

Internal control vs market force: the dividend policy in China

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ABSTRACT

We explore whether the disappearance of stock dividends and the fluctuation in the popularity of cash dividends in China are driven by internal corporate governance or external market forces, including stock liquidity, risks or investor preferences (catering theory), measured by the dividend premium. This study is of particular interest given the weak minority investor protection and poor enforcement of regulation in the Chinese market. Our results suggest that, while CEO duality and board independence do not affect dividend decisions, larger boards, lower board meeting frequency and higher board ownership are consistently positively related to cash dividends and negatively related to stock dividends. Moreover, we find that among external market forces, systematic and idiosyncratic risks and liquidity play a determinant role in corporate cash dividend policies, while decisions about stock dividends are driven only by systematic risk. More importantly, our results show that investor preferences persistent even after adjusting for board ownership and characteristics, but it disappears when controlling for risks. We further examine whether investor preferences influence dividend substitution, and find that investor preferences for cash dividends do not influence firms' stock dividend decision and vice versa. Our study provide insights into the determinants of both cash and stock dividend choice and raise potential policy implications in the emerging market context.

JEL classification: G15; G30; G34; G35

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1. Introduction

The waxing and waning popularity of dividend payments continues to be one of the prevailing financial puzzles. While this has triggered a host of research into the determinants of cash dividend payment fluctuations in capital market of developed countries (such as De Angelo et al., 2004; 2006; Hoberg, 2009; Kuo et al., 2013), research into the disappearance and resurgence of cash dividend payments in emerging economies is still in its nascence. Moreover, research into the falling popularity of stock dividends, a comparatively popular means of dividend payments in emerging economies (Wei and Xiao, 2009; Anderson et al., 2011; Al-Yahye 2014a, 2014b), appears to be none-existent so far.

There are a variety of different perspectives on the rationale for firms' dividend policies. While agency theoretical considerations tend to focus on the reduction of principal-agent conflicts between shareholders and managers or between majority and minority investors via the reduction of free cash flow (Easterbrook, 1984; Jensen, 1986), signalling theory suggests that dividend policies can be used to mitigate information asymmetry in capital markets (Miller and Rock, 1985; John and Williams, 1985), while catering theory proposes that managers cater to investors' dividend preferences (Baker and Wurgler, 2004a; 2004b). All of these theories suggest that managers' decisions about dividend policies are affected by either shareholders' influence via capital markets or firms' corporate governance structures.

As Chinese stock markets have enjoyed fast growth in the past 15 years and are now second in size only to the US equity markets (Nguyen and Wang, 2013), they have started to draw increasing attention by investors and researchers alike. Chinese capital markets possess two key features which allow us to differentiate between the effect of internal governance and the influence of external market forces on dividend payout policies. Firstly, the majority of Chinese shareholders continue to be small, unsophisticated, or noise-trading investors. The participation of retail investors in the stock markets increased as the number of stock accounts in China rose from 58 million in 2000 to 175 million in 2013 (CSDCC 2013). About 99.5% of these stock accounts are owned by individual investors, and the remaining 0.5% belongs to institutional investors (Ng and Wu 2006). More importantly, Ng and Wu (2006) and Li and Wang (2010) report that on the Shanghai stock exchange, individual investors continue to generate more than 95% of the total trading value and that more than 97% of the active trading accounts are held by individual investors. Secondly, these individual investors operate in an environment with poor minority shareholder protection and an underdeveloped legal system (Wei et al, 2005;

Anderson et al., 2011; Nguyen and Wang, 2013; Kuo et al, 2014; Chen, 2015). Although, like governments in many other emerging economies, the Chinese government has made considerable efforts to promote the mutual funds industry and to enhance regulation relevant to both internal and external corporate governance, Chinese capital markets and corporate governance continues to be quite distinct from that of more developed capitalist economies. This raises the question whether the development of internal corporate governance characteristics, such as board size, independence and ownership as well as CEO duality, or the growing importance of market forces, gain the dominant influence on the popularity of dividends in Chinese listed companies. As prior research into time trends of dividend payments largely focusses on stock markets in developed economies (Kuo et al., 2013), this study contributes to our understanding of dividend payments in emerging economies with comparatively weak information disclosure and corporate governance standards (Anderson et al., 2011; Liu et al 2014) by exploring the driving factors of dividend policies of Chinese listed companies between 1999 and 2013.

With regard to internal corporate governance, we consider whether the varying prevalence of dividend payouts can be explained by the board characteristics of listed companies. In order to comply with the gradual tightening of best practice recommendations and legal requirements, Chinese listed companies have increased the number and proportion of independent directors on their boards (Conyon and He, 2012; Jiang and Kim, 2015). While this is supposed to improve the board's ability to hold managers and majority investors to account on behalf of (minority) shareholders, and should therefore increase firms' responsiveness to (minority) shareholder interests, in practice 'independent' directors often appear to be nominated exclusively by majority shareholders, the existing board or the government (Huyghebaert and Wang, 2012; Zhang, 2014). We therefore investigate whether changing board characteristics in terms of board independence, board size, CEO duality and board meeting frequency can explain some of the variation in dividend payment policies, in particular when the external corporate governance mechanism is less developed. Moreover, since directors' incentives to protect shareholders' interests and to actively participate in strategy development and corporate control are likely to be affected by their stake in the firm, we also investigate the impact of board directors' share ownership. Although the proportion of listed companies which are controlled by central or local government-affiliated shareholders has fallen noticeably in the past fifteen years, such state shareholders continue to dominate many Chinese listed companies. As research by Cheng et al. (2009) and Wei and Xiao (2009) indicates that firms with high

proportions of state owned shares tend to pay more cash dividends and less stock dividends, we also explore the influence of controlling state shareholders on dividend policies.

Concerning the potential impact of market forces on dividend policies, we follow prior research into the payment of dividends in developed economies by considering whether stock liquidity (Banerjee et al., 2007; Kuo et al., 2013) as well as idiosyncratic and systematic risk (Hoberg and Prabhala, 2009; Kuo et al., 2013; Lee and Mauck, 2016) impact on cash and stock dividends in Chinese listed companies. Moreover, as prior studies have paid no attention to the role of catering incentives for stock dividend payouts in general and cash dividend policies in emerging markets, we also pilot the exploration of the potential impact of catering to investor preferences (Baker and Wurgler, 2004a; 2004b; Ferris et al., 2006; Hoberg and Prabhala, 2009; Kuo et al., 2013) on both cash and stock dividend payments. This question is of particular interest as unsophisticated investors dominate the trading activities on the Chinese stock markets where the minority shareholder protection is weak and the legal system is less developed.

Moreover, given the popularity of both cash and stock dividends in the Chinese stock markets, our research setting also facilitates the comparison of the determinants of cash and stock dividend policies and the investigation of the existence of a catering-related substitution effect between the two types of dividend payouts. Al-Yahyaee (2014a; 2014b) highlights that researchers continue to be puzzled about the role of stock dividends. Although stock dividends do not affect shareholders' proportional ownership of shares, prior studies largely suggest that the announcement of stock dividends tends to be met by positive market reactions (McNichols and Dravid, 1990; Cheng et al., 2009, Anderson et al., 2011; Al-Yahyaee 2014a, 2014b; David and Ginglinger, 2016). This positive announcement effect has often been related to an increase in the liquidity of shares and consequently reduced transaction costs, as the fall in ex-dividend stock prices made the shares more appealing to retail investors (Anderson et al., 2011; Al-Yahyaee, 2014b).¹ Considering dividends per share, Wei and Xiao (2009) and Anderson et al. (2011) show that there is a substitution effect between cash and stock dividends in Chinese listed companies. Motivated by these findings and by Jiang et al. (2013) and Kulchania (2013) who explored whether both repurchase and dividend premia impact on time trends in cash dividends and share repurchases in US firms, we investigate whether firms take shareholders'

¹ In China stock splits are prohibited and can therefore not be used as a substitute for stock dividends in order to reduce stock-prices to a level which is more attractive to retail investors (Wei and Xiao, 2009; He et al., 2016).

preferences for cash dividends, as expressed in cash dividend premia, into account, when considering the payment of stock dividends, and vice versa.²

We make three-fold contributions to the literature. Firstly, to our best knowledge, this study makes the first attempt to investigate the explanatory power of both internal governance and market force jointly for cash and stock dividend policies in an environment where stock trading is dominated by small individual investors and where investor protection is weak and legal system is under-development. Considering the impact of board characteristics on the propensity to pay cash and stock dividends, we find that firms with larger boards and fewer board meetings are more likely to pay cash dividends, and less likely to pay stock dividends. Board independence and CEO duality do not appear to have a significant impact on the propensity to pay cash and stock dividends. While prior research into the impact of corporate governance on both firms' cash and stock dividends is very rare (Liu et al. 2014), our findings in relation to board size indicate that, potentially due to resource constraints and the complexity of their business environment, Chinese firms might benefit from larger boards. While board meeting frequency is typically perceived as a proxy for board diligence (Lin et al., 2009), our results suggest that board meeting frequency might be an indication of poor board effectiveness and inefficiency.

