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Corporate risk management and dividend signaling theory

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ABSTRACT

This article investigates the effect of corporate risk management on dividend policy. We extend the signaling framework of Bhattacharya [1979. Bell Journal of Economics 10, 259–270] by including the possibility of hedging the future cash flow. We find that the higher the hedging level, the lower the incremental dividend. This result is intuitive. It is in line with studies suggesting that cash flows' predictability decreases the marginal gain from costly signaling through dividends and the assertion that corporate hedging decreases cash flow volatility. It is also in line with the purported positive relation between information asymmetry and dividend policy (e.g., Miller and Rock [1985. The Journal of Finance 40, 1031–1051]) and the assertion that risk management alleviates the information asymmetry problem (e.g., DaDalt et al. [2002. The Journal of Future Markets 22, 261–267]). Our theoretical model has testable implications.

1. Introduction

Signaling theory states that changes in dividend policy convey information about changes in future cash flows (e.g., Bhattacharya, 1979; Miller and Rock, 1985). Dividend signaling suggests a positive relation between information asymmetry and dividend policy.[1] The higher the asymmetric information level, the higher the sensitivity of the dividend to future prospects of the firm. Several empirical studies attempt to test the informational content of dividend changes, yet they disagree about the sign and the significance of the effect of information asymmetry on dividend policy (see Allen and Michaely (2003), for a survey).

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[1] Evidence that information asymmetry positively affects dividend policy has also been documented by the free cash flow theory (e.g., Lang and Litzenberger, 1989).

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Another strand of literature suggests that corporate risk management alleviates information asymmetry problems and hence positively affects firm value. Information asymmetry between managers and outside investors is one of the key market imperfections that make hedging potentially beneficial. Breeden and Viswanathan (1998) and DeMarzo and Duffie (1995) argue that hedging reduces noise around earnings streams and thus decreases the level of asymmetric information regarding firm value. DaDalt et al. (2002) provide empirical evidence supporting these theoretical studies.

In this article we exploit the interaction between the level of information asymmetry and the dividend policy, along with its interaction with corporate risk management. We argue that risk management alleviates the asymmetric information problem, which is a main determinant of dividend policy. Though many studies that examine dividend policy determinants include several measures of information asymmetry, none, to our knowledge, consider hedging among these measures. Extending the signaling framework of Bhattacharya (1979), we provide theoretical support for the effect of corporate risk management on dividend payout policy. We find a negative relation between the hedge ratio and the incremental dividend payout.

The remainder of the article is organized as follows. In Section 2 we present the theoretical model and its implications. Section 3 concludes the paper.

2. The model

We assume that the firm operates in a dividend signaling world as modeled in Bhattacharya (1979). We assume that shareholders have a single-period planning horizon and the manager operates in the best interest of current shareholders. The model is developed in terms of marginal analysis for a new project taken on by an all-equity firm. We assume that the manager is better informed than outside investors about the firm's future prospects. Thus the manager is the only agent informed about the distribution of the new project future cash flow. He attempts to signal his private information via the commitment of an incremental dividend (D). Dividends are taxed at the rate τ while capital gains are not taxed. There is a penalty (β) incurred by shareholders in case of cash flow shortfall to cover the committed dividend. For example, the firm could either postpone reinvestments or resort to external funds to finance them. When the cash flow (x) exceeds the committed dividend, the amount of future external financing required for reinvestments is reduced by (x-D) and vice versa.

We extend the model by assuming that it is possible for the manager to hedge a fraction (h) of the future cash flow using a linear hedging strategy, in the spirit of Froot et al. (1993). The reasoning behind this extension is simple. Outside investors often use estimates of earnings and cash flows as measures of firm value. Hedging reduces the noise around earnings and future cash flows by reducing the exposure of the firm to factors beyond the manager's control. Consequently, hedging lessens the asymmetric information regarding firm value by reducing the noise in evaluation measures. We expect that the more willing the firm is to hedge its future cash flow, the less informative the dividend changes and the lower the manager's incentives for costly signaling through dividend changes. We make the implicit assumption that corporate hedging activity is observable by outside investors. This assumption is realistic given the implementation of many disclosure requirement regulations by the Financial Accounting Standards Board (FASB) since the beginning of the 1990s (e.g., FAS105, FAS107, FAS119, FAS133, FAS138 and FAS161).

The hedging strategy can be modeled by writing the future cash flow as:

$$\tilde{x}_1 = hx_0 + (1-h)\tilde{x} \tag{1}$$

where $0 \leqslant h \leqslant 1$ is the hedge ratio, $\tilde{x}$ the random future cash flow and x_0 the expected cash flow.

The incremental part of the objective function of current shareholders is given by Eq. (2). The four terms in the equation are respectively: (i) the rise in the firm's liquidation value; (ii) the after-tax promised dividend; (iii) the expected gain when the hedged cash flow is greater than the committed dividend; and (iv) the expected loss when the hedged cash flow is less than the committed dividend: