000	44.000	59.000

CAPEX	0.063	0.061	0.025	0.046	0.079
TANGIBILITY	0.347	0.248	0.139	0.282	0.552
R&D	0.048	0.310	0.000	0.000	0.027
D_R&D	0.535	0.499	0.000	1.000	1.000

Panel C. Distributions for the sample firms used for ERC4 test (N=3,284)

	Mean	Std. Dev	25%	Median	75%
DA	-0.072	1.158	-0.078	-0.007	0.044
ERC4	0.283	2.089	-0.581	0.153	0.997
VESTED_EQ	1.367	2.543	0.047	0.538	1.595
Normalized VESTED_EQ	0.000	0.997	-0.487	-0.321	0.082
SIZE	8.206	1.482	7.129	8.117	9.169
MB	3.181	2.977	1.603	2.294	3.459
LEV	0.230	0.183	0.079	0.192	0.362
ROA	0.071	0.060	0.034	0.061	0.101
SALES_GROWTH	0.087	0.222	0.005	0.065	0.134
FIRMAGE	49.987	12.945	41.000	52.000	63.000
CAPEX	0.060	0.045	0.029	0.050	0.079
TANGIBILITY	0.375	0.245	0.169	0.314	0.586
R&D	0.017	0.034	0.000	0.000	0.018
D_R&D	0.568	0.495	0.000	1.000	1.000

Table 2. Pearson Correlations

	DA	*ERC1*	*ERC2*	*ERC3*	*ERC4*	*VESTED_EQ*	*SIZE*	*MB*	*LEV*	*ROA*	*SALES_GROWTH*	*FIRM AGE*	*CAPEX*	*TANGIBILITY*	*R&D*	*D_R&D*
DA	1.000															
ERC1	0.002	1.000														
ERC2	0.005	**0.920**	1.000													
ERC3	0.008	**0.107**	**0.103**	1.000												
ERC4	-0.025	-0.011	-0.011	**0.067**	1.000											
VESTED_EQ	-0.002	-0.004	-0.006	**0.024**	**-0.081**	1.000										
SIZE	-0.000	**-0.050**	**-0.038**	**-0.022**	**-0.072**	**0.184**	1.000									
MB	**-0.023**	-0.007	-0.001	**-0.030**	**-0.042**	**0.218**	**0.185**	1.000								
LEV	**0.007**	-0.004	-0.006	**-0.078**	**-0.035**	**-0.162**	**-0.143**	**-0.284**	1.000							
ROA	**0.031**	0.009	**0.014**	**0.109**	-0.007	**0.127**	**0.344**	**-0.158**	**-0.018**	1.000						
SALES_GROWTH	**0.008**	-0.009	-0.005	**-0.017**	-0.007	**0.126**	**0.064**	**0.142**	**-0.080**	**-0.014**	1.000					
FIRM AGE	**0.013**	**-0.014**	-0.005	**-0.082**	-0.009	**-0.087**	**0.394**	**-0.015**	**0.014**	**0.211**	**-0.090**	1.000				
CAPEX	**0.018**	-0.011	-0.006	**0.017**	**0.036**	**0.071**	**0.085**	**0.081**	**-0.065**	**0.068**	**0.187**	0.006	1.000			
TANGIBILITY	**0.032**	0.000	0.003	**-0.024**	**0.065**	**-0.067**	**0.101**	**-0.045**	**0.139**	**0.072**	0.002	**0.202**	**0.571**	1.000		
R&D	**-0.009**	-0.007	-0008	**-0.078**	0.009	**0.017**	**-0.092**	**0.191**	**-0.151**	**-0.496**	**0.046**	**-0.109**	**-0.049**	**-0.092**	1.000	
D_R&D	**0.018**	0.011	0.011	-0.007	-0.034	-0.054	**-0.017**	**-0.203**	**0.360**	**0.163**	**-0.040**	**0.035**	**0.074**	**0.170**	**-0.259**	1.000

Bold characters represent correlations that are significant at least at the 5% level (all *p*-values in this table are two-tailed)

Table 3. The interaction effect of ERC and CEO exercisable equity compensation on earnings management

