

REAL EARNINGS MANAGEMENT CONSTRAINTS

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ABSTRACT

This paper examines the association between both short- and long-term performance incentives contained in management compensation contracts and real earnings management. Based on prior research, I identify firms that are found to engage in any of the following real earnings management activities: (1) cutting discretionary expenditures to increase income, (2) timing of income recognition from the sale of fixed assets, and (3) overproduction to decrease COGS expense. Then, I examine the extent to which the practice of real earnings management exists when short- and long-term compensation elements are present. I expect to find that the practice of RM should depend on the relative mix of short- and long-term elements contained in compensation contracts.

INTRODUCTION

Real earnings management (RM), also referred to as real activities manipulation, is a practice utilized by firms, based on suboptimal business decisions that increase short-term earnings. RM involves manipulation of real business activities, such as research and development (R&D) expenditures, capital investments, overproduction of inventory, including sale and disposal of long-term assets. RM represents a “departure from normal operational practices, motivated by managers’ desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations” (Roychowdhury, 2006). These departures do not necessarily contribute to firm value even though they allow managers to potentially meet financial reporting goals. The “phenomenon” of earnings management is nothing new and accounting earnings are viewed as the premier information item provided in financial statements (Lev, 1989). While there has been a significant amount of attention given to the accruals management form of earnings management in prior literature due in large part to the series of high profile financial accounting scandals involving such companies as Enron and WorldCom, only recently has there been increased attention on the phenomenon of real activities manipulation (RM) which is the focus of my study. As a result of firm’s historically practicing earnings management (either accruals management or RM), there is increased scrutiny of companies reported financial results and the overall level of financial statement quality.

The purpose of this paper is to provide evidence in addressing my two primary research questions. My first research question is: Do short-term performance incentives contained in management compensation contracts cause greater RM, and do long-term performance incentives constrain RM? My second question is: Do compensation committees restructure management compensation contracts to discourage RM?

According to agency theory, agents (managers) make decisions that are unobservable to the principal (shareholders), creating either *moral hazard* or *adverse selection*. RM decisions made by managers within the firm are often made without the shareholder having full and complete knowledge of the

decisions that are being made, creating a typical conflict between principal and agent. A manager facing only short-term compensation may have incentives to manage current earnings by means of RM. However, because RM involves sub-optimal decision making, managers' repeated practice of RM will eventually run afoul of performance-based contracts. Therefore, the practice of RM should depend on the relative mix of short- and long-term elements contained in compensation contracts. At any given point in time, managers are faced with both short and long-term compensation elements. If short-term elements are primarily dominant in a manager's compensation contract, RM is likely to be encouraged. On the other hand, to the extent that long-term elements dominate, RM is likely to be discouraged. Compensation contracts with largely short-term payoffs will create incentives for managers to use RM because the negative effects of the sub-optimal RM decisions will not be observable in that time period. However, compensation contracts with predominantly long-term payoffs (e.g. options with long vesting periods, etc.) will create incentives for managers to avoid RM because the effects of sub-optimal decisions are more likely to affect performance in the long-term. Therefore, in my first research question, I expect a positive association between RM and short-term compensation elements and a negative association between RM and long-term compensation elements.

In my second with research question, I will test whether compensation committees restructure management compensation contracts in response to prior levels of observed RM. If long-term compensation elements act as a restraint on RM, principals seeking to reduce or limit the amount of RM activity should continually modify compensation contracts in order to emphasize the long-term aspects of manager's compensation. Agency theory suggests that shareholders will be motivated to create compensation contracts with managers that contain primarily long-term compensation elements to act in the shareholder's best interests. Managers engage in RM either because they perceive private benefits to meeting the reporting goals or because they are acting as agents in value-transfers amongst stakeholders (Roychowdhury 2006). As a result, when managers have initially achieved their short-term compensation incentives, they will continue to seek out additional short-term incentives thereby further encouraging the use of RM. In the event, no additional short-term compensation elements are immediately present, than managers will seek to avoid RM. Once managers have achieved or maximized their short-term compensation elements, this creates an opportunity for compensation committees to further modify compensation contracts focusing now on long-term compensation elements instead of short-term items in response to prior levels of observed RM. Since managers are ultimately motivated in maximizing their total compensation, regardless if their compensation consists of short- or long-term elements, it is perceived that managers would be receptive to having their compensation contracts modified to include long-term items. Hence, a process of negotiation will result in a contract agreeable to both principal and agent. If the principal desires more long-term elements, the end point of the negotiations will be more likely to contain long-term elements when the principal places a greater importance on them in the negotiation process. As a result, prior RM will increase the importance of long-term elements to the principal, ultimately reducing or limiting the amount of RM activity.