In line with prior literature, our results confirm that idiosyncratic and systematic risks are significantly related to firms' cash dividend policy (Hoberg and Prabhala, 2009; Kuo et al., 2013), though decisions about stock dividends appear to be affected only by systematic risk. While stock liquidity appears to be an important consideration for cash dividend decisions, we found no significant relationship with the probability to pay stock dividends. We further find that a higher proportion of board ownership is positively (negatively) related to the likelihood of firms paying cash (stock) dividends. This preference for cash dividends implies that ownership incentives of board insiders align their preferences for cash dividends with those of minority shareholders.

Secondly, this is also the first time that the validity of catering theory is explored with regard to cash dividend choice in an emerging market and with regard to stock dividend payouts in general. Our results show that dividend premia, as an indication of catering for investors' cash dividend preferences, are only found to be statistically significant if idiosyncratic and

² As until 2013 share repurchases in China were tightly regulated and very rare, this study does not consider share repurchases.

systematic risk are ignored. For stock dividends, we also find that stock dividend premia are only significantly related to changes in propensity to pay when risk is not included in the estimation of probability of being stock dividend payers. In other words, once firms' systematic and idiosyncratic risks are considered, we find no evidence for catering to investors' dividend preferences. While this contrasts with findings by Jiang et al. (2013) that indicate that in the US market dividend premia and share repurchase premia affect firms' payout decision, even if systematic and idiosyncratic risk is taken into account, our results are in line with research by Hoberg and Prabhala (2009) as well as Kuo et al. (2013) on US and international samples of firms, which found that, once systematic and idiosyncratic risks are considered, dividend premia do not affect cash dividend payouts. However, despite poor minority shareholder protection and the domination of stock trading by small individual investors, market forces, with regard to firms' systematic and idiosyncratic risks, play a major role for managers' stock and dividend dividend payout policies.

Finally, we pilot the use of catering theory to test the role of investor preferences in dividend substitution. Inspired the study by Jiang et al. (2013) which explores the impact of dividend and share repurchase premia on US firms' payout decisions, we examine whether cash dividend premia affect stock dividend decisions, and whether stock dividend premia affect cash dividend choice and vice versa. Our results show no evidence to support that investor preferences influence dividend substitution. Although, as previously highlighted, research into the possibility that firms cater for the dividend preferences in the US is so far inconclusive, our results might be affected by the poor level of minority shareholder protection and underdeveloped legal environment in China, which helps insulate managers from investor pressures.

The remainder of this paper is organized as follows. Drawing on relevant theories and prior empirical research, section 2 discusses the potential determinants of dividend payout policies. Section 3 presents the sample selection and data description. In Section 4 we examine the influence of stock liquidity, risk, managerial ownership and board characteristics on the probability of paying cash or stock dividends in China. Section 5 examines the applicability of catering theory both for cash or stock dividend payment decisions and for their interrelation, while Section 6 concludes.

2. Determinants of dividend payout policies

2.1. The base-line model

In their seminal paper on the disappearing dividends puzzle Fama and French (2001) established that part of the falling proportion of dividend payers among US listed companies between 1978 and 1999 could be explained by changes in firm characteristics, in particular firm size, profitability and investment opportunities. Elgers and Murray (1985) argue that large firms are more likely to pay stock dividends in order to lower the political costs induced by their higher EPS, which is supported by Lakonishok and Lev's (1987) findings. Signalling theory suggests that managers may adopt cash and stock dividend policies to signal their firms' growth and profit expectations to the market (Brennan and Copeland 1988, Ikenberry et al. 1996, Desai and Jain 1997, Kato and Tsay 2002, Kunz and Rosa-Majhensek, 2008, Anderson et al. 2011, Adaoglu and Lasfer 2011).

As these factors have been found to be relevant not only for dividend trends in the USA (Hoberg, 2009) but also in Europe (Kuo et al., 2013), we employ Fama and French's (2001) variable definitions to control for the impact of firm size, profitability and investment opportunities on the propensity to pay cash or stock dividends. Size is proxied by the market capitalization percentile ($SIZE_{it}$), which is calculated as the proportion of firms with equal or smaller market value than firm i in a given year t . We use the earnings-to-assets ratio (E/A_{it}) as a proxy for profitability, use asset growth (dA/A_{it}), calculated as the proportionate change in total assets for year t , and market-to-book value (M/B_{it}) as measures of a firm's investment opportunities (Hoberg, 2009; Kuo et al., 2013). The latter variable is also linked to signalling theory, which purports that managers use cash and stock dividend policies to signal their growth and profit expectations to the market (Brennan and Copeland, 1988; Anderson et al., 2011).

Moreover, we also consider the potential impact of free-cash-flows and leverage on firms' dividend policy as cash dividends and leverage are alternative mechanisms to reduce the potential agency costs of free cash flow. In line with these considerations, Wei and Xiao (2009) find that firms' debt is indeed negatively related with cash dividend payout in China. We proxy free cash flow (FCF_{it}) as cash flow from operations scaled by total assets (Caliskan and Doukas, 2015; Lee and Mauck, 2016) and leverage (D/E_{it}) as long-term debt over total equity (Kuo et al., 2013; Caliskan and Doukas, 2015). In this context the cash substitution hypothesis indicates that firms might prefer using stock dividends instead of cash dividends to conserve cash (Jensen,

1986; Anderson et al., 2011), in particular if firms are highly leveraged, suffer from low cash flows or face high growth opportunities.

According to DeAngelo et al.'s (2006) life-cycle theory, firms try to pursue an optimum dividend policy in line with the evolution of their opportunity set. This means that younger firms tend to pay fewer dividends, because their investment opportunities outstrip their internally generated capital. By contrast, older firms pay more dividends to reduce the risk that free cash flows are being squandered as internally generated funds exceed investment opportunities. In support of the life-cycle theory, DeAngelo et al. (2006) and Denis and Osobov (2008) find evidence of a positive relationship between the propensity to pay cash dividends and a firm's life cycle. We follow this approach and proxy firms' life-cycle stages by calculating the ratio of retained earnings to the book value of total equity (RE/BE_{it}) (Lee and Mauck, 2016).

Regarding firms' propensity to pay stock dividends, the retained earnings hypothesis highlights the fact that accounting principles require that stock dividend paying firms transfer an amount equal to the nominal value of the distributed stock dividend from retained earnings to the nominal share capital in the financial statements (Grinblatt et al., 1984). As this is only feasible for firms with high levels of retained earnings, in particular if creditors require firms to maintain a certain level of retained earnings, we expect a positive relationship between the life cycle proxy and firms' propensity to pay stock dividends.

Finally, as previously discussed, while the proportion of listed companies which are controlled by central or local government-affiliated shareholders (thereafter state shareholders) via government bureaucratic agencies or state-owned enterprises (SOEs) has fallen noticeably (see Table 1), state control via ownership stakes continues to be a characteristic feature of many Chinese listed companies. Prior research indicates that firms with high proportions of state owned shares tend to pay more cash dividends and less stock dividends (Wei and Xiao, 2009). This has previously been related to the fact that, as state-owned shares were mostly non-tradable, state shareholders were unable to realise capital gains from trading stock dividends and therefore preferred cash dividends. As the split share structure reform in 2005 required firms to convert their non-tradable shares into tradable shares, and as the proportion of state controlled listed companies has fallen, the impact of state ownerships on firms' dividend policy might have changed. We therefore control for the presence of controlling state ownership using a dummy variable ($STATE_{it}$) which is coded 1 if the state shareholder is the largest shareholder and 0 otherwise (Liu et al., 2014).