Variable	*ERC1*		*ERC2*		*ERC3*		*ERC4*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
β_0: *Intercept*	0.0166 (0.75)	-0.0791 (-1.01)	0.0154 (0.70)	-0.0816 (-1.04)	0.0214 (0.87)	-0.1491 (-1.13)	0.0001 (0.00)	-0.0472 (-0.50)
β_1: *ERC*	-0.0015 (-0.29)	-0.0002 (-0.33)	0.0001 (0.11)	0.0001 (0.72)	-0.0014 (-1.96**)	-0.0007 (-0.87)	0.0010 (0.37)	0.0016 (0.54)
β_2: *ERC* × *VESTED_EQ (normalized)*	**0.0100** **(2.58***)**	**0.0102** **(2.56**)**	**0.0002** **(2.08**)**	**0.0002** **(2.03**)**	**0.0011** **(1.76*)**	0.0005 (0.76)	0.0031 (0.83)	0.0022 (0.58)
β_3: *VESTED_EQ (normalized)*	-0.0083 (-1.99**)	-0.0069 (-1.59)	-0.0076 (-1.84**)	-0.0063 (-1.48)	-0.0131 (-2.59***)	-0.0066 (-1.27)	0.0034 (0.55)	0.0029 (0.45)
β_4: *LAG_DA*	0.0011 (0.78)	0.0010 (0.75)	0.0011 (0.81)	0.0012 (0.89)	0.0038 (2.54**)	0.0033 (2.18**)	0.0014 (0.83)	0.0008 (0.48)
β_5: *SIZE*	-0.0098 (-3.41***)	-0.0137 (-4.19***)	-0.0100 (-3.46***)	-0.0139 (-4.23***)	-0.0117 (-3.66***)	-0.0148 (-4.16***)	-0.0014 (-0.30)	-0.0047 (-0.85)
β_6: *MB*	-0.0021 (-1.38)	-0.0024 (-1.53)	-0.0020 (-1.35)	-0.0023 (-1.47)	0.0004 (0.21)	-0.0011 (-0.60)	-0.0008 (-0.33)	-0.0011 (-0.42)
β_7: *LEV*	-0.0233 (-0.95)	-0.0034 (-0.13)	-0.0226 (-0.93)	-0.0052 (-0.20)	-0.0004 (-0.04)	0.0466 (1.57)	0.0387 (0.87)	0.0767 (1.49)
β_8: *ROA*	0.1774 (3.07***)	0.2163 (3.59***)	0.1761 (3.04***)	0.2123 (3.51***)	0.2105 (3.40***)	0.2841 (4.41***)	0.3333 (2.51**)	0.4043 (2.91***)

β_9: *SALES_GROWTH*	0.0311 (1.73*)	0.0438 (2.31**)	0.0316 (1.76*)	0.0449 (2.35**)	0.0378 (2.08**)	0.0584 (3.05***)	0.0297 (1.11)	0.0307 (1.12)
β_{10}: *FIRMAGE*	0.0002 (0.69)	0.0008 (2.62***)	0.0002 (0.82)	0.0009 (2.76***)	0.0003 (0.90)	0.0013 (3.66***)	-0.0010 (-1.93)	0.0002 (0.25)
β_{11}: *CAPEX*	-0.2014 (-2.39**)	-0.1183 (-1.27)	-0.1986 (-2.36**)	-0.1183 (-1.27)	-0.0696 (-0.73)	0.0109 (0.10)	-0.2097 (-1.22)	-0.2102 (-1.16)
β_{12}: *TANGIBILITY*	0.1030 (4.46***)	0.2137 (6.70***)	0.1049 (5.18***)	0.2152 (6.73***)	0.0817 (3.15***)	0.2595 (7.14***)	0.0972 (2.76***)	0.2023 (4.00***)
β_{13}: *R&D*	-0.0051 (-0.14)	0.0128 (0.33)	-0.0041 (-0.11)	0.0095 (0.24)	0.0038 (0.20)	0.0204 (1.03)	-0.5042 (-2.36**)	-0.3653 (-1.28)
β_{14}: *D_R&D*	0.0140 (1.60)	0.0067 (0.52)	0.0128 (1.47)	0.0068 (0.53)	0.0108 (1.08)	-0.0052 (-0.35)	-0.0033 (-0.22)	-0.0374 (-1.60)
Year fixed effects	excluded	included	excluded	included	excluded	included	excluded	included
Industry fixed effects	excluded	included	excluded	included	excluded	included	excluded	included
N	14,365	14,377	14,365	14,377	10,814	10,821	3,180	3,174
Adjusted R^2	0.52%	1.54%	0.51%	1.55%	0.64%	2.70%	1.14%	4.46%

The superscripts *, ** and *** denote significance at the 10%, 5%, and 1% levels (two-tailed tests).