Following prior studies, I will initially examine real earnings manipulation through overproduction, cutting discretionary expenditures and sale of fixed assets (Barton and Simko 2002; Gunny 2010; Roychowdhury 2006; Cohen et al. 2008; Cohen and Zarowin 2010) using available data from Compustat. I will then analyze the ExecuComp compensation data for the period 1992-2012, by focusing on the variables I have identified as proxies for short- and long-term compensation elements. Once I identify a sample of firms that are likely to manage earnings, I will test my hypotheses to determine the association between short- and long-term compensation incentives and RM. Further analysis will also be conducted similar to prior research, to determine if firms that engage in RM is

greater for a subset of companies concurrent with seasoned equity offerings (SEOs) (Cohen and Zarowin 2010) and meet-or-beat earnings forecasts (Gunny 2010; Roychowdhury 2006).

RESEARCH DESIGN

I predict that the short-term incentives included in management compensation/bonus contracts will result in the greater use of RM. On the other hand, based on my hypothesis H_{1b}, I predict that long-term performance incentives will constrain or limit the use of RM over time. As a result, as long-term performance incentives increase, the use of RM will decrease.

I look to test for the relationship of RM and short-term and long-term compensation incentives using the following regression equation.

$$\begin{aligned}
 AbnormalRM_t = & \alpha_0 + \alpha_1 x Bonus_t + \alpha_2 x Bonus_Ratio_t + \alpha_3 x Opt_Exer_t / Shown_Tot + \\
 & \alpha_4 x Opt_Unexr_{t+1} / Shown_Tot + \alpha_5 x Opt_Unexr_t + \alpha_6 x LTIP_{t+2, t+3} + \alpha_7 x Opt_Awards_t + \\
 & \alpha_8 x MTB_t + \alpha_9 x NetIncomet + \alpha_{10} x Size_t + \alpha_{11} x Total_Comp_t + \varepsilon_t + \alpha_{12} x OI_{t+2, t+3}
 \end{aligned} \quad (1)$$

Short-term Compensation Variables

Short-Term compensation incentives are defined as any items that will impact the CEO's total compensation within a relatively "short" period of time normally within one year. I use *Bonus*, *Bonus_Ratio*, *Opt_Exer* and *Opt_Unexr* as proxies for short-term compensation incentives. *Bonus_t* (scaled by total assets), is a measure of short-term performance-based compensation and represents the dollar value of bonus earned during the fiscal year divided by total assets. The greater the cash bonus earned by a CEO during the year, the more sensitive the CEO would be to reporting positive earnings results during the year. Therefore, I expect greater RM in years when CEO's bonus compensation is high.

Bonus_Ratio_t (bonus dollars divided by total compensation), is included as a measure of size or magnitude of bonus compensation. When the CEO's bonus is a larger portion of their compensation, I expect the short-term incentives to use RM will increase. Therefore, I expect a positive relation between *Bonus_Ratio* and the incidence of RM. *Opt_Exer* represents the number of options exercised by the executive during the year and is included as a proxy for equity incentive compensation in period $t+1$. The more options a CEO exercises in the year, the more sensitive the CEO would be to reporting good earnings news during the year. Therefore, I expect greater RM in years when the CEO is exercising a large number of stock options. *Opt_Unexr* (scaled by the number of shares owned), represents the aggregate number of unexercised options at fiscal year-end period that were vested. I measure *Opt_Unexr* in period t , scaled by the number of shares owned similar to *Opt_Exer*. Similar to the number of options exercised, the greater the number of unexercised options a CEO has in a given year, the more incentive the CEO would be to reporting favorable earnings news during the year. Therefore I also expect to see greater RM in years when the CEO has a large number of unexercised stock options.

Long-term Compensation Variables

I define long-term compensation incentives as any items that impact the CEO's compensation beyond the next year or the next twelve months (for example two to four years beyond the current period). I use

LTIP and *Opt_Awards* as proxies for long-term compensation incentives. *LTIP* represents the amount paid out to the executive under the company's long-term incentive plan. These long-term plans measure company performance over a period of more than one year (generally three years). Therefore I look to measure *LTIP* in periods, $t+2$ and $t+3$. The greater the long-term incentive pay earned by the CEO the less sensitive the CEO would be to reporting favorable earnings results over the long term. Therefore I expect less RM when the CEO is compensated to a greater degree with long-term incentive pay. *Opt_Awards* represent the number of options awarded to the executive during the year. As noted by Cheng and Warfield (2005): "When a manager is granted options, the options usually are not exercisable until three or four years later." As a result I have included this variable as a measure of long-term incentive compensation. The more options a CEO is awarded, the more sensitive the CEO would be to reporting good earnings results in the future. Therefore, I would expect to find less RM when a CEO's compensation is in the form of non-vested option awards.

I expect the magnitude or degree of RM to be positively associated with short-term compensation elements (*Bonus*, *Bonus_Ratio*, *Opt_Exer* and *Opt_Unexr*) and negatively associated with the long-term compensation elements (*LTIP* and *Opt_Awards*). Therefore, I expect α_1 , α_2 , α_3 , α_4 , and α_5 to be positive and α_6 and α_7 to be negative.