2.2. Market forces: Stock liquidity and risks

In markets with low liquidity investors are expected to prefer to receive cash dividends due to the high transaction costs of selling shares to generate comparable cash income. Due to the discount levied on firms with illiquid stocks, managers might initiate cash or stock dividends to reduce the shares' ex-dividend trading price and thereby make them more attractive to small retail investors (Copeland, 1979; Anderson et al., 2011). Indeed, considering differences in the liquidity of shares of non-financial companies listed on the NYSE and AMEX between 1963 and 2003, Banerjee et al. (2007) found that firms with less liquid stocks are more likely to pay cash dividends than firms with more liquid stocks. Similarly, drawing on a large international sample, Kuo et al. (2013) also find that stock liquidity is an important determinant of cash dividend policy in the USA, the UK, France, Germany and other European markets, though not in Canada, Singapore, Hong Kong and Australia.

With regards to stock dividends, Copeland's (1979) liquidity-hypothesis suggests that managers pay stock dividends in order to attract small investors and thus enhance their stock's trading volume. This suggests that firms with lower stock liquidity are more likely to pay stock dividends. Although research into impact of stock dividends on liquidity actually suggests a negative relationship both for US and Chinese listed companies (Weld et al., 2009; Nguyen and Wang, 2013), research by Adaoglu and Lasfer (2011) on Turkish listed companies provides weak evidence for the liquidity effect, while Weld et al.'s (2009) study on US listed companies and Al-Yahyaee's (2014a) investigation on listed companies in Oman provide clear support for the liquidity-hypothesis.

In line with previous studies (Amihud et al., 2006; Kuo et al., 2013; David and Ginglinger, 2016), we adopt Amihud's (2002) illiquidity ratio³ as liquidity proxy to test the hypothesis that stock liquidity is negatively related to cash and stock dividend payment decisions. Amihud's (2002) illiquidity ratio ($Illiq_{it}$) is defined as the average of the ratio of daily absolute return to the daily volume:

$$Illiq_{it} = \frac{1}{D_{it}} \sum_{d=1}^{D_{it}} \frac{|R_{itd}|}{VOLD_{itd}} \quad (1)$$

³ We also used bid-ask spread and turnover as alternative proxies for liquidity and arrived at similar results.

where D_{it} is the number of days for which data is available for stock i in year t , R_{itd} is the return on stock i on day d for year t and $VOLD_{itd}$ is the respective daily trading value.

Dividend signalling hypothesis suggests that managers pay cash or stock dividends in order to reduce information asymmetry between themselves and the firms' investors by signalling managers' private information about firms' growth, profitability and risk prospects (Anderson et al., 2011). Previous research by Brav et al. (2005) into managers' explanations of dividend policies and by von Eijie et al. (2014) into the impact of cash dividends on risks suggests that in the US managers of listed companies may be motivated by the objective to reduce idiosyncratic and total risks. However, studies by Hoberg and Prabhala (2009) on US non-financial firms as well as by Kuo et al. (2013) on a sample of international non-financial companies suggests a negative relationship between firms' idiosyncratic and systematic risk and the probability to pay cash dividends. Indeed, research by Hoberg and Prabhala (2009) indicates that idiosyncratic and systematic risk accounted for up to 40% of the "disappearing dividends puzzle" in non-financial US listed firms between 1963 and 2004.

Prior literature suggests that managers may also use stock dividends to signal favourable information, in particular regarding future earnings expectations (Chen et al., 2002; Nguyen and Wang, 2013). Anderson et al. (2011) and He et al. (2016) suggests that firms with better investment opportunities and growth prospects are more likely to pay stock dividends in China. As future growth and idiosyncratic risk are related (Xu and Malkiel, 2003), we also assess whether idiosyncratic - and systematic risk - can explain firms' stock dividend policy.

Following Hoberg and Prabhala (2009), we proxy the idiosyncratic risk ($IDIO_{it}$) of firm i in year t as the standard deviation of the residuals from a regression of the firm's daily excess stock returns on the market factor (using the value-weighted market return less the riskless rate). We calculate the firm-year observation of idiosyncratic risk using the firm-specific daily stock returns of the calendar year. A firm's systematic risk (SYS_{it}) is consequently proxied by the standard deviation of the predicted value of the above mentioned regression used to calculate the firm's idiosyncratic risk. In line with prior literature we draw on market based risk variables, rather than accounting based risk variables, as we are interested in exploring whether dividend payments are affected by market forces.

2.3. Internal corporate governance

Despite attempts by the Chinese government to improve the transparency of its capital markets and minority shareholder protection, corporate governance of most listed Chinese companies tends to be perceived as comparatively weak (Huyghebaert and Wang, 2012; Li and Qian, 2013; Jiang and Kim, 2015). While legal requirements and best practice recommendations have led to changes in board structures (Canyon and He, 2012; Jiang and Kim, 2015), critics suggest that these changes are largely cosmetic, due to the prevailing influence of majority shareholders, the state and senior managers (Huyghebaert and Wang, 2012; Zhang, 2014).

However, empirical research into the relationship between board characteristics and firm performance in Chinese firms indicates that internal corporate governance characteristics are likely to be relevant after all (Chen, 2015; Liu et al., 2015). While larger boards might be subject to free-rider and communication problems and therefore less able to exert effective control over managers (Huyghebaert and Wang, 2012), companies which are subject to resource constraints and complex business environments might benefit from larger boards as directors can act as boundary spanners to relevant resources and provide a wider range of expertise (Guest, 2009). While a study by Chen (2015) consistently indicates a positive relationship between board size and firm performance in Chinese firms, research by Liu et al. (2015) arrives at less consistent results. More specifically, an investigation by Liu et al. (2014) into the impact of board characteristics on Chinese firms' cash dividend policies fails to find consistent evidence that board size is related to cash dividend levels. Never-the-less, we control for board size (BD_SIZE_{it}) using the number of directors on the board.

Research by Lin et al. (2009) suggests that the number of board meetings is positively related to firm efficiency in Chinese firms, which implies that boards with more frequent meetings are more diligent and will protect minority shareholder interests more effectively. Following Lin et al. (2009) we therefore adopt board meeting frequency ($BD_Meeting_{it}$), measured as the number of board meetings per year, as a proxy for board diligence. We assume that firms with more diligent boards are more likely to declare cash dividends to ease concerns about the misappropriation of free cash-flows.

The proportion of independent directors on boards is expected to play an important role for the ability of the board to monitor and control senior executives and majority investors (Fama, 1980; Huyghebaert and Wang, 2012). Prior research by Chen (2015) and Liu et al. (2015) suggests a positive association between board independence and firm performance in Chinese

listed companies. However, Liu et al. (2014) explored the relationship between board independence and cash dividends in Chinese firms and found no significant results. Nevertheless, we control for the potential impact of board independence (BD_IND_{it}) using the percentage of independent directors on the board (Liu et al., 2014; Liu et al., 2015).

As chairs of boards of directors have the ability to set the board's agenda and influence the information provided to the other board members, CEOs who also act as chairs can hide important information more easily from other, in particular non-executive, directors (Li et al., 2008; Lin et al., 2009). Moreover, also holding the chair position can increase the CEOs power over board appointments (Chen, 2015). In the context of a relatively poor minority shareholder protection environment powerful CEOs might be able to curtail both cash and stock dividends to serve their own interests. Although research by Lin et al. (2009), Liu et al. (2015) and Chen (2015) all fail to find consistent evidence for a significant relationship between CEO duality and firm performance in China, we control for CEO duality ($DUALITY_{it}$) using a dummy which equals one if the CEO is also the chair of the board of directors (Lin et al., 2009; Chen, 2015; Liu et al., 2015).