Table 4. The effect of exercisable equity compensation on earnings persistency

Variable	*ERC1*			*ERC2*			*ERC3*		
	T1	*T2*	*T3*	*T1*	*T2*	*T3*	*T1*	*T2*	*T3*
ψ_0: *Intercept*	0.2952	1.1135	0.1170	0.4191	0.9479	0.3276	0.5750	-0.7385	0.5750
	(1.42)	(2.27**)	(0.63)	(1.12)	(1.40)	(1.07)	(1.44)	(-1.44)	(1.44)
ψ_1: *LAG_EPS*	0.8467	0.7036	0.8880	0.7543	0.6528	0.8138	0.7829	0.7439	0.7829
	(90.41***)	(64.10***)	(92.85***)	(52.25***)	(34.24***)	(58.49***)	(64.68***)	(62.36***)	(64.68***)
ψ_2: *LAG_EPS* × *LAG_VESTED_EQ (normalized)*	**0.0099**	**0.0287**	**-0.0389**	**0.0386**	**0.0190**	**-0.0366**	0.0022	-0.0161	0.0022
	(0.89)	**(3.41***)**	**(-3.20**)**	**(2.06**)**	**(1.19)**	**(-2.13**)**	(0.16)	(-1.39)	(0.16)
ψ_3: *LAG_VESTED_EQ (normalized)*	0.0498	0.0700	-0.1050	0.0173	0.2344	0.1205	0.1100	0.0864	0.1100
	(1.50)	(2.11**)	(3.66**)	(0.31)	(3.72**)	(2.70**)	(2.81**)	(2.13**)	(2.81**)
ψ_4: *LAG_NEG*	0.0896	-0.4316	-0.0158	-0.0966	-0.4314	-0.0898	-0.0844	-0.1289	-0.0844
	(1.50)	(-6.60***)	(-0.28)	(-0.88)	(-4.34***)	(-0.87)	(-1.19)	(-1.66*)	(-1.19)
ψ_5: *LAG_EPS* × *LAG_NEG*	-0.6235	-0.6698	-0.6212	-0.5574	-0.4439	-0.6686	-0.6731	-0.5589	-0.6731
	(-22.11***)	(-28.42***)	(-25.10***)	(-9.77***)	(-14.28***)	(-11.97***)	(-21.86***)	(-25.18***)	(-21.86***)
Year/Industry fixed effects	included	included	included	included	included	included	included	included	included
N	5,642	5,588	5,601	5,925	5,926	5,926	4,480	4,462	4,480
Adjusted R^2	70.16%	59.87%	71.49%	44.03%	34.52%	47.49%	63.24%	63.02%	63.24%

The superscripts *, ** and *** denote significance at the 10%, 5%, and 1% levels (two-tailed tests).

Table 5. The interaction effect of ERC and top executives' exercisable equity compensation on earnings management

Variable	*ERC1*		*ERC2*		*ERC3*		*ERC4*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
β_0: *Intercept*	0.0160 (0.70)	-0.0625 (-0.74)	0.0130 (0.57)	-0.0644 (-0.76)	-0.0017 (-0.07)	-0.1846 (-1.41)	0.0035 (0.09)	0.0431 (0.45)
β_1: *ERC*	-0.0013 (-0.25)	0.0004 (0.01)	0.0001 (0.24)	0.0001 (0.48)	-0.0001 (-1.36)	-0.0002 (-0.31)	0.0013 (0.44)	0.0024 (0.80)
β_2: *ERC* × *VESTED_EQ (normalized)*	**0.0088** **(2.16**)**	**0.0073** **(1.77*)**	**0.0002** **(1.75*)**	0.0001 (1.52)	0.0004 (0.66)	0.0003 (0.42)	0.0020 (0.55)	0.0025 (0.64)
β_3: *VESTED_EQ (normalized)*	-0.0107 (-2.50**)	-0.0098 (-2.22**)	-0.0105 (-2.44**)	-0.0096 (-2.19**)	-0.0145 (-2.76***)	-0.0128 (-2.31**)	-0.0036 (0.56)	0.0050 (0.73)
β_4: *LAG_DA*	0.0005 (0.36)	0.0013 (0.90)	0.0005 (0.35)	0.0013 (0.89)	0.0038 (2.52**)	0.0032 (2.07**)	0.0015 (0.86)	0.0008 (0.44)
β_5: *SIZE*	-0.0094 (-3.17***)	-0.0136 (-4.07***)	-0.0097 (-3.27***)	-0.0135 (-4.04***)	-0.0085 (-2.56**)	-0.0113 (-3.01***)	-0.0027 (-0.56)	-0.0084 (-1.42)
β_6: *MB*	-0.0018 (-1.21)	-0.0023 (-1.42)	-0.0020 (-1.29)	-0.0023 (-1.46)	-0.0002 (-0.14)	-0.0015 (-0.85)	-0.0005 (-0.20)	0.0005 (0.18)
β_7: *LEV*	-0.0359 (-1.45)	-0.0189 (-0.70)	-0.0315 (-1.27)	-0.0181 (-0.67)	-0.0057 (-0.20)	0.0304 (0.98)	0.0399 (0.89)	0.0685 (1.29)
β_8: *ROA*	0.1693 (2.86***)	0.2200 (3.56***)	0.1843 (3.09***)	0.2190 (3.54**)	0.2562 (4.00***)	0.3051 (4.53***)	0.3297 (2.45**)	0.3987 (2.79***)