Control variables

In the above regression equation, I include the following control variables; *MTB_t* controls for growth opportunities; *SIZE_t*, calculated as the natural log of total assets, controls for size effects; *Shrown_Tot* represents total shares owned (as reported) by the company and is included as a measure of size (scale effect); *Total_Comp(TDC2)* to control for size effect of short- and long-term compensation variables. This Total Comp variable representing total compensation for the individual year and includes: Salary, Bonus, Other Annual, Total Value of Restricted Stock Granted, Net Value of Stock Options Exercised, Long-Term Incentive Payouts, and All Other Total; and *OI_{t+2, t+3}* represents the natural log of Operating Income in years $t+2$ and $t+3$ to control for the relation between RM and future earnings.

Identification of Real Activities Manipulation

Similar to prior literature (Gunny 2010; Cohen and Zarowin 2010; Cohen et al. 2008; Roychowdhury 2006), I search for the existence of RM using the following three approaches (1) reducing R&D to increase income (RM Proxy #1); (2) reducing selling, general, and administrative (SG&A) expenses to increase income (RM proxy #2); and/or (3) overproduction to decrease COGS expense. I draw upon this prior literature to create models to estimate the expected (normal) level of operational activities associated with RM.

The normal level of R&D expense is estimated using the following model:

$$RD_t/A_{t-1} = \chi_0 + \chi_1 (1/A_{t-1}) + \beta_1 MV_t + \beta_2 Q_t + \beta_3 (INT_t/A_{t-1}) + \beta_4 RD_{t-1}/A_{t-1} + \epsilon_t^{R\&D} \quad (2)$$

The above equation is based on prior research (Berger 1993; Roychowdhury 2006; Gunny 2010) that develops an expectations model to the level of R&D intensity. *A* represents total assets; *MV_t* is the natural log of market value in year t ; and *INT_t* is internal funds in year t ; *Q* is Tobin's *Q*. This model would be estimated for every year and industry (two-digit SIC).

Also, the normal level of SG&A is estimated as follows:

$$SGA_t/A_{t-1} = \chi_0 + \chi_1 (1/A_{t-1}) + \beta_1 MV_t + \beta_2 Q_t + \beta_3 (INT_{t-1}/A_{t-1}) + \beta_4 (\Delta S_t/A_{t-1}) + \beta_5 (\Delta S_{t-1}/A_{t-1}) * DD + \varepsilon_t^{SG\&A} \quad (3)$$

The above equation is estimated by year and industry and is based on prior research (Gunny 2010). *SGA* represents selling, general and administration expenses (SG&A) in period *t*; A_{t-1} is total assets in period *t-1* and ΔS_t is the change in net sales from *t-1* to *t*. *A* represents total assets and is measured in period *t-1*; *MV* is the natural logarithm of market value; *Q* represents Tobin's *Q*; *INT* represents internal funds; *S* stands for total sales and *DD* is a dummy (indicator) variable that is equal to 1 when total sales decreases between periods *t-1* and *t*, and zero otherwise. The above equation (3) is estimated by year and industry.

Further, I use abnormal production costs in my study similar to prior research (discussed below) as one proxy for sales manipulation and/or COGS manipulation. The normal level of production cost is estimated using the following model:

$$PROD_t = \chi_0 + \chi_1 (1/A_{t-1}) + \beta_1 MV_t + \beta_2 Q_t + \beta_3 (S_t/A_{t-1}) + \beta_4 (\Delta S_t/A_{t-1}) + \beta_5 (\Delta S_{t-1}/A_{t-1}) + \varepsilon_t^{Production} \quad (4)$$

A_{t-1}

The above model is estimated by year and industry. This model is based on Dechow et al, 1998, Roychowdhury 2006 and Gunny 2010 to estimate the normal level of production.. *PROD* is cost of goods sold (COGS) plus change in inventory; A_{t-1} is total assets in period *t-1*; BV_t is the book value of equity in period *t*; S_t is net sales in year *t* and ΔS_t is the change in net sales from *t-1* to *t*. Sales, change in sales, and lagged change in sales are included to control for any product demand changes that potentially might directly impact the level of production.

CONCLUSION

The purpose of my paper is to provide evidence in addressing my two primary research questions. Question one is to address whether short-term performance incentives included in compensation contracts causes the existence of greater RM on one hand and to constrain RM on the other when long-term performance incentives are dominant. I expect to find that the practice of RM is dependent on the relative mix of both short- and long-term compensation elements: RM is encouraged when short-term elements are primarily present in compensation contracts and discouraged when long-term compensation elements are predominant. As a result, I would expect to find a positive association between RM and short-term compensation elements and a negative association between RM and long-term compensation elements.

My second research question tests whether compensation committees restructure contracts as a result of the existence of observed levels of prior RM. If long-term compensation elements act as a restraint on RM, then compensation committees looking to limit the amount of RM should modify contracts continuously in order to emphasize the long-term elements of manager's compensation. As a result, I expect to find that prior observed RM will increase the importance of long-term compensation elements to the principal-shareholder thereby either reducing or limiting the amount of RM activity.

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