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Dividends, investment and cash flow uncertainty: Evidence from China

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ABSTRACT

This paper investigates the relation between dividends and investment for Chinese listed firms in a condition of cash flow uncertainty. We find that facing cash flow uncertainty, Chinese firms neither cut dividends nor cut investment, but maintain extremely high level of investment. External financing is the only instrument that resolves cash flow uncertainty. We further find that there is an "N-shaped" nonlinear relation between dividends and investment given different levels of cash flow uncertainty. These results can be explained by China's special institutional settings in which firms have strong incentives to spend capital on both dividend payout and make investment.

1. Introduction

In the perfect world of Miller and Modigliani (1961), dividend and investment decisions are separable because firms can freely acquire the capital they need. However, in an imperfect capital market where firms cannot obtain unlimited capital for both investment and dividends, they must rely more on internally generated cash flow. Once such cash flow becomes uncertain (e.g., firms run out of cash or experience volatile cash flow), firms must decide to cut dividends, cut investment, adjust cash holdings or acquire external financing. In this study, we empirically investigate the relation between dividend and investment decisions by observing how firms resolve cash flow uncertainty within China's institutional settings, in which firms have strong incentives to spend capital on both dividends and investment.

Our research is motivated by the long-term debates over the association between dividends and investment. Following Miller and Modigliani's (1961) seminal study, a number of studies provide empirical evidence on how dividends interact with investment. Some of this research supports the irrelevance argument (e.g., Fama, 1974) while others provide contradictory results suggesting that dividends are interdependent with investment (e.g., Dhrymes & Kurz, 1967; Louton & Domian, 1995). Scholars also extend the dividends and investment framework by including other factors such as the cost of external capital (Pogue, 1969), financial constraints (Holt, 2003) and financial flexibility (Daniel, Denis, & Naveen, 2008).

Most previous research has an implied assumption that dividends are of second-order importance relative to investment decisions. However, some survey evidence shows that firms make dividend decisions first (Lintner, 1956) or address dividends and investment simultaneously (Brav, Graham, Harvey, & Michaely, 2005). Managers are reluctant to reduce dividends, and

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maintaining dividends is at least as important as making investments (Brav et al., 2005). In this case, dividend and investment decisions are interdependent, but dividends are no longer of second-order importance, which contradicts the empirical results of previous studies.

In response to the abovementioned inconsistencies regarding the association between dividends and investment, we address the issue by observing dividend and investment decisions under the condition of uncertain cash flow. Firms with uncertain cash flow have more difficulty accessing external finance and face higher cost of capital because such uncertainty indicates higher risk to capital providers. In this case, firms are more financially constrained and must rely on internally generated cash flow, which affects both dividends (Chaya & Suh, 2009) and investment (Minton & Schrand, 1999). The condition of uncertain cash flow allows us to better understand how firms make dividend and investment decisions when they have difficulty acquiring internal and external capital.

China provides an excellent institutional setting for our investigation for several reasons. China's rapid growth has been driven by high investment rates (39% on average) (Song, Storesletten, & Zilibotti, 2011). Bayoumi, Tong, and Wei (2010) show that the corporate investment of Chinese firms ranks third among 51 countries around the world. Such high investment is motivated by local governments' desire to promote local economic growth and banks' preferences for large firms. In contrast, Chinese firms are more reluctant to cut dividends than firms in other markets because continuous dividend payment is one of the qualifications required by authorities for seasoned equity offerings. Given these institutional settings, the relation between dividends and investment and the financial decisions of Chinese listed firms could be significantly different from the decisions of firms in other markets.

Our empirical results provide evidence on the differences in the decision-making process for dividends, investment and financing as exercised by Chinese listed firms. We first employ a similar methodology to that used by Daniel et al. (2008) to investigate how Chinese firms resolve cash flow uncertainty, measured by cash flow shortfall and cash flow volatility. We find that, unlike US firms, when facing uncertain cash flow Chinese firms do not cut dividends or investment. Moreover, even with uncertain cash flow, they still maintain a high level of investment. To resolve cash flow uncertainty, they mainly raise capital from external financing and almost do not reduce the cash balance or increase non-operating cash to cover uncertain cash flow.

Based on the abovementioned primary results on dividends, investment and financing, we further investigate how the relation between dividends and investment changes with cash flow uncertainty. Our empirical results show that the investment–dividend sensitivity first increases, then decreases and increases again with increase of cash flow uncertainty. These sensitivity analyses reveal an “N-shaped” nonlinear relation between dividends and investment given different levels of cash flow uncertainty that is further confirmed by piecewise and cubic regressions. When we introduce interaction terms of dividend and cash flow uncertainty into the investment–dividend regression, we find that investment and dividends share a negative interdependent relation only at a certain level of cash flow uncertainty. The “N-shaped” nonlinear relation is also supported by a cubic regression with dividend, square and cube of cash flow uncertainty interaction terms.

Compared to previous research, our findings appear inconsistent with both empirical evidence (e.g., Daniel et al., 2008) and survey evidence (e.g., Brav et al., 2005; Lintner, 1956) from the developed market. Our new results on dividends, investment and financing provide additional evidence from the emerging market that can be applied to the traditional dividends and investment irrelevance debate. China's special institutional settings provide firms with strong incentives for both dividend payout and investment. These special institutions prompt firms to make different dividend, investment and financing decisions than those made by firms in developed or even in other emerging markets. Our results suggest that different institutions can drive firms to make different decisions that deviate from those predicted by traditional theories. We also provide new evidence of the nonlinear association between dividends and investment according to different levels of cash flow uncertainty that complements previous research, which has shown that dividends and investment are jointly determined, such that nonlinear linkages exist between the two decisions (Mougoue, 2008). We identify cash flow uncertainty as the factor that jointly determines dividend and investment decisions. We further find that an “N-shaped” nonlinear relation exists and that it changes according to different levels of cash flow uncertainty.

The rest of this paper is organized as follows. Section 2 briefly reviews the related literature and introduces China's institutional settings. Section 3 describes our data and methodology. Section 4 presents the primary results on how firms resolve cash flow uncertainty. Section 5 reports regression results on the relation between dividends and investment and Section 6 concludes the paper.

2. Research background

2.1. Related literature

Miller and Modigliani (1961) were the first to theoretically show that dividends and investment are independent in a perfect market. Since then, the association between these two important financial decisions has become a hotly debated issue within corporate finance literature. Dhrymes and Kurz (1967) provide the earliest empirical evidence of the relation between dividends and investment. Employing simultaneous-equation, they find that dividend and investment are interdependent and that a stable dividend policy hampers investment through the reduction of internal capital, whereas firms with residual dividend policy first cut dividends for investment needs. Using a similar methodology, Fama's (1974) contradictory results show that dividends and investment are independent regardless of whether the market is efficient. Evidence from Higgins's (1972) dividend-saving model suggests that dividends can be a function of profit and investment and that the variation in dividends is caused by profitability