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Decision Support

Dividend policy, managerial ownership and debt financing: A non-parametric perspective

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ABSTRACT

This paper examines the relation between dividend policy, managerial ownership and debt-financing for a large sample of firms listed on NYSE, AMEX and NASDAQ. In addition to standard parametric estimation methods, we use a semi-parametric approach, which helps capture more effectively non-linearities in the data. In line with the *alignment effect* of managerial ownership, our results support a negative relationship between managerial ownership and dividends when managerial ownership is at relatively low levels. However, this negative relationship turns into a positive one at very high levels of managerial ownership. We also find that the nature of the relationship between managerial ownership and dividends may be more complex than it has been previously thought, and it also differs significantly across firms with different levels of debt/financial constraints. The results are consistent with the view that agency theory provides useful insights but cannot fully explain how firms determine their dividend policy.

1. Introduction

The separation between ownership and control in large corporations creates fundamental conflicts of interest between managers and shareholders, which are commonly referred to as agency conflicts (Fama & Jensen, 1983; Jensen & Meckling, 1976). The main agency conflict centres around the use of *free-cash-flow* by managers; that is, the cash flow in excess of that required to fund all projects that have positive net present values (Jensen, 1986). The problem stems from self-serving managers who divert cash flow to benefit themselves (e.g. by increasing firm size to justify higher salaries, lavish expenses and excessive perks) at the expense of shareholders.

Various mechanisms have been proposed as potential solutions to the free-cash-flow problem.[3] Dividends, debt-financing and managerial ownership are three of the most important ones. Dividend payments have been interpreted as a "bonding" mechanism to resolve the conflict between managers and shareholders (Easterbrook, 1984; Jensen & Meckling, 1976; Jensen, 1986; Rozeff, 1982). This is because the payment/non-payment of dividends causes the firm to undergo a third-party audit (i.e. from equity markets), which results in lower agency costs. Debt-financing also works as a monitoring force for reducing agency-related problems (see Ross, 1977 and Stulz, 1990). The issuance of debt gives debt holders the option to take the firm into bankruptcy if managers default on their debt obligations.[4] Managerial ownership (at low levels) has been suggested as a third mechanism that helps align the interests of managers with those of shareholders. This is because managers who own equity in the firm will act as owners and reduce the degree of expropriation from outside investors (Jensen & Meckling, 1976) (*alignment effect*). At higher levels of managerial ownership, however, managers may exert insufficient effort, collect private benefits and entrench themselves at the expense of external shareholders (*entrenchment effect*).[5]

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3 See Denis (2001) and Gillan (2006) for a comprehensive review of the literature on the different types of mechanisms available to firms.

4 The "disciplinary" role of debt has been questioned by several researchers showing that debt facilitates expropriation when capital market institutions are ineffective (see e.g., Bunkanwanicha, Gupta, & Rokhim, 2008).

5 Demsetz and Lehn (1985), Stulz (1988) and Morck, Shleifer, and Vishny (1988), among others, have identified offsetting costs associated with high levels of managerial ownership. For example, by accumulating a large block of ownership and voting rights, a manager may have enough voting power and influence to guarantee his/her employment with the firm at an attractive salary (Morck et al., 1988). In an attempt to protect a managerial position, a manager may also impede the market for corporate control (e.g. act against a potentially beneficial acquisition for shareholders) by requesting a high takeover premium (Stulz, 1988). High levels of managerial ownership also give management greater ability to control the board and undertake "manager-specific" investments, which makes it costly for shareholders to replace them (Shleifer & Vishny, 1989). Such manager-specific investments often involve opportunistic and

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This paper examines the relation between dividend policy, managerial ownership and debt-financing for a large sample of listed firms on NYSE, AMEX and NASDAQ. We build upon a large body of research showing that these mechanisms are not independent but are strongly related to each other, usually in complex ways (e.g. Aggarwal & Kyaw, 2010; Belghitar & Khan, 2013; Chen & Steiner, 1999; Farinha, 2003; Jensen, 1986; Jensen, Solberg, & Zorn, 1992; Lee, 2011; Schooley & Barney, 1994). However, there is no consensus on whether these mechanisms work as substitutes or complements in reducing free-cash-flow problems. The purpose of this study is to provide further insights into this issue by adopting a semi-parametric perspective for examining how these mechanisms relate to one another. Our analysis contributes to the literature in the following three ways. First, in contrast to previous studies, we employ a semi-parametric approach, which helps capture more effectively non-linearities in the data. The implementation of semi-parametric estimation methods enables us to provide comprehensive evidence on the shape of the dividend–ownership curve and, in particular, to capture possible complex non-linear structures. Secondly, we examine whether the nature of the relationship between managerial ownership and dividends differs across firms with different levels of leverage/financial constraints. The fact that the latter investigation is conducted within a semi-parametric framework facilitates a better understanding of whether ownership, dividends and debt are substitute mechanisms in reducing agency costs of free-cash-flow. Thirdly, we re-assess the dividend–ownership relation under the prism of a large sample of US firms from 2001 to 2007, an interesting period followed by a sharp decline of dividend payments in the US. For example, Fama and French (2001) shows that firms paying cash dividends fell from 66.5 percent in 1978 to 20.8 percent in 1999, even after conditioning on firm characteristics. Our sample period also covers the 2003 dividend tax cut,[6] which increased dividend activity (mainly) through dividend initiations (see Brown, Liang, & Weisbenner, 2007).

