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CEO equity compensation and earnings management: The role of growth opportunities

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ABSTRACT

Prior research has documented a positive association between chief executive officer (CEO) equity incentives and earnings management. We identify a firm's growth opportunity proxied by Book-to-Market ratio as an organizational environmental factor and use the panel threshold model to examine whether firm growth opportunity variable moderates this positive relation. Our results show that, for firms with relatively low growth potential, equity incentives motivate managers to manipulate earnings. However, as firm growth opportunities reach certain thresholds, equity pay can effectively mitigate the agency issue associated with earnings management. Finally, we find that our results still hold and become even more pronounced for the financial crisis period.

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1. Introduction

Prior studies suggest that CEO equity compensation, including stock options and restricted stocks, provides managers with high-powered incentives and that there has been an increasing trend in CEO equity incentives over the past decade (e.g., Conyon, 2006). The widespread prevalence of equity-based pay for top executives has increased the interest of researchers in assessing whether such equity incentives reduce managers' desire to manipulate earnings by aligning manager and shareholder interests (i.e., the interest alignment view). However, extensive research has produced mixed and often a positive relation between CEO equity compensation and earnings management (i.e., the agency view).¹ In other words, extant findings are more consistent with the position that more CEO equity compensation is associated with greater earnings manipulation.

A possible interpretation of these conflicting findings is that such studies might not have considered whether equity compensation can mitigate the earnings management behavior may depend on a firm's organizational environment. Namely, it is the environment in which a firm operates that is associated with the efficiency of equity pay. To distinguish the interest alignment and agency views, we identify firm growth opportunity as an organizational environmental factor and posit that,

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¹ For example, see O'Connor et al. (2006), Larcker et al. (2007), and Zhang et al. (2008) and many others. One exception is Armstrong et al. (2010), who find that accounting irregularities occur less frequently at firms where CEOs have relatively higher levels of equity incentives.

as a primary relation, a positive association exists between equity pay and earnings management. Further, we examine whether firm growth opportunity moderates this positive relation.

The positive relation between equity incentives and earnings management weakens for growth firms for the following reasons. First, as [Smith and Watts \(1992\)](#) suggest, the existence and prevalence of growth opportunities may make it more difficult for shareholders to determine whether managers are making decisions that maximize firm value, indicating that the incidence of information asymmetry could be higher for growth firms. Consequently, higher agency costs could be associated with high-growth firms; therefore, a greater need exists for growth firms to adopt equity incentive mechanisms to improve transparency of financial reporting and enhance monitoring ([Yermack, 1995](#)). Thus, the interest alignment effect of equity incentives could be more pronounced for firms with more growth opportunities.

Second, corporate finance theory suggests that greater growth opportunities should lead to more convex executive pay contracts, which increase managers' incentives to exploit such opportunities ([Smith and Watts, 1992](#)). As growth opportunities increase to some extent, the economic benefit of motivating managers to take on risk and maximize firm value most likely outweighs the discount that the managers apply to risky pay, thereby improving firm performance ([Core and Qian, 2000](#)).² Thus, firms with greater growth opportunities are less likely to use earnings management to inflate their reported earnings.

We use the absolute value of discretionary accruals (ABSDA) as a proxy for earnings management, where higher values imply more severe earnings management. We measure equity compensation (EQCOMP) as the fair value of equity compensation granted to CEOs, deflated by CEO total compensation. Following [Hovakimian et al. \(2001\)](#), [Chen and Zhao \(2006\)](#), firm growth opportunities are proxied by the Book-to-Market ratio (BM). In specific, a lower/higher BM ratio is associated with higher/lower growth opportunities.

Our results reveal that, on average, equity pay motivates CEOs to manage earnings, consistent with the agency view. Furthermore, using the panel threshold model with two regimes, we find that the association between EQCOMP and earnings manipulation becomes less pronounced when firm growth opportunities go beyond a certain threshold. Moreover, when the threshold model with three regimes is used, we observe that the positive relation between EQCOMP and earnings management weakens significantly for firm with relatively higher growth opportunities. Namely, when firms with relatively high growth opportunities are considered, the equity incentives can alleviate earnings management to a greater extent.

These results indicate that firm growth opportunities can moderate the positive relation between CEO equity compensation and earnings management and that equity pay can facilitate achieving incentive alignment more effectively for firms with greater growth opportunities. The results also suggest that the panel threshold approach recognizes heterogeneity in the relation between equity compensation and earnings management as well as considers the tail part of observations, hence producing results that cannot be observed using traditional (i.e., non-threshold) approaches. Moreover, the threshold techniques may produce regime-switching estimators rather than a single measure of conditional central tendency, thereby capturing the non-monotonic relations between equity compensation and earnings management. To the extent that the sample partition and relation between the dependent and independent variables are determined jointly and endogenously, using the threshold model can overcome the potential problem in prior studies that the sample segmentation is assumed to be exogenous.

2. Sample selection and descriptive statistics

2.1. Sample selection

We obtain the firm characteristics and CEO compensation data of U.S. non-financial companies from COMPUSTAT and EXECUCOMP, respectively. The final sample comprises 6063 firm-year observations of 1487 distinct firms from 2005 to 2009.

2.2. Measures of earnings management, CEO equity pay and growth opportunities

Since the focus of this study is on the magnitude rather than the direction of earnings management, we use the absolute value of discretionary accruals (ABSDA) as a proxy for earnings management and as the dependent variable in the regression model. The discretionary accruals are measured by using a cross-sectional modified Jones model ([Dechow et al., 1995](#)) after controlling for prior performance ([Kothari et al., 2005](#)).³ Equity compensation (EQCOMP) is defined as the sum of the fair value of restricted stocks and stock options (the Black–Scholes value on the grant date) deflated by the total CEO compensation. Last but not least, firm growth opportunities are measured by the Market-to-Book ratio (BM). This proxy infers that firms with higher growth opportunities tend to have lower BM ratios. The opposite is the cases with higher BM ratios.

² Numerous prior studies provide discussions of why managers value equity-based compensation at less than the firm's cost of awarding that compensation. For example, [Meulbroek \(2001\)](#).

³ We first estimate the non-discretionary accruals, the fitted value obtained from the model, and the discretionary accruals are the difference between total accruals and non-discretionary accruals (i.e., the residuals from the model).

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