β_9: *SALES_GROWTH*	0.0363 (2.00**)	0.0494 (2.58***)	0.0349 (1.91*)	0.0495 (2.58***)	0.0324 (1.77*)	0.0513 (2.63***)	0.0315 (1.15)	0.0327 (1.15)
β_{10}: *FIRMAGE*	0.0002 (0.66)	0.0008 (2.40**)	0.0002 (0.82)	0.0008 (2.37**)	0.0003 (0.82)	0.0013 (3.44***)	-0.0010 (-1.74*)	0.0005 (0.79)
β_{11}: *CAPEX*	-0.2171 (-2.55**)	-0.1289 (-1.38)	-0.2167 (-2.55**)	-0.1295 (-1.38)	-0.0363 (-0.38)	0.0280 (0.26)	-0.2079 (-1.20)	-0.2277 (-1.23)
β_{12}: *TANGIBILITY*	0.1092 (4.69***)	0.2148 (6.70***)	0.1087 (4.66***)	0.2147 (6.69***)	0.0671 (2.58***)	0.2472 (6.66***)	0.1009 (2.85***)	0.2119 (4.06***)
β_{13}: *R&D*	-0.0479 (-1.49)	0.0071 (0.18)	-0.0061 (-0.17)	0.0096 (0.24)	-0.0118 (-0.59)	-0.0004 (-0.02)	-0.4342 (-1.96*)	-0.1112 (-0.37)
β_{14}: *D_R&D*	0.0137 (1.56)	0.0100 (0.76)	0.0156 (1.76)	0.0090 (0.68)	0.0157 (1.55)	0.0014 (0.09)	-0.0030 (-0.19)	-0.0271 (-1.11)
Year fixed effects	excluded	included	excluded	included	excluded	included	excluded	included
Industry fixed effects	excluded	included	excluded	included	excluded	included	excluded	included
N	13,844	13,850	13,844	13,851	10,312	10,325	3,097	3,093
Adjusted R^2	0.61%	1.50%	0.56%	1.49%	0.67%	2.64%	1.09%	4.79%

The superscripts *, ** and *** denote significance at the 10%, 5%, and 1% levels (two-tailed tests).

국문초록

경영자가 보상의 극대화를 위해 스톡옵션 행사 전 주가를 높이기 위해 재량적 발생액을 이용하여 이익을 증가시키는 이익관리를 하는지 검증하는 많은 선행연구가 있다. 본 연구는 기존의 연구와 차별화하여 최고경영자의 주식관련 보상 중 가득된(vested) 또는 행사할 수 있는(exercisable) 부분 구체적으로, 가득된 제한부 주식과 행사할 수 있는 스톡옵션 에 초점을 맞추어 논의를 전개한다. Bebchuck and Fried (2010)의 연구에서는 즉시 행사할 수 있는 주식관련 보상을 보유하는 경영자의 경우, 다양한 수단을 동원하여 주가에 영향을 미치려는 기회주의적 행동이 존재한다고 다양한 사례를 통해 밝혔다. 선행연구와의 또 다른 차별점은 최고경영진의 주식보상 인센티브와 단기적 이익조정 유인간의 그릇된 상관관계 가운데에 이익반응계수(ERC)을 도입했다는 점이다. 이익반응계수가 큰 기업에서, 경영자에게 주식보상 인센티브가 주어진 경우, 경영자의 이익조정을 위한 재량적 발생액이 더 커짐을 실증하였다. 즉, 이익반응계수가 큰 회사에 속한 최고경영자는 이익을 증가시키는 재량적 발생권을 통해 개인적 부를 극대화할 수 있는데, 이는 이익반응계수가 클수록 회사의 주가가 이익관련 정보에 더 크게 반응하기 때문이다. 나아가 실증결과, 경영자의 즉시 행사할 수 있는 주식보상이 증가할수록 그 기업의 이익지속성이 감소되었고, 특히 이익반응계수가 큰 기업일수록 이익지속성의 감소가 더욱 지배적임을 검증하였다. 본 연구는 이익-주가 상관관계를 도입하여 기존의 이익관리 연구에 새로운 관점을 제시하는데 기여한다.

주요어 : 이익조정, 주식관련 보상, 이익반응계수(ERC), 이익지속성

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