Our analysis reveals a number of interesting findings. First, in line with the *alignment effect* of managerial ownership, our findings support a negative relationship between managerial ownership and dividends when managerial ownership is at relatively low levels (i.e. <10 percent). This negative relationship turns into a positive one at very high levels of managerial ownership (i.e. >60 percent). This can be interpreted as evidence supporting the *entrenchment effect* of managerial ownership. However, the critical "entrenchment" level of managerial ownership estimated in our study (at around 60 percent) is significantly higher than the ones estimated in earlier studies by Schooley and Barney (1994) and Farinha (2003). Given that managers with equity stakes that exceed 60 percent are more likely to hold an underdiversified portfolio, the positive relation between dividends and managerial ownership is open to alternative interpretations. For instance, managers with undiversified wealth tied up to their own firm may place additional value on dividends for liquidity reasons (see Brown et al., 2007).

Second, our semi-parametric results suggest that there are more than one turning point in the managerial ownership–dividend relation. This does not support the U-shaped relationship suggested by previous literature and our parametric results. As explained below in more detail, such "complex" relationship cannot be adequately explained by any single theory, such as agency theory. In fact, one has to go beyond agency considerations and to consider signalling and tax clienteles theories to explain how firms determine their dividend policy (see e.g., Allen, Bernardo, & Welch, 2000; Anderson & Kanatas, 1995; Lang & Litzenberger, 1989; Miller & Scholes, 1978). A close comparison between our parametric and semi-parametric results suggests that the semi-parametric model is more powerful to uncover the true link between dividends and ownership, and it is strongly preferred to the parametric non-linear model, which reflects a strict U-shaped relation.

Third, our findings suggest that the relation between ownership and dividends for high-leverage firms is different from that for low-leverage firms. Interestingly, we find that the substitution effect between dividends and managerial ownership is only observed in high-leverage firms. This goes against the notion that the negative relationship between managerial ownership and dividends should be more pronounced in low-leverage (or all-equity) firms, since they have greater free-cash-flows and lack a mechanism (i.e. debt) for controlling agency costs (see Agrawal & Jayaraman, 1994). We interpret this as further evidence that dividend policy cannot be fully explained in the context of agency theory.

The remainder of the paper is organized as follows. Section 2 provides a brief literature review. Section 3 outlines the semi-parametric approach employed in this study. Data and variables are discussed in Section 4. The empirical findings and their interpretation are provided in Section 5. Section 6 presents some robustness checks while Section 7 concludes.

2. Related literature

Agency problems related to the use of free-cash-flow are commonplace in public firms. They arise from conflicts of interest between managers and shareholders (Jensen & Meckling, 1976). In an attempt to maximize their own welfare, managers may be tempted to build empires, collect private benefits, undertake manager-specific investment projects[7] and entrench themselves, usually at the expense of shareholders.[8]

Dividend payments, debt issuance and managerial ownership have been proposed as three of the most important mechanisms that can mitigate the free-cash-flow problem. Despite a large body of research that looks at the effectiveness of these mechanisms in resolving agency problems (see Denis, 2001 and Gillan, 2006 for comprehensive reviews of the literature), there is still no consensus on how these mechanisms relate to one another and whether they "work" in substitute or complementary ways. Furthermore, several studies demonstrate the existence of non-linearities of ownership structure with respect to debt and dividends (see e.g. Farinha, 2003; Florackis & Ozkan, 2009; Schooley & Barney, 1994). In particular, Jensen (1986) argues that debt and dividends are substitute mechanisms for reducing the discretionary resources under managers' control, which implies a negative relationship between the two. Several studies report evidence that supports a negative relationship between debt and dividends (see e.g. Chen & Steiner, 1999; Jensen, Solberg, & Zorn, 1992). However, Eckbo and Verma (1994), De Miguel, Pindado, and de la Torre (2005) and Aggarwal and Kyaw (2010) find a significant positive relationship between leverage and dividend payout ratios.

Dividends also relate to managerial ownership in a statistically significant way. If dividends and managerial ownership are substitutes for reducing free cash flow-related agency costs, then their relation should be negative (see e.g. Chen & Steiner, 1999; Jensen et al., 1992; Lee, 2011). Several authors, however, have argued that the dividend–ownership relation may not be strictly negative; it may actually turn positive above a certain ownership level due to entrenchment. Entrenched managers do not treat dividends and debt as substitutes at high ownership levels, and thus increase dividends as ownership levels increase. This suggests a U-shaped dividend–ownership relation,

risky projects that target to increase the size of the assets under their control, i.e., empire building (Stulz, 1990).

[6] See the Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) of May 2003.

[7] That is, opportunistic and risky projects that target to increase the size of the assets under their control, i.e., empire building (Shleifer & Vishny, 1989; Stulz, 1990).

[8] See discussion in Footnote 3 and also Gadhoum (1999) and Florackis, Ozkan, and Kostakis (2009) for details on the most common entrenchment strategies adopted by managers.