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Optimal managerial hedging and contracting with self-esteem concerns

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ABSTRACT

Motivated by psychological evidence that self-esteem plays an important role in individual decision-making, this paper studies how self-esteem concerns influence a manager's effort choice and hedging behavior and how a board designs the managerial compensation in response. We show that when the manager has stronger self-esteem concerns, it requires higher managerial ownership to induce effort. In equilibrium, the manager's net hedging position increases with the strength of the manager's self-esteem concerns. Each of managerial hedging and self-esteem concerns added to an otherwise standard agency model increases the equilibrium pay-performance sensitivity. The agency cost increases as the manager's self-esteem concerns become stronger, but the manager's access to hedging opportunities itself does not change the agency cost. We also discuss how our basic model can be extended to account for circumstances under which managerial hedging can affect firm value.

> "He that is proud eats up himself: pride is his own glass, his own trumpet, his own chronicle; and whatever praises itself but in the deed, devours the deed in the praise."
>
> [Shakespeare: Troilus and Cressida: II, iii.]

1. Introduction

The classical agency theory of the firm starts from a conflict of interest between managers and shareholders and suggests that managers' pay be contingent on firm performance to align the interests of managers with those of shareholders.[3] With contingent compensation schemes, managers, on one hand, have a stronger incentive to exert effort to improve firm performance. On the other hand, managers are faced with greater exposure to risk beyond their control. The optimal managerial compensation is thus the result of a trade-off between incentive provision and risk sharing. But the classical theory abstracts away a number of factors that can potentially be significant in reality. This paper aims to incorporate two such factors into an otherwise standard contracting

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[3] See, among others, Jensen and Meckling (1976) and Holmström (1979) for the analysis and Chen, Hsu, and Chen (2014) for some recent empirical issues.

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environment and examine how the optimal managerial contract deviates from the one in the classical environment. First, we consider managerial hedging transactions. Second, we incorporate the manager's concern for self-esteem. In particular, we are interested in how self-esteem concerns influence the manager's effort choice and hedging behavior and how the board designs the managerial compensation contract in response to this. We discuss below how relevant these two factors are in studying managerial contracts observed in practice and what additional insight we obtain when they are added to the standard agency model.

The first feature of our model is that the manager has access to hedging instruments that can unilaterally alter the incentives and the risk in his compensation package. Current contract and security laws put limited barriers on managerial hedging transactions, and therefore managers have some leeway regarding their hedging decisions.[4] A volume of empirical evidence documents that hedging activities of managers have grown rapidly along with the vigorous development of financial derivatives (Bettis, Bizjak, & Lemmon, 2001; Easterbrook, 2002; Gao, 2010; Garvey & Milbourn, 2003; Jin, 2002). The implications of managerial hedging for executive compensation design have attracted much academic attention. Jin (2002), Garvey and Milbourn (2003), and Ozerturk (2006a) study the case where managers can trade market indexes to diversify away *systematic risk*. Jin (2002) and Garvey and Milbourn (2003) find that the pay-performance sensitivity of incentive contracts falls with the idiosyncratic risk of firms' cash flows but is invariant to market risk. Ozerturk (2006a) shows that due to imperfect market liquidity, the manager's optimal hedge is not complete, and equilibrium pay-performance sensitivity and firm value increase in market liquidity. In addition, Ozerturk (2006b) and Gao (2010) study the case where managers can hedge their *firm-specific risk* exposure in their undiversified portfolios. Ozerturk (2006b) shows that if the manager can hedge up to a known fixed number of trading rounds, the manager will not hedge completely, and the ex ante optimal pay-performance sensitivity with hedging is strictly higher than that with no hedging opportunity. Gao (2010) shows that pay-performance sensitivity decreases with the manager's hedging cost, and shareholders impose a high sensitivity of the manager's wealth to stock volatility and increase financial leverage to resolve the managerial hedging problem. Following Ozerturk (2006b) and Gao (2010), this paper focuses on the case where managers can trade to alter firm-specific risk in their compensation. It can be rationalized because managers absorb most of their wealth from working within the firm and thus have an undiversified portfolio position. Moreover, many managerial hedging instruments are designed to hedge firm-specific risk rather than systematic risk (Bettis et al., 2001).[5]

