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## CEO overconfidence and agency cost of debt: An empirical analysis of CEO turnover events



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#### 1. Introduction

#### Overconfident CEOs are more likely to issue optimistically biased forecasts because they overestimate their ability to affect their financial results and/or underestimate the probability of unfavorable outcomes. Recent research has found that the overconfidence trait in CEOs causes distortions in investment policy in accordance with the first-best investment rule (Heaton, 2002; Malmendier & Tate, 2005).<sup>1</sup> Overconfident CEOs overpay for target companies and undertake valuedestroying mergers (Malmendier & Tate, 2008), underestimate the probability of failure and pursue innovation (Galasso & Simcoe, 2011), and view external financing as costly and, hence, build financial slack for future investment needs by lowering the current dividend payout (Deshmukh, Goel, & Howe, 2013). Since a CEO's decision affects all stakeholders in a firm, it is logical to study the influence of a CEO's overconfidence on investment decisions in the context of bondholder-stockholder conflicts. We add to this literature by modeling the interaction between CEO overconfidence and investment decisions in the presence of shareholder-bondholder conflicts and use a CEO turnover event to study the stakeholders' return reaction.

We extend the model of Harikumar, Kadapakkam, and Singer (1994) to analyze the role of overconfidence. Specifically, we abstract from the biases caused by the perceived mispricing of security issues, as in Heaton (2002) and Hackbarth

<sup>1</sup> The terms "overconfidence" and "overoptimism" are used interchangeably.

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#### ABSTRACT

We develop a model and characterize the differences between the investment policies of a rational CEO and an overconfident CEO. In the presence of risky outstanding debt, we show that an overconfident CEO has the incentive to overinvest more than that of a rational CEO. However, this incentive is mitigated by the discipline imposed by outside investors when an overconfident CEO seeks external financing. In contrast, when the firm has sufficient internal funds to meet its investment needs and outstanding debt is relatively safer, the overconfident CEO has no necessity to seek external funds and the overinvestment incentive persists. We examine bondholders' and stockholders' reaction around CEO turnover announcements and find evidence consistent with the over investment hypothesis.

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(2009) and characterize the optimal investment policy adopted by rational and overconfident CEOs. We show that an overconfident CEO generally exhibits an incentive to overinvest relative to a rational CEO. This is because, an overconfident CEO overestimates the expected cash flows from a project and incorrectly perceives negative NPV projects as profitable, causing the CEO to invest in negative NPV projects that otherwise would not be undertaken by a rational CEO.

The presence of insufficient funds from the assets in place causes outstanding debt to be riskier and exacerbates the overinvestment incentive of an overconfident CEO. However, this incentive is mitigated when the overconfident CEO seeks external financing to invest in a growth opportunity. The outside investors see through the overconfidence bias and refuse to provide the necessary funds to finance the project under the biased investment policy. This disciplines the overconfident CEO to follow a rational investment policy. When the assets in place generate more funds, outstanding debt is safer, and the need for external financing is lower, the investors are shown to be willing to provide the necessary funds despite the overconfident bias. This reduces the effect of disciplining and the over-investment incentive persists. Rational stakeholders anticipate these perverse incentives and the model predicts a positive reaction to the announcement of an overconfident CEO's departure. Since CEO turnovers are associated with potential changes in future investment policies, we examine the bondholders' and stockholders' reactions to announcements of CEO turnovers.

The CEO turnover sample covers the period from 1994 to 2011. As a starting point, we identified CEO departure dates and the firms to which they belonged using Standard and Poor's ExecuComp database. Because each actual announcement was likely to have occurred prior to the departure date, we hand-collected the actual date of each announcement using a FACTIVA search and classified the turnover events into voluntary and forced turnovers. The CEO overconfidence measures were constructed using the procedures of Campbell, Gallmeyer, Johnson, Rutherford, and Stanley (2011). Because ExecuComp does not provide data on previously granted options, we estimated the average exercise price by subtracting the per option realizable value, i.e., the excess of the stock price over the exercise price, from the fiscal year end price per share. We then defined the variable, *moneyness*, to equal the realizable value in an option divided by the exercise price. For our Execucomp sample we collected the relevant bond and stock data. For the bond sample, we use Mergent Fixed Income Securities Database (FISD) for the years 1994–2002 and TRACE for years 2002–2011. We merged TRACE with FISD to obtain ratings and maturity information and then employed the method in Bessembinder, Kahle, Maxwell, and Xu (2009) to calculate monthly bond abnormal returns. We estimated the daily abnormal stock returns using a market model.

We examine the model predictions by creating samples of firms that differ in their credit rating in order to differentiate the riskiness of outstanding debt. After controlling for firm characteristics, bond maturity, and changes in volatility we use cumulative abnormal bond and stock returns as dependent variables and examine their overall relation with CEO overconfidence. We find that bondholders' react negatively, *albeit* at a 10% level of significance, and stockholders react positively when an overconfident CEO leaves a firm with a BBB and lower credit rating. The negative bondholder reaction is not consistent with the predictions of our agency cost based model and probably reflects other benefits related to the overconfidence bias.<sup>2</sup> The positive stockholder reaction is consistent with a potential reduction in overinvestment. In the case of firms with relatively safer debt, bondholders and shareholders are both found to react positively to a turnover announcement of an overconfident CEO from a firm due to an expected decrease in overinvestment.

Our research makes the following contributions to the literature on overconfidence and corporate policy. From a theoretical perspective, we offer a simple agency theoretic framework that analyzes the differences in investment incentives between a rational and an overconfident CEO. Specifically, we relax the assumption of asymmetric beliefs held by overconfident CEOs and outside investors and provide testable implications of the incentive to overestimate future earnings.

We extend the literature on CEO turnovers. Campbell et al. (2011) examine the role of CEO optimism in the context of forced turnovers and focus on isolating the beneficial effects of a risk-averse CEO's moderate overconfidence. Adams and Mansi (2009) analyze the impact of forced and voluntary turnovers of CEOs on stakeholder wealth. We extend their work by analyzing turnovers of *overconfident* CEOs and highlight the influence of CEO type on agency cost of debt.

#### 2. Relevant literature

Distortions in corporate investment policy occur when a manager (or CEO) foregoes positive NPV projects (underinvestment) or invests in negative NPV projects (overinvestment).<sup>3</sup> Such distortions result in a loss in firm value and adversely affect shareholders and bondholders. Rational CEOs, acting in the interest of shareholders, exhibit incentives to underinvest (Myers, 1977) or overinvest (Jensen & Meckling, 1976) in the presence of outstanding risky debt. The literature on contract design suggests that call and convertible features and other covenant restrictions are mechanisms to ameliorate such incentives and reduce the agency cost of debt (Barnea, Haugen, & Senbet, 1980, 1985; Kalay, 1982; Smith & Warner, 1979). We study the distortions in investment policy caused by CEO overconfidence and its relation with the agency cost of debt.

For rational investors, Heaton (2002) finds that underinvestment or overinvestment could occur when an optimistic manager incorrectly believes that investors undervalue risky securities issued by the firm. If an optimistic manager is forced to finance an investment opportunity through an external issue, he or she will underinvest when believing that the positive NPV generated by a good project is less than the extent of perceived underpricing. In contrast, an optimistic manager incor-

<sup>&</sup>lt;sup>2</sup> See Campbell et al. (2011) for a discussion on the role of risk aversion in rational CEOs and the ability of the overconfidence bias to correct for risk aversion.

<sup>&</sup>lt;sup>3</sup> The terms "CEO" and "manager" are used interchangeably.

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