[Insert Table 1 around here]

As indicated in Table 1, during the period under observation, the average board size of the sample companies varied little across years, which is in line with findings by Jiang and Kim (2015). The average number of board meetings also varied comparatively little across the years, although we found noticeable variation between companies (see table 2). The percentage of independent directors on the boards of Chinese listed companies increased noticeably from 1% in 1999 to 37% in 2013, which is consistent with trends observed by Liu et al. (2015) and Jiang and Kim (2015). The driving force of the change was the implementation of the Guidelines for Introducing Independent Directors to the Board of Directors of Listed Companies by the Chinese Securities Regulatory Commission (CSRC) in 2003. The regulation stipulates that boards of listed companies should consist of least one-third independent non-executive directors (Liu et al., 2015). With regard to the prevalence of CEO duality our research suggests that the proportion of listed companies with CEO duality fell from 1999 to 2005 from 22 to 11 percent, but has since recovered back to 1999 levels. These results are similar to those found by Jiang and Kim (2015).

Property rights theory suggests that share ownership by managers and non-executive directors is likely to have a noticeable impact on directors' behavioural incentives (Jensen and Meckling, 1976). Unlike in many other emerging economies, however, both managerial and board ownership in Chinese listed firms tend to be very low (Zhang, 2014; Jiang and Kim, 2015). As indicated in Table 1, we observed a noticeable increase in managerial and board ownership during the period under observation. The percentage of shares owned by senior managers increased from 0.02% in 1999 to 0.65% in 2013, while the percentage of shares held by the board of directors increased from 0.04% in 1999 to 0.95% in 2013.

However, at less than one percent on average, the level of ownership remained very low (see also table 2). This implies that entrenchment effects due to managerial or board ownership are unlikely to be a corporate governance issue in Chinese listed firms, although managerial or board ownership might lead to risk aversion (Benson and Davidson, 2009). If managerial ownership serves to align the incentives of senior managers with those of outside shareholders, we expect a positive relationship between managerial share ownership and cash or stock dividends. However, if managerial ownership leads to managerial risk aversion, we expect the opposite. We therefore account for the potential impact of managerial ownership (MAN_OWN_{it}), calculated as the percentage of shares held by senior managers, on firms' dividend policies. Prior research into the relationship between managerial ownership and firms' dividend policy in China is not entirely conclusive. While Yang (2008) finds a positive relationship between managerial ownership and firms' dividend payout ratios, Chen and Ma (2005) fails to detect any significant relationship.

Ownership by non-executive directors might increase their incentives to supervise and control managers more closely. However, as with managerial ownership, ownership by non-executive directors might also lead to risk aversion. Unfortunately, it is not possible for us to clearly differentiate between the ownership of senior managers and the ownership of the non-executive directors, as the managerial ownership variable includes senior executives who are not members of the board of directors. We therefore consider the potential impact of board ownership (BD_OWN_{it}), measured as the percentage of stock board members jointly hold in the company, on firms' propensity to pay cash or stock dividend as part of the sensitivity testing. Due to the overlap between the two variables and the resulting high degree of correlation (0.85), we explore the impact of managerial ownership and board ownership in separate models.

3. Sample selection and data

3.1. Sample selection

We explore the drivers of the propensity of Chinese listed non-financial companies to pay cash and stock dividends between 1999 and 2013. All firm-level financial, accounting and corporate governance information is retrieved from the Worldscope and the China Stock Market and Accounting Research (CSMAR) databases. . We exclude financial firms from the sample as their dividend policies might be affected by industry-specific regulations (Fama and French, 2001). By contrast, utility firms are not excluded from our sample, as China does not imposed particular restriction on dividend payments for utility firms.⁴ We further exclude firms listed in the Small-and-Medium Section of the Shenzhen Stock Exchange, as the listing requirement for these firms are different from those for the main board. Also, we exclude firm with dual listing of H-shares, as the dividend decisions of these firms may be influenced by Hong Kong market practices.⁵

In order to be included in the sample, we require annual total assets figures to be available both in the current and in the preceding fiscal year. All the other accounting data must be available in the current fiscal year. To calculate the risk measures, we acquire daily information on closing stock price, market index price and the risk-free rate. To compute the liquidity measure we require daily information on stock price and trading volume. For the corporate governance variables, we obtain the annual observations about the size of the board of directors, the number of independent non-executive directors, the number of board meetings, CEO duality, the cumulative shareholding of the firm's board of directors, the cumulative shareholding of the firm's senior management, and state ownership.

Our research starts with 1999, as relevant corporate governance data is not available before this date. While for the logit regressions we use the whole sample period, for the time-series regressions we use the 5-year data between 1999 and 2003 as the base period, which serves as the benchmark from which to calculate the expected dividend pay-out behaviour for the subsequent 10-year period between 2004 and 2013.

⁴ The results are qualitatively the same if we exclude utility firms from our sample.

⁵ Firms which issue both A-shares, which are denominated and traded in national currency on the domestic stock markets, and B-shares, which are denominated and traded in US or Hong-Kong dollars and traded predominantly by foreign investors, are not excluded from our sample since the listing requirements and regulations for the A-share and B-share markets are similar (Jiang and Kim, 2015). The results are similar when we exclude firms with B-shares from our sample.

3.2. Data and descriptive statistics

Table 2 Panel A reports the descriptive statistics of all the variables for all the sample firms from 1999 to 2013. It shows that the average shares held by senior managers and by board of directors are 0.27% and 0.42% across the sample firms. The average number of board meetings is 8.50 per year. On average, 31% of directors are independent non-executives, and in 16% of our sample firms the CEO also serves as the chair of board of directors. Panel B in Table 2 reports the descriptive statistics of all the variables for cash dividend payers and non-payers for the period from 1999 to 2013. In line with our previous discussion, we expect larger, more profitable and more mature firms as well as firms with higher free cash flows to be more likely to pay cash dividends. Firms with a higher leverage ratio, more investment opportunities, higher stock liquidity as well as higher idiosyncratic and systematic risk are expected to be less likely to pay cash dividends.

The statistics in Panel B indeed show that cash-dividend-paying firms are statistically significantly larger, more profitable and more mature, have a higher stock liquidity and more free cash flow, and are less risky than their counterparts. They also have a statistically significantly lower leverage ratio. However, cash-dividend-payers do not significantly differ from non-payers in terms of control by state shareholders and investment opportunities if measured by asset growth, though market-to-book values of non-cash dividend payers are statistically significantly higher than those of cash-dividend-payers, as expected. Finally, the data also indicates that cash-dividend-paying firms tend to have larger boards of directors, have boards which meet less frequently and have a lower proportion of independent non-executive directors. In these firms, senior managers and the board of directors also hold a higher percentage of shares, while there are no statistically significant differences in terms of CEO duality.

[Insert Table 2 around here]

Panel C presents the summary statistics of all the variables for stock dividend payers and non-payers. As aforementioned, we expect larger and more mature firms as well as more profitable firms and firms with more investment opportunities and less free cash flow to be more likely to pay stock dividends. The statistics in Panel C shows that stock-dividend-paying firms are

indeed statistically significantly larger, more profitable, mature, and liquid. Compared to non-stock-dividend-paying firms, these firms have more investment opportunities, and less free cash flow. Also, stock-dividend-paying firms are characterised by a lower percentage of independent directors and less managerial and board ownership.

Table 3 presents the correlation coefficients of all the variables which are employed to investigate the impact of internal corporate governance and market forces, including stock liquidity, risk and dividend premiums. It shows a small but significant negative correlation between the market-to-book ratio (M/B_{it}) and the cash dividend dummy, and a similarly small significant but positive correlation between the market-to-book ratio (M/B_{it}) and the stock dividend dummy. Similar to the previous studies (Fama and French, 2001; Kuo et al., 2013; Anderson et al., 2011; Lakonishok and Lev, 1987), we find a positive correlation between the earnings-to-assets ratio (E/A_{it}) and both dividend dummies, and between the size percentile and the two dividend dummies.