The second feature of our model is that the manager has self-esteem concerns, which can be defined as a person's overall emotional evaluation of his or her own worth (Rosenberg, 1979). Research in psychology has long established a positive relationship between the vertical level of position within management and the degree of perceived importance of oneself (Mourier, 2012; Porter, 1963; Wiesenfeld, Brockner, & Thibault, 2000). Moreover, managers' self-esteem concerns have been shown to have real effects. Fluctuations in managers' self-esteem coincide with major successes and failures in job performance (Judge & Bono, 2001). An increase or a decrease in self-esteem brings strong emotional reactions from managers, which in turn influences their decision-making and firm performance.[6] We follow Ishida (2012) to model self-esteem concerns, where the manager's utility depends on the self-assessment of his own ability (self-esteem concerns). His main finding is that the self-esteem concerns engender self-handicapping, an attempt to handicap the learning about oneself by intentionally reducing effort with a view to remaining vague about one's own ability. The implication is that more uncertainty can reduce agency cost and result in stronger incentives, hence the standard trade-off between risk and incentives may break down. Self-esteem concerns thus complicate executive compensation design problems and the associated self-handicapping constitutes a serious issue for agency relationship between the board and the manager.

This paper contributes to the literature by identifying a hitherto-unexplored mechanism via which self-esteem concerns affect managerial effort choice and hedging behavior and, in turn, managerial compensation.[7] Specifically, self-esteem concerns induce the manager to hedge more as they make the manager more averse to variations in his own self-image inferred from job performance. As a result, the pay-performance sensitivity needs to be larger than the case without self-esteem concerns to restore incentives for effort provision. But the increase in pay-performance sensitivity increases the compensation risk borne by the manager, which triggers a further increase in managerial hedging. The net effect is that the manager's net hedging position increases in self-esteem concerns and results in higher agency cost than without self-esteem concerns.

To analyze the issues in a tractable manner and to facilitate comparison with the literature, this paper combines elements of managerial hedging models and learning-about-oneself models.[8] Specifically we consider a model where the risk-neutral board of directors designs a contract for the risk-averse manager to elicit a desired level of effort that maximizes firm value. Firm value depends on both the manager's effort and ability, the latter being initially unknown to all parties. After the contract is signed but before the

[4] For example, according to Section 16 (c) of the Securities and Exchange Act of 1934 and Rule 16c-4, it is legal for a manager to buy put options as long as the amount of securities underlying the put equivalent position does not exceed the amount of underlying securities otherwise owned. Schizer (2000) and Gao (2010) also find that contractual prohibitions on executive hedge transactions are quite rare.

[5] Acharya and Bisin (2009) consider the substitution between systematic and firm-specific risk factor. The total risk is fixed, and the manager is incentivized to pass up firm-specific projects in favor of projects that contain greater aggregate risk, which gives rise to excessive aggregate risk in stock markets.

[6] For example, Koszegi (2006) shows that self-esteem concerns (ego utility, in his terminology) can give rise to biased beliefs, which in turn distort the choice of task. In addition, a study by Chatterjee and Hambrick (2011) reports a significant relation between the manager's self-esteem and the level of risky investment a firm undertakes.

[7] The relevance of 'behavioral economics' to hedging decisions has received increasing attention. For example, Lien (2001) and Lien and Yu (forthcoming) discuss how firms' hedging decisions may be affected by their loss aversion and impatience, respectively. Broll, Egozcue, Wong, and Zitikis (2010) and Kauffman, Hayes, and Lence (2011) examine firms' hedging choices within the prospect theory framework. However, these papers do not consider self-esteem and avoid agency issues.

[8] In theory, an individual's self-esteem is built on learning about oneself. There are two main strands of literature on learning about oneself. The first strand considers *interpersonal* situations, where the agent is uncertain about his own attributes and gains information about himself from the informed principal's action (e.g., Benabou & Tirole, 2003; Ishida, 2006). The second strand investigates the *intrapersonal* situations, where the agent gains information about himself through his own actions, which is called 'self-learning through experimentation' (e.g., Benabou & Tirole, 2002, 2004; Ishida, 2012; Santos-Pinto & Sobel, 2005). The present paper belongs to the second strand because the manager in the model exerts effort to improve firm performance and forms the self-assessment of his own ability based on the ex post firm performance.