Finance Research Letters 6 (2009) 187–201

Contents lists available at ScienceDirect

Finance Research Letters

journal homepage: www.elsevier.com/locate/frl

Impact of heterogeneous managerial productivity on executive hedge markets in an asymmetric information environment ☆

Stefan Avdjiev [a,*], Zheng Zeng [b]

[a] Monetary and Economic Department, Bank of International Settlements, Centralbahnplatz 2, 4002 Basel, Switzerland
[b] Department of Economics, Bowling Green State University, Bowling Green, OH 43403, United States

ARTICLE INFO

Article history:
Received 19 June 2009
Accepted 5 October 2009
Available online 12 October 2009

JEL classification:
G30
G32
G34
G39

Keywords:
Executive hedging
Asymmetric information
Executive compensation
Incentive contracting
Heterogeneous managerial productivity

ABSTRACT

Using the standard principal-agent framework, we show that the existence of executives with different levels of productivity introduces a so-far-unexplored channel through which managerial effort incentives are sustained in a setting in which executives are allowed to trade away their stock-based compensation. Due to the presence of asymmetric information, high-productivity executives end up diversifying away a smaller fraction of their performance-based compensation than they would under perfect information or if they were the only type of executive in the market. As a result, they exert a higher effort level in equilibrium and thereby increase the value of the firm relative to the uniform productivity case, thus bringing the results closer to the outcome observed in a model with no hedging.

1. Introduction

The last two decades have seen a dramatic increase in the stock-based compensation of executives in US corporations through the use of stock options and other financial instruments. It has long been argued in the corporate finance literature that the compensation of corporate executives should be at

☆ We would like to thank an anonymous referee for the insightful and helpful suggestions, and Saltuk Ozerturk, Nathan Balke, Thomas Fomby, and Santanu Roy for their comments on earlier versions of this paper. Any errors are our own.

* Corresponding author. Fax: +41 61 280 9100.
E-mail addresses: Stefan.Avdjiev@bis.org, savdjiev@smu.edu (S. Avdjiev), zzeng@bgsu.edu (Z. Zeng).

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doi:10.1016/j.frl.2009.10.001

least partially related to firm performance. According to the agency theory of managerial compensation, this practice is justified because it increases managers' incentives to maximize shareholder value. An important implicit assumption in most of the literature on executive compensation is that managers are prohibited from altering their risk exposure by trading securities of their own firm. Nevertheless, general transactions by managers in the stock market are not formally restricted by firms. In fact, there exists a large body of evidence suggesting that in the last couple of decades managers have had the ability to unilaterally adjust the sensitivity of their compensation to firm performance by taking advantage of the emergence of a sizable market for managerial hedging instruments, which has accompanied the increase in stock-based pay in the late 1990s (Bettis et al., 2001; Easterbrook, 2002).

There has been a lot of criticism of this practice coming from both, academic sources as well as from the popular business press. Most of it stems from the idea that allowing managers to diversify away the stock-based portion of their compensation will reverse the intended incentive effect of their performance-based compensation and that this will cause a reduction in their equilibrium effort and will ultimately have an adverse effect on the value of their companies (Bank, 1995; Easterbrook, 2002). Ozerturk (2006b), however, shows that this line of reasoning holds true only if the hedging opportunity of the executive is not limited to a known fixed number of trading rounds. If this is the case, the executive hedges completely and no effort incentives can be sustained. If, on the other side, the executive can credibly commit to engaging in only a fixed number of trading rounds, then equilibrium effort is not affected at all. In a related paper, Celen and Ozerturk, 2007 show that, unless they are made exclusive, swap contracts (agreements to exchange part or all of the uncertain payoff of the manager's stock compensation in return for a fixed payment) lead to a complete unraveling of incentives. They also go on to show that if swap contracts are made exclusive (i.e. if the manager can be restricted to trade only one swap contract), then equilibrium effort incentives are unaffected by the availability of such contracts. Ozerturk (2006c) shows that not allowing managers to hedge would cause them to underinvest in risk at the firm level in order to diversify the risk in their own compensation. He further shows that underinvestment would be reduced if managers are allowed to trade a security correlated with firm specific risk. Garvey and Milbourn (2003) show that managers' ability to "undo" undesired market exposure on their own might be hindered by wealth constraints and the inalienability of human capital.

All of the above papers assume, either explicitly or implicitly, that all managers have the same ability. Our paper relaxes that assumption by allowing for the existence of two types of managers – high-productivity managers and low-productivity managers. Using the standard principal-agent framework, we show that the existence of managers with different levels of productivity introduces a so-far-unexplored channel through which managerial effort incentives are sustained in a setting in which executives are allowed to trade away their stock-based compensation. Due to the presence of asymmetric information about managerial productivity, high-productivity managers end up diversifying away a smaller fraction of their performance-based compensation than they would under perfect information or if they were the only type of manager in the market. As a result, they keep a larger share of the company. This gives them greater effort incentives, makes them exert a higher effort level in equilibrium, and ultimately increases the value of the firm relative to the uniform productivity case. Thus, the combination of heterogeneous managerial productivity and asymmetric information brings the results of the model closer to the outcome observed in a principal-agent framework with no hedging.

Our model could be thought of as an application of the "lemons problem" (originally introduced by Akerlof (1970)) into a corporate finance setting. There is an extensive literature on the effects that asymmetric information has on financial markets, corporate governance, and corporate structure (Myers and Majluf, 1984; Krishnaswami and Subramaniam, 1999; Krishnaswami et al., 1999; Bernardo et al., 2001; Degryse and de Jong, 2006; Ascioglu et al., 2008). The majority of that literature is structured around the fact that insiders (i.e. managers and executives) tend to have more information about the current condition and the future prospects of the firm than outsiders (i.e. owners, investors, etc.). That is why outsiders have to resort to interpreting various types of signals about the state of the company that insiders are (intentionally or unintentionally) sending to them (e.g. dividend payments, capital structure, projects that are undertaken and projects that are forgone, etc.). Typically, the sale of shares by an insider is interpreted by markets as a signal that the insider has negative