[Insert Table 3 around here]

Consistent with the life cycle theory (DeAngelo et al., 2006; Dennis and Osobov, 2008), the ratio of retained earnings to book value of total equity (RE/BE_{it}) is positively related to the cash dividend dummy. The positive association between the stock dividend dummy and life-cycle proxy is in line with the retained earnings hypothesis, which refers to the fact that stock dividends require firms to have sufficient retained earnings to facilitate the required capital swap from retained earnings to the firm's share capital. Regarding variables which provide an indication of the impact of market forces on firms' dividend policies, the correlation matrix indicates that systematic risk is negatively related to both dividend dummies, while idiosyncratic risks is to be negatively related to the cash and positively to the stock dividend dummy. The illiquidity ratio ($Illiq_{it}$) is significantly negatively related to both the stock and the cash dividend dummy, which in line with the consideration that firm with low levels of stock liquidity are more likely to issue cash and stock dividends.

Concerning the relationship between firms internal corporate governance structures and their dividend policies, it is of interest to note that while board size, board ownership and managerial ownership are all significantly positively related to the cash dividend dummy, board meeting frequency and board independence are significantly negatively related. By contrast, only board

independence and managerial ownership are statistically significantly related to the stock dividend dummy – and both are negative. The table reveals a high degree of correlation between managerial ownership and board ownership (0.85). As it is not possible to differentiate between managerial ownership and the ownership on non-executive directors, the two variables are not used simultaneously in the regression models to avoid multicollinearity issues.

Table 4 and Figure 1 illustrate the change in the percentage of cash and stock dividends payers in China between 1999 and 2013. Compared to stock dividend payments, the use of cash dividends by Chinese listed companies has been far more variable. For the cash dividend payment, it shows that the percentage of cash-dividend-payers among Chinese firms increased substantially from 48.46% in 1999 to 75.61% in 2002, then fell sharply to 44.14% in 2006, and recovered gradually afterwards to fluctuate around 51% during the period 2007-2010, before increasing to 69.01% in 2013. This pattern differs noticeably from those observed in developed economies such as the US, UK, Australia, France or Germany and represents almost a mirror image to developments in Singapore and Hong Kong (Kuo et al., 2013). In general, the percentage of stock dividend payers decreased noticeably from 13.82% in 1999 to 2.36% in 2013. Specifically, the proportion of stock dividends payers decreased from 13.82% in 1999 to 4.90% in 2002, it then fluctuated around 5% until 2010 before it further declined to about 2.3% in 2012 and 2013.

[Insert Table 4 and Figure 1 around here]

Table 5 presents cash dividend and stock dividend premia each year between 1999 and 2013. In line with Baker and Wurgler, (2004a; b) the dividend premium is estimated as the difference between the logs of the value-weighted market-to-book ratio of dividend-payers and that of non-dividend-payers in a year. We use the dividend premia as a proxy for investors' preference for dividend-payers to explore the possibility that firms cater to investors' dividend preferences. While both cash and the stock dividend premiums fluctuate, it is still possible to make out some general tendencies. Between 1999 and 2007 cash dividend premia tended to be negative, while from 2008 onwards they were positive for each year. By contrast, stock dividends premia were mostly positive throughout the whole period. While the data on the premia provides some indications about investors' preferences for dividend-payers and non-dividend-payers, it is not

possible to deduce the underlying reasons for these preferences and how far they influence firms' dividend policies. This will be explored in section 4.

[Insert Table 5 around here]

4. Empirical analysis and results

4.1. Determinants of cash and stock dividend payout policies

Following Fama and French (2001), we employ logit models to examine the determinants of Chinese listed companies' probability to pay cash or stock dividends between 1999 and 2013. The logit regressions take the following form:

$$\Pr(CD_{it}/SD_{it}) = \text{logit} \left(\alpha + \sum_{j=1}^6 \beta_j \text{Firm_Char}_{jit} + \beta_7 \text{State}_{it} + \beta_8 \text{Illiq}_{it} + \sum_{j=9}^{10} \beta_j \text{Risk}_{jit} + \beta_{11} \text{Man_Own}_{it} + \sum_{j=12}^{16} \beta_j \text{Board_Char}_{jit} \right) + \mu_{it} \quad (2)$$

Equation 2 is employed to investigate the determinants of the probability of being a cash (stock) dividend payer, by setting CD_{it} (SD_{it}) to one when firm i pays cash (stock) dividends in year t , and zero otherwise. The coefficients of the models are estimated as time series averages in line with Fama and MacBeth's (1973) annual cross-sectional regressions with Newey-West t statistics. The independent variables in this logit model can be categorized into seven groups: (a) Firm characteristics variables, i.e. market-to-book ratio (M/B_{it}), asset growth (dA/A_{it}), earnings-to-assets ratio (E/A_{it}), size percentile ($SIZE_{it}$), as well as free cash flow (FCF_{it}) and leverage, proxied by the debt-to-equity ratio (D/E_{it}). (b) The life-cycle variable proxied by the ratio of retained earnings to book value of total equity (RE/BE_{it}). (c) The state control variable ($STATE_{it}$), which is a dummy variable coded 1 if the largest shareholder is the state shareholders and zero otherwise. (d) The stock liquidity variable proxied by the Amihud's (2002) illiquidity ratio ($Illiq_{it}$). (e) Variables for systematic risk (SYS_{it}) and idiosyncratic risk ($IDIO_{it}$). (f) The percentage of shares held by senior managers (Man_Own_{it}) or by board members (BD_OWN_{it}) respectively. (g) The board characteristics variables ($Board_Char_{it}$), including the total number of board members (BD_SIZE_{it}), the number of board meetings per year ($BD_MEETING_{it}$), the percentage of independent nonexecutive directors on the board (BD_IND_{it}) and the existence of CEO duality ($DUALITY_{it}$), which is proxied with a dummy which is set to 1 if the CEO also holds the position of chair of the board of directors.

Table 6 presents the estimated coefficients and Newey-West t-statistics for the logit regressions, which test the probability of a firm being a cash dividend-payer; whereas Table 7 reports the estimates coefficients and Newey-West t-statistics for the logit regressions which test the probability of a firm being a stock-dividend-payer.

4.1.1 Determinants of cash dividend payments

Table 6, Model (1) reports the estimates from the baseline regression with independent variables which include the firm characteristics variables advanced by Fama and French (2001), free cash flow, leverage, the firm's life-cycle, and State dummy. As expected, the results suggest that the probability of a firm paying cash dividends decreases with its growth and investment opportunities as proxied by the firm's market-to-book value and asset growth, and increases with the firm's profitability, as measured by the earnings-to-assets ratio, and firm size. These findings support Fama and French's (2001) contention that larger, more profitable firms with less investment opportunities are more likely to pay cash dividends, whereas firms with strong growth opportunities might conserve cash to fund future ventures. The results also indicate a statistically significant negative impact of leverage and the life-cycle proxy on the propensity to pay cash dividends. The latter implies that DeAngelo et al.'s (2006) life-cycle theory also applies to Chinese listed companies. By contrast, the findings indicate that free cash flow does not influence the cash dividend practice of Chinese listed firms. This is consistent with prior research by Lee and Mauck (2016) on dividend initiations in US firms. Moreover, we find no evidence for an impact of controlling state shareholders on firms' likelihood to pay cash dividends. This is largely consistent with research by Liu et al. (2014), who also found no statistically significant impact of controlling state shareholders on Chinese firms' cash dividend policies.

[Insert Table 6 around here]

Model (2) and Model (3) extend the baseline model to test for the additional consideration of stock liquidity as well as systematic and idiosyncratic risks. The results from model (2) indicate that the coefficient on the illiquidity ratio is positive and significant. This means that stock liquidity is negatively associated with firms' probability of paying cash dividends. This is in

line with our conjecture that managers might initiate cash dividends to reduce the shares' ex-dividend trading price and thereby make them more attractive to individual investors in order to avoid the discount levied on firms with illiquid stocks (Copeland, 1979; Anderson et al., 2011). Our results therefore corroborate the evidence observed by Banerjee et al. (2007) in the US market and by Kuo et al. (2013) in the US, the UK, France, Germany and other European markets.

