



## Executive compensation and the cost of debt



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### ARTICLE INFO

#### Article history:

Received 29 June 2011

Accepted 13 April 2013

Available online 29 April 2013

#### JEL classification:

G31

G34

#### Keywords:

Executive compensation

CEO pay

Cost of debt

Yield spread

### ABSTRACT

This study examines how different components of executive compensation affect the cost of debt. We find that debt-like and equity-like pay components have differing effects: an increase in defined benefit pensions is associated with lower bond yield spread, while higher share holdings lead to higher spreads. In addition, we find that stock options have a mixed impact on the cost of debt whereas cash bonus has no significant impact. Overall, our results indicate that corporate bondholders are fully aware of both risk-taking and risk-avoiding incentives created by various executive pay components.

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### 1. Introduction

Recent studies demonstrate that a variety of corporate policies and practices affect the cost of debt financing. For example, the corporate governance structure influences the cost of debt, as documented by Anderson et al. (2003), Boubakri and Ghouma (2010), Francis et al. (2010) and Lin et al. (forthcoming). Similarly, the cost of debt impact of corporate practices such as stock repurchases is examined by Maxwell and Stephens (2003), earnings management by Prevost et al. (2008), and beating earnings benchmark by Jiang (2008). Empirical research shows that creditors are concerned with executive pay practices too. In particular, the impact of bonus on the cost of debt is documented by Duru et al. (2005) and that of equity-based compensation by Ertugrul and Hegde (2008) and Devos et al. (2008). Anecdotal evidence reconfirms the concern lenders have regarding executive compensation.<sup>1</sup>

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<sup>1</sup> Moody's Investors Service (2008) assesses potential implications for creditors of executive compensation plans and practices. In July 2009, Hewitt Associates – a pay consulting firm – discussed changes in executive compensation practices and mentioned “curtailment of accelerated payouts of deferred compensation, eliminating treatment of executives as preferred creditors”. The Wall Street Journal recently reported that executive compensation of Hostess Brands Inc. – a renowned private US firm producing breads and snacks – was slashed in 2012 in the aftermath of creditor allegations that the company might have pushed management pay higher in the months leading to its Chapter 11 bankruptcy filing.

The conventional view in the vast literature of executive compensation has been that pay is structured in such a way that managers receive appropriate incentives to cater the wealth of firm's shareholders. But, the responsibility of corporate managers extends to debtholders as well (this is more evident when a firm shows signs of financial distress) and these investors do take active interest in managerial decisions. In their seminal paper, Jensen and Meckling (1976) argue that if executive compensation only aligns the interests of shareholders and managers (leading to a high pay-performance sensitivity), then there is a strong incentive for managers to undertake more risky investments. They do so because the value of equity-based incentives (i.e. stock options) that managers frequently receive increases with the riskiness of firm's assets. If these risky investments work out favorably, shareholders derive the full amount of value gains. But, this excessive risk-taking comes at the expense of creditors who would suffer when the additional risky investments amplify the default probability of firms. John and John (1993) argue that creditors rationally anticipate the risk-shifting incentive (i.e. increased agency cost of debt) arising from executive compensation, and therefore, require a corresponding increase in risk premium. Hence, firms that use executive compensation to closely align interests of managers and shareholders, are more likely to face a higher borrowing cost. Since the higher cost of borrowing is damaging for firms, especially for those requiring additional debt financing, there is pressure for a reduction in executive compensation. This means executive

compensation should be designed to optimize the trade-off between the benefits from risk-shifting and the losses from increased borrowing cost.

While increased managerial risk-taking may be associated with wealth expropriation from debtholders, it is possible that certain components of executive compensation (for example, cash bonus and pensions) lead to managerial risk-aversion, and as such increase the alignment of managerial interests with those of the creditors. Managers will be motivated to generate stable cash flows to meet the performance target and reduce the firm's default risk. Creditors in that case will be satisfied with a lower risk premium. Moreover, as long as the compensation structure allows managers to remain focused on increasing the value of firm's assets and reducing the waste of free cash flows without compromising high managerial effort, shareholders and creditors will both benefit.

In this paper, we investigate how compensations of chief executive officers (CEOs) of firms influence firms' cost of borrowing. The motivation of our study comes from a very limited number of papers that examine executive pay components of US firms and find that bond prices change when capital market receives the news of CEO pay awards. DeFusco et al. (1990) document that bond prices of firms announcing executive stock option plans experience a significant decline. Billett et al. (2010) confirm that bond prices react negatively when CEOs are awarded with equity-based compensation. Recently, Wei and Yermack (2011) observe that the disclosure of defined benefit pensions leads to an increase in bond prices.

