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Dividends as a signaling device and the disappearing dividend puzzle☆

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A B S T R A C T

In this paper we develop a generalization of the Baker and Wurgler (2012) signaling model where investors are loss-averse to dividend cuts. We apply our framework to study how a firm's characteristics and manager's incentives affect payout policy properties. In equilibrium firms with riskier earnings are less likely to pay dividends, however, those that pay, payout more. Similarly, firms whose managers have a higher share of stock options in their compensation package are less likely to pay positive dividends. There is a clientele effect. Investors' preferences and choices affect the payout policy and two otherwise identical firms can greatly differ in how they pay dividends. Finally, we relate our model's predictions to the disappearing dividend puzzle.

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1. Introduction

Fischer Black wrote in 1976: "The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just don't fit together" (Black, 1976). While our understanding of payout policies has improved since Black's paper (DeAngelo, DeAngelo, & Skinner, 2009), there is still no lack of

interest to such fundamental questions as to when, how much, and why firms pay dividends. In a 2001 paper, Fama and French report a surprising finding of a reduced incidence of dividend payers, from 66.5% in 1978 to only 20.8% in 1999. They also document a sharp decline in firms' propensity to pay dividends over the same period of time. Later, this puzzle, known in the literature as the "disappearing dividend puzzle", was augmented by the finding that while the incidence of dividend payers decreased, the aggregate dividend payout increased (DeAngelo, DeAngelo, & Skinner, 2004).

To understand what determines dividend payout policy, Brav, Graham, Harvey, and Michaely (2005) conduct a detailed survey of 384 financial executives. According to the survey, executives strongly believe investors use the level of dividends as an informative signal about the firm's value and its ability to maintain long-term stable cash flow. In particular, Brav et al. (2005) find that 84.15% of dividend payers agree with the importance of maintaining consistency of dividends with a firm's historic payout policy. As many as 93.8% of them try to avoid dividend cuts with 77.9% being reluctant to make dividend changes that might have to be reversed in the future. Baker and Wurgler (2012), hereafter BW, develop a behavioral framework that explicitly incorporates these motives. Their model is a signaling game between the manager and the firm's investors who are loss-averse and receive disutility from dividend cuts. They show that in equilibrium the dividend policies match several features of the data such as they follow the Lintner partial-adjustment model, and have modal dividend changes of zero. Furthermore, as Baker and Wurgler (2012) argue, their framework is in better agreement with CEO and CFO behavior as documented in Brav et al. (2005).

In our paper, we develop a new model based on the Baker and Wurgler's framework and use it to study the dividend initiation. We study how firm's characteristics and investors' preferences affect the likelihood of dividend initiation and dividend size. While our model is based on BW's framework, there are several differences between the two. First, we add investors as active strategic players who choose between different types of firms based on their own preferences, as well as firm characteristics and payout policies. Adding investors as active players to the model endogenizes investors' sentiment with regards to dividend cuts. Furthermore, it means that our framework includes both the supply (a manager) and the demand (investors) sides of the story. Second, following findings of the Brav et al. (2005) survey, we investigate the role of future earnings distribution and investors' preferences as two major factors that, in addition to maintaining the constant dividend level, determine the dividend policy. Our particular focus is on the riskiness of future earnings. Finally, we perform an analysis in a more general setting with earnings having log-concave rather than uniform distribution.

Our model consists of two stages: the investor stage and the manager stage. As mentioned earlier, the manager stage is the supply side story (see DeAngelo et al., 2009), which focuses on a manager's incentives to pay dividends. The investor stage is the demand side story where the focus is on how investors' preferences and behavior affect the payout policy.

We first describe the manager stage. A manager of a given firm needs to determine the firm's payout policy in periods 1 and 2. Manager utility is a weighted average of the firm's short-term capital gains and investors' long-term utility. Investors are loss-averse so that their disutility from the dividend cut between the two periods is higher than their utility from the dividend increase of the same size. Investors differ in their degree of loss-aversion and the manager takes the average loss-aversion of the firm's investors as given. The manager observes the firm's earnings and can signal it to the market by his choice of the payout policy. The trade-off is as follows. On one hand, the manager has the incentive to pay higher dividends as it will be interpreted by the market as positive news and will boost the manager's short-term gains. On the other hand, higher dividends mean a higher probability of future dividends cuts, which loss-averse shareholders dislike.

We then consider an investor stage which occurs prior to the manager stage, that is before the managers determine the payout policies. There are two firms in which potential investors can invest. Parameters related to both firms are common knowledge. In equilibrium, investors correctly anticipate the firm's payout policies, based on which they decide in which firm to invest. Investors' utility depends positively on the expected dividend payments and negatively on expected dividend cuts. As mentioned earlier, investors differ in the degree of their loss-aversion, so different investors can prefer different firms.

The timing of the model is as follows. In period 0, potential investors decide in which of the two firms to invest based on firm characteristics and expected dividend policy. Their decision will determine