When incorporating risk variables into the regression in model (3) we find that both systematic and idiosyncratic risks have strong explanatory power. These significant negative results are in line with findings by Hoberg and Prabhala (2009) on US non-financial firms as well as by Kuo et al. (2013) on a sample of international companies. The results from models (2) and (3) are consistent with those recorded for models (6), (7) and (8) and are therefore robust to a variety of model specifications.

In Model (4) and Model (5), we investigate the impact of internal corporate governance characteristics on firms' propensity to pay dividends. Model (4) fails to show any significant impact of managerial ownership on firms' likelihood to pay cash dividends. These results are also consistent in models (6) and (7). These findings are in contrast to study by Yang (2008) which indicates a positive relationship between managerial ownership and firms' cash dividend payout ratios, although research by Chen and Ma (2005) also fails to find any significant relationship between managerial ownership and firms' cash dividend payout.

Model (5) considers the additional impact of board ownership and board characteristics, such as board size, board meeting frequency, board independence and CEO duality. We find a statistically significant and positive coefficient on board ownership even when controlling for firm characteristics. This implies that greater board ownership is more in favour of paying cash dividends, which corroborates with Jensen's (1986) agency cost theory of dividend payouts, whereby firms with powerful board (greater board ownership) tend to pay more cash dividends to reduce the managers' expropriation and protect shareholders' interests.⁶ The results further show that board size is significantly positively related to firms' propensity to pay cash dividends, while board meeting frequency is negatively related. These results are consistent with those in models (6) and (7). While research on developed economies frequently suggests

⁶ As aforementioned, due to high correlation between the managerial ownership variable and the board ownership variable, we test their impact separately. As part of our sensitivity analysis, we replaced board ownership with managerial ownership in Model 5 and the result is consistent and shows that managerial ownership does not have explanatory power for dividend payout in China.

that large boards tend to suffer from communication and free rider problems (Huyghebaert and Wang, 2012), findings of research into the relationship between board size and firm performance in China are rather mixed so far (Chen, 2015; Huyghebaert and Wang, 2012; Liu et al., 2015).

It is of interest to find negative relationship between board meeting frequency and firms' propensity to pay cash dividends. This implies that board meeting frequency is not a particularly good proxy for board diligence, but might be an indication of poor preparation for and inefficiency of board meetings, which necessitates more frequent meetings. In this case board meeting frequency might be a negative indicator for board effectiveness. Board independence does not appear to be related to firms' likelihood to pay cash dividends. This is in line with findings by Liu et al. (2014) who researched the relationship between board independence and cash dividend levels in Chinese firms. The lack of evidence might be related to the fact that in many Chinese listed companies 'independent' directors are nominated by majority shareholders, the existing board or the state (Huyghebaert and Wang, 2012; Zhang, 2014), which makes it a very noisy proxy for the board's independence.

Model (5) does not provide supportive evidence of a significant relationship between CEO duality and firms' propensity to pay cash dividends, while the CEO duality is significantly negative in Model (7), which also takes account of stock liquidity and risks but not board ownership. In other words, CEO duality is no longer significantly related to firms' propensity to pay cash dividends when board ownership is incorporated. This implies that board ownership may play a more influential role for dividend payout policy in China. While the finding would be consistent with our earlier considerations that powerful CEOs might be able to curtail the payment of cash dividends to serve their own interests, prior research into the impact of corporate governance on Chinese firms' performance also frequently finds inconsistent or no evidence of a negative impact of CEO duality (Lin et al., 2009; Chen, 2015; Liu et al., 2015). The results of the logit regressions indicate that most findings are largely robust to different model specifications.

4.1.2 Determinants of stock dividend payments

In Table 7, Model (1) reports the estimates from the baseline regression with independent variables including the explanatory firm characteristic proposed by Fama and French (2001), as well as controls for free cash flow, leverage, the firm's life-cycle, and the presence of a controlling state shareholder. As anticipated, the results indicate that the probability of a firm paying stock dividends increases with its profitability, as measured by the earnings-to-assets ratio, and its future growth opportunities, as proxied by the market-to-book ratio. This is in line with signalling theory which proposes that managers use stock dividends to signal their growth and profit expectations to the market (Brennan and Copeland, 1988; Anderson et al., 2011). However, asset growth measured by the asset growth ratio (dA/A) is not statistically significantly related to the propensity to pay stock dividends.

While firm size appears to be positively related to firms' probability of being stock dividend payers in the baseline model (1), these results become statistically insignificant when liquidity factor is included in the regression. By contrast free cash flow has a negative and statistically significant coefficient in all model specifications. This is consistent with the cash substitution theory which suggests that firms with low cash flow are likely to choose stock dividend payouts rather than cash dividends in order to preserve cash (Anderson et al., 2011). The incentive to reduce liquidity risks might also explain the finding that leverage is positively associated with the likelihood that firms pay stock dividends.

In support of He et al. (2016), we find that firms' life cycle, proxied by the retained earnings-to-book equity ratio, is positively related to firms' propensity to pay stock dividends. This means that less mature firms with more growth expectations do not use stock dividends to substitute for their greater reluctance to pay cash dividends. Instead it might be that more mature companies try to use stock dividends to influence investors' perceptions about their growth opportunities. The results regarding the impact of free cash flow, leverage and firms' life-cycle are largely consistent for all models we tested and therefore robust to a variety of model specifications.

Consistent with our expectation, we find that the presence of a controlling state shareholder is statistically negatively related to the probability that firms are stock dividend payers. This negative relationship might be explained to some degree by Wei and Xiao's (2009) finding that Chinese firms with higher proportion of state owned non-publicly tradable shares were less likely to pay stock dividends. This consideration is consistent with findings by Anderson et al.

(2011) that for the period of 2000-2008 in China controlling state shareholders were statistically negatively related to stock dividends per share.

[Insert Table 7 around here]

Model (2) and Model (3) extend the baseline model to test for the additional consideration of stock liquidity as well as systematic and idiosyncratic risks. The results from model (2) indicate that the illiquidity ratio is not significantly related to firms' propensity to pay stock dividends. This contradicts Copeland's (1979) liquidity-based hypothesis, but is in line with research by Adaoglu and Lasfer (2011), who also found no evidence that stock liquidity is statistically significantly related to the amount of stock dividends distributed by Chinese firms. When incorporating risk variables into the regression in model (3) we find, different from our expectations, that idiosyncratic risk is not statistically significant. However, we find that systematic risk is statistically negatively related to the likelihood that firms pay stock dividends instead, and this finding is consistent for all model specifications.

We explore the impact of internal corporate governance characteristics on firms' propensity to pay dividends in Models (4) and (5). Similar to the results of cash dividends, Model (4) fails to show any significant impact of managerial ownership on firms' likelihood to pay stock dividends. Model (5) explores the additional impact of board ownership and the board characteristics, i.e. board size, board meeting frequency, board independence and CEO duality. In exact contrast to the earlier results on cash dividends, we find that board size is significantly negatively related to firms' propensity to pay stock dividends, while board meeting frequency is statistically significantly positively related. These results are consistent with those in models (6) and (7). If our earlier considerations are correct that, in Chinese listed companies, large boards are beneficial and a sign of a commitment of directors to the firm and its shareholders, directors in large boards might pressure managers to issue cash rather than stock dividends. Similarly, if our earlier contention is correct that high board meeting frequency might be an indication of poor preparation for and organisation of board meetings, boards which meet more frequently might allow managers to issue stock instead of cash dividends.

In line with our results on cash dividends, board independence is not found to be statistically significantly related to firms' propensity to pay stock dividends. As discussed earlier, the insignificant results might be related to the fact that in many Chinese listed companies

‘independent’ directors are nominated by majority shareholders, the existing board or the state (Huyghebaert and Wang, 2012; Zhang, 2014), so that the proxy is not an ultimate measure for boards’ independence from managerial or blockholder interests. Again, similar to findings of cash dividends, the results from Model (5) also show that CEO duality has very limited explanatory power for firms’ propensity to pay stock dividends.

We report the results on the model with all of the independent variables in model (7), but due to the high correlations between the managerial ownership variable and the board ownership variable, we replaced managerial ownership with board ownership in model (8). We observe that all variables have results which are consistent with our earlier model specifications. Again, in contradiction to our earlier results on cash dividends, this variable is consistently significantly negatively related to firms’ probability to pay stock dividends. This implies that directors’ ownership might incentivise them to pressure managers to pay cash rather than stock dividends.