Each of these studies document abnormal bond returns by investigating a single pay component at a time. However, if lenders rationally use executive compensation to assess the impact on a firm's credit risk, they would not only consider the size of each pay component separately, but also the overall structure of compensation. The relative proportions of various compensation elements convey additional information about the direction and magnitude of managerial risk-taking incentives. This vital gap in the literature leads us to undertake a comprehensive study of executive compensation and assess the direct impact of all major components of executive pay on a firm's cost of debt.

We analyze CEO compensation data of a sample of listed UK firms that had straight bonds outstanding during 2003–2012. Numerous pay components like cash bonus, stock options, shares and pensions are used to estimate CEO compensation. In particular, we employ three different variables to measure pensions: incremental pension (annual change in the value of pensions scaled by total compensation, as used by Sundaram and Yermack, 2007), pension to equity (total value of pension scaled by value of equity holdings, as used by Sundaram and Yermack, 2007), and relative leverage ratio (CEO pension-to-equity ratio divided by firm debt-to-equity ratio, as used by Sundaram and Yermack, 2007; Edmans and Liu, 2011; Anantharaman et al., 2011). We then proceed to examine whether the different executive pay components influence firm's cost of debt financing.

We make three novel contributions in this paper. First, we investigate whether a firm's cost of debt is affected by not only cash-based incentives (bonus) and equity-based incentives (stock and option grants), but also by the debt-like pay (defined benefit pensions). Although the latter form of executive compensation is ubiquitous and has the potential to align the interests of the managers with those of the debtholders, empirical studies barely consider executive pensions, and those that do, often rely on those firms that voluntarily disclose executive pension information. In this paper, we analyze UK companies which have an advantage that the regulatory requirement for all listed companies to disclose pensions paid to their directors provides a sample free from self-selection bias. Moreover, we investigate the direct impact of pensions pay on the firm's cost of debt. Prior studies (e.g. Wei

and Yermack, 2011) use the event-study approach and document a change in bond prices when pension arrangements are announced.

The second key contribution comes from the fact that although most of the literature treats executive stock options as homogeneous entities, two distinct categories of stock options commonly exist in practice: traditional stock options and performance-vested stock options. The former category has no specific performance target attached, while the latter requires managers to achieve a performance target prior to vesting. In an earlier paper, Johnson and Tian (2000) analytically show that performance-vested stock options provide stronger incentives to increase firm risk compared to traditional stock options. Accordingly, we empirically examine whether bondholders take into account the distinct contractual features of and incentives provided by these two types of executive stock options. In particular, we investigate whether creditors consider the award of traditional stock options (hereafter called TSO) and performance-vested stock options (hereafter called PVS) compensation differently and charge a differential risk premium. As shown by Gerakos et al. (2005) that the prevalence of performance-vested options is affected by the corporate governance mechanisms, we control for these factors when comparing the two types of options.

Finally, our study is the first to analyze the link between executive pay and the cost of debt for non-US firms. Because of the scant evidence from the United States, an out-of-sample analysis is important to test whether the current knowledge on the reaction by firm's bondholders on executive pay levels also holds for a market with a historically different managerial pay structure.

Our results show that firms awarding their CEOs with higher proportions of defined benefit pensions – a form of compensation that can be viewed as a liability of the firm – experience a significant reduction in the cost of debt. The finding is robust to alternative ways of estimating pensions compensation. A 1% increase in CEO defined benefit pensions leads to a decline in the firm's cost of debt by between 0.7 and 1.7 basis points. Our finding is consistent with that of Wei and Yermack (2011) who document an increase in bond prices associated with the disclosure of pensions and deferred compensation of CEOs. It is also in line with a contemporary paper by Anantharaman et al. (2011) who analyze the cost of debt of private loans and newly issued public bonds. The findings from another recent paper (Wang et al., 2011) that banks charge lower spreads on loans made to firms whose CEOs hold more inside debt support our results too. Defined benefit pensions appear to align the interests of managers and creditors.

Analyzing other types of compensation, we find that, although the annual share grants to CEOs have little impact on the cost of debt, an increase in the total amount of (restricted) stock owned by a CEO leads to significantly higher yield spreads. With regard to stock options, we observe that CEO option grants and holdings are not significantly associated with the firm's cost of debt. We also do not find sufficient evidence that performance-vested stock options outweigh traditional stock options in terms of increasing the firm's cost of debt. Finally, we find that cash bonus payments to CEOs are not related to borrowing costs.

Overall, the results presented in this paper demonstrate that bondholders rationally anticipate risk-taking or risk-avoiding incentives of CEOs by observing different types of compensation awards. A proper adjustment in the structure of executive compensation is therefore an effective way to reduce a firm's cost of borrowing, especially when the firm relies heavily on external debt financing.

The remainder of the paper is organized as follows. In Section 2, we briefly review the relevant literature. The hypotheses of the study are developed in Section 3. The methodology and data are described in Sections 4 and 5, respectively. The empirical results

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