4.2. The changing influence of key determinants on dividend payment patterns

While the logit regressions used above estimate the impact of the relevant independent variables on firms’ propensity to pay cash or stock dividends over the whole sample period 1999 to 2013, we also further explore the unexplained percentage of dividend payers by incorporating additional factors into our baseline model. In line with prior literature (Kuo et al., 2013; Hoberg and Prabhala, 2009; Grullon et al., 2011; Baker and Wurgler, 2004a), we therefore initially conduct a baseline logit regression including Fama and French's (2001) firm characteristics variables, i.e. size percentile ($SIZE_{it}$), earnings-to-assets ratio (E/A_{it}), asset growth (dA/A_{it}), market-to-book ratio (M/B_{it}), as well as free cash flow (FCF_{it}), leverage (D/E_{it}), the life-cycle proxy (RE/BE_{it}), and the controlling state shareholder dummy ($STATE_{it}$), as the independent variables for the period 1999-2003. Based on these estimations we are able to predict an expected percentage of dividend payers for the subsequent 10-year period of 2004 to 2013. Comparing the actual percentage of dividend-payers to the expected percentage of dividend-payers in year t allows us to estimate how far stock liquidity, risk, managerial ownership, and board ownership and characteristics, contribute to explaining the unexplained propensity to pay (PTP_t) cash and stock dividends.

[Insert Figure 2 around here]

The unexplained propensity to pay is therefore calculated by subtracting the actual proportion of dividend payers from the predicted percentage of dividend payers based on the extrapolation of the baseline logit regression for the 1999-2003 base period. The solid line labelled CFC in Panel A of Figure 2 shows that, Chinese firms' unexplained propensity to pay given by the baseline model increased between 1999 and 2003 from -20.21% in 1999 to 8.95% in 2002, and then fell until 2006 to -21.12%, before it slowly started to recover and eventually turned positive and reached 6.48% in 2013. We next consider the impact of adding alternatively stock liquidity, risks, managerial ownership and board ownership and characteristics to the baseline model in order to test whether these variables are able to explain part of the unexpected divergence in the rate of cash dividend payers. If the resulting graphs are closer to the x-axis than the one representing the baseline model, the added variable explains some of the unexpected dividend payment observations.

The impact of adding stock liquidity to the baseline model is depicted by the long-dashed line (CFCIliq). This suggests that until about 2009 changes to stock liquidity can explain a noticeable part of the increase in cash dividend payments the baseline model could not account for. However, subsequently the inclusion of stock liquidity suggests a much higher increase in the proportion of cash dividend payers than observed in reality. This overestimation might be related to a general increase in liquidity across the stock market which might have reduced the share premium achieved by shares of comparatively liquid stocks.

Adding controls for systematic and idiosyncratic risk to the baseline model, as illustrated by the dashed-dotted line (CFCRisk) appears in general to reduce the unexplained proportion of cash dividend payers. However, whereas the baseline model tends to suggest a lower proportion of cash dividend payers than expected for most of the sample period, the risk adjusted model suggests for the period of 2007 to 2009 that there were more cash dividend payers than expected. The results for the inclusion of stock liquidity and risk variables to the baseline model are generally in line with the logit regression results in table 6.

Considering the potential impact of managerial ownership as depicted by the short-dashed line (CFCManager), the results appear to be noticeably worse than those for the baseline model. This is not particularly surprising given the lack of significant results in the earlier regressions. We also find that adding board ownership and characteristics, board size, board meeting

frequency, board independence and CEO duality to the baseline model, as illustrated by the grey dotted line (CFCBoard), hardly reduce the unexplained propensity to pay at all, although board ownership, board size and board meeting frequency were statistically significant in the logit estimations reported in table 6.

As above, Panel B of Figure 2 depicts the unexplained proportion of stock dividend payers with the adjustment of the baseline model by stock liquidity (SFCIlliQ), risks (SFCRisk), managerial ownership (SFCManager) and board ownership and characteristics (SFCBoard) respectively. Between 1999 and 2003 the development of the variables included in the baseline model appear to capture the changes to the percentage of stock dividend payers fairly well. After this period, the fall of the graph representing the baseline model (SFC) indicates an increasing unexplained fall in firms' propensity to pay stock dividends. While in 1999 the baseline model suggests that the proportion of stock dividend payers is 1.97% lower than expected and it then oscillates around the x-axis, from 2003 we observe an unexpected increase in the percentage of stock dividend payers which eventually amounts to 20.27% in 2010, before the trend slightly reverses to 16.35% in 2013. However, adding stock liquidity to the baseline model (SFCIlliQ) leads to worse results, which suggests that stock liquidity does not help explain the unexplained percentage of stock dividend payers. This result is in line with those from the logit regression in table 7 which indicate that stock liquidity does not significantly affect firms' propensity to pay stock dividends.

Between 2000 and 2006 the addition of risks to the baseline model (SFCRisk) appears to make little difference to the results. However, particularly between 2007 and 2011 risks appear to explain a noticeable part of the unexpected reduction of the proportion of stock dividend payers. Given the results in table 7, the explanatory power is likely to derive largely from the control for systematic risk. The weakening economic growth in China since 2006 might be related to the increasing importance of firms' systematic risk for managers' decisions not to pay stock dividends.

Considering the potential impact of managerial ownership as depicted by the short-dashed line (SFCManager) suggests that the inclusion of the variable makes little difference until 2005, but subsequently the results appear worse than those for the baseline model. As with the investigation of cash dividend payments, this is not surprising given the lack of significant results in the earlier regressions. In contrast to our findings with regard to the payment of cash dividends, adding board ownership and characteristics, i.e. board size, board meeting frequency, board independence and CEO duality to the baseline model, as illustrated by the grey dotted

line (SFCBoard), considerably reduces the unexpected level of reductions of stock dividend payments. In line with our findings from table 7 we expect that the findings are likely to be largely driven by Board ownership, board size and board meetings frequency.

5. Can catering for cash or stock dividends explain changing dividend policies?

Catering theory suggests that, if investors place a premium (or a discount) on dividend-payers relative to non-payers according to their preferences for dividends, this premium (or discount) might incentivise firms to cater to the prevailing demand by altering their firms' dividend policy (Baker and Wurgler, 2004a; 2004b; Ferris et al., 2006; Hoberg and Prabhala, 2009; Kuo et al., 2013). Baker and Wurgler (2004b) defined various proxies for the existence of catering incentives, though the most widely used proxy is the dividend premium (Baker and Wurgler, 2004a; Kulchania, 2013; Ferris et al., 2009; Li and Lie, 2006). The dividend premium is defined as the difference between log of the value-weighted market-to-book ratio for dividend-payers and non-dividend-payers. Based on our earlier work we estimate the propensity to pay by taking into account the firm characteristics included in our baseline model, i.e. firms' market-to-book ratio (M/B_{it}), asset growth (dA/A_{it}), earnings-to-assets ratio (E/A_{it}), size percentile ($SIZE_{it}$), as well as leverage (D/E_{it}), free cash flow (FCF_{it}), life-cycle (RE/BE_{it}) and state dummy ($STATE_{it}$), and add additional variables for stock liquidity ($Illiq_{it}$), systematic (SYS_{it}) and idiosyncratic ($IDIO_{it}$) risk, managerial ownership (Man_Own_{it}) and board ownership and characteristics, such as board size (BD_SIZE_{it}), the number of board meetings per year ($BD_MEETING_{it}$), the percentage of independent nonexecutive directors (BD_IND_{it}) and the existence of CEO duality ($DUALITY_{it}$) separately. We test statistically for the relevance of the catering hypothesis by regressing the changes in propensity to pay cash (stock) dividends on the lagged cash (stock) dividend premium.

In order to control for the possibility that managers' decisions about cash and stock dividends are interrelated, we control for both the cash and the stock dividend premia simultaneously when testing for the possibility that managers cater to shareholders' preferences. If managers cater to investors' preferences when making cash and stock dividends decisions and consider both types of dividends policies while making their choice, we expect that firms are more likely to pay cash dividends when the stock dividend premium is low, and more likely to pay stock

dividends when cash dividends premium is low. Thus, our framework permits a fresh perspective in the literature that debates whether cash dividends and stock dividends are substitutes. We statistically test for the presence of the substitution hypothesis by first calculating the propensity to pay (PTP) as the difference between actual and predicted percentage of dividend-payers. The latter is calculated with mean estimates of annual logit regressions for the base period 1999-2003 using our baseline model and the additional control variables for stock liquidity, risk, managerial ownership and board characteristics. We then conduct a time series regression where the changes in propensity to pay cash (stock) dividends are regressed on the lagged cash (stock) and stock (cash) dividend premium. The regressions are defined as follows:

$$\Delta PTPC_t(\Delta PTPS_t) = \alpha + \beta_1 CP_{t-1}^{D-ND} + \beta_2 SP_{t-1}^{D-ND} + \varepsilon_t \quad (3)$$

where $\Delta PTPC_t$ is the changes in propensity to pay cash dividends, $\Delta PTPS_t$ is the changes in propensity to pay stock dividends, CP_{t-1}^{D-ND} is the lagged cash dividend premium (capturing catering incentives for cash dividends), SP_{t-1}^{D-ND} is the lagged stock dividend premium (capturing catering incentives for stock dividends).

Table 8 reports the regression results of Equation (3) with changes in propensity to pay cash (stock) dividend as dependent variable for the sample period 2004-2013 in Panel A (Panel B). Each row reports the coefficients of cash and stock dividend premium variables and Newey-West t-statistics for the time-series regression. Each panel includes 8 models. Model (1) reports the estimates of the regression where the propensity to pay is based on the fitted logit regression, with variables from the baseline model as independent variables. Model (2) - Model (5) present results for regressions where stock liquidity, risk, managerial ownership and board ownership and characteristics respectively are added to the variables of the baseline model. Model (7) and Model (8) presents the estimation of the regression where the variables for the baseline model as well as stock liquidity and risk as well as either managerial ownership or board characteristics were taken into account, while Model (6) does not include both managerial or board ownership.

[Insert Table 8 around here]

Panel A presents the results for the role of dividend premium in explaining the changes in propensity to pay cash dividends. It is worth of noting that the stock dividend premium is not statistically significant for any of the model specifications. This implies that investors' preference for stock dividends does not affect managerial decisions about whether to pay cash dividends. Although Wei and Xiao (2009) find evidence that stock dividends per share have a statistically significant negative impact on the amount of cash dividends (and vice versa) in Chinese listed companies during the period of 1993 to 2006, we find no evidence for a substitution effect based on catering for investor preferences for stock dividends.

Regarding the cash dividend premia, we find that those are only statistically significant as long as the logit model does not control for risk (i.e. in Models 1, 2, 4 and 5). Our results corroborate Hoberg and Prabhala's (2009) finding in the US market and Kuo et al.'s (2013) finding in a range of international markets, that catering effects disappear once risks are controlled for. This is in line with the argument advanced by Hoberg and Prabhala (2009) that the dividend premium, rather than being a proxy for catering incentives, actually measures perceived risk difference between dividend-payers and non-dividend-payers. In other words, our results imply that risk as an aspect of market forces rather than internal corporate control plays an essential role for cash dividend policy in Chinese listed firms.

Panel B presents the results for the changes in the propensity to pay stock dividends. In line with the results on cash dividends in Panel A, the share cash dividend premium is not statistically significant for any of the model specifications. We therefore find no evidence for a substitution effect based on catering for investor preferences for cash dividends. Moreover, again in line with the results on cash dividends, we find that stock dividend premia are only statistically significant as long as the logit model does not control for risk (i.e. in Models 1, 2, 4 and 5). This further adds to the mounting evidence that share premia are not proxies for shareholders' dividend preferences but measures for risk difference between dividend-payers and non-dividend-payers.

6. Conclusion

This study set out to investigate whether the disappearance of stock dividends and the fluctuation in the popularity of cash dividends in China can be explained by internal corporate governance characteristics or external market force including stock liquidity, risk and investors' preferences. This question is of particular interest given the continuing weakness of minority

shareholder protection, which is not dissimilar to developments in other emerging economies (Anderson et al., 2011; Liu et al., 2014), and large proportion of trading generated by individual investors.

Our findings regarding the baseline model reveal that, like in many advanced economies, size, profitability, growth, free cash flow, leverage and life-cycle all affect Chinese firms' propensity to pay cash dividends. The same variables are also significantly related to the likelihood that Chinese firms are stock dividend payers. Due to the continuing prevalence of state ownership in China (Jiang and Kim, 2015), we adjusted our baseline model to take account of the presence of a controlling state shareholder. While we found no evidence that controlling state blockholders affect firms' likelihood of paying cash dividends, in line with previous research which suggests that state shareholders have a negative impact on stock dividends (Wei and Xiao, 2009; Anderson et al., 2011) we found that the presence of controlling state blockholders negatively affects firms' propensity to pay stock dividends as stock dividends may reduce their influence.

With regard to the impact of board characteristics on the propensity to pay cash and stock dividends we found that board independence and CEO duality are not statistically significantly related to either cash or stock dividend payments. The lack of significant results regarding board independence are not surprising as many Chinese listed companies 'independent' directors are nominated by majority shareholders, the existing board or the state (Huyghebaert and Wang, 2012; Zhang, 2014). Regarding the impact of CEO duality, we find that it has no significant impact on cash or stock dividend policy. By contrast, our results indicate that that firms with larger boards and fewer board meetings are more likely to pay cash dividends, and less likely to pay stock dividends. This implies that boards with these characteristics have a preference of cash dividends over stock dividends. As, given the choice, minority shareholders in comparatively inefficient and illiquid stock markets are likely to prefer cash dividend payments over stock dividends. This implies that larger boards and boards with less frequent meetings may have more expertise and operate more efficiently to better protect minority shareholder interests. Moreover, we find no evidence that managerial ownership is related to firms' payout policies, while a higher proportion of board ownership is positively (negatively) related to the likelihood of firms paying cash (stock) dividends. This preference for cash dividends suggests that ownership incentives of board insiders align their preferences for cash dividends with those of minority shareholders.

In line with prior studies looking at many advanced economies we find that both idiosyncratic and systematic risks are significantly related to firms' cash dividend policy, while idiosyncratic risk is not significantly related to the likelihood of being stock dividend payers. However, our results suggest that while stock liquidity appears to be a factor influencing cash dividend payments in line with previous research on developed economies (Hoberg and Prabhala, 2009; Kuo et al., 2013), they do not seem to affect stock dividends. These particularly provide insight to the determinants of stock dividend policy. Moreover, using the changes in probability of being dividend payers to investigate the role of catering incentives in dividend policy, our results show that, idiosyncratic and systematic risks play the key role in explaining the fluctuation in the prevalence of cash dividends in China, while board characteristics contribute little to explain unexpected fluctuations. Catering incentives can explain part of the increase in cash dividend payments even when control for the impact of board characteristics and stock liquidity. However, once we took risks into account, we were unable to find any evidence of catering to investor interests for cash stock dividends. This finding supports Hoberg and Prabhala's (2009) view that dividend premia are not a proxy for catering incentives but measures the risk difference between dividend-payers and non-dividend-payers. These imply that market force, in particular risk, is the key driver of cash dividend policy for managers while internal governance plays a little role when external minority shareholder protection is weak and legal system is less developed. Similar concluding comments can be applied to stock dividends.

As already indicated, our research into the determinants of the prevalence of cash and stock dividends suggested at times the possibility that boards might perceive them as related decisions. As part of our investigation into the possibility that dividend policies by Chinese companies might be affected by catering for investor preferences we therefore opted to consider the possibility that decisions about cash dividends take into account not only investor preferences for cash but also for stock dividends and vice versa. However, we do not find any significant results for the potential impact of a stock (cash) dividend premium in the catering tests for cash (stock) dividends. As a consequence, we provide an insight into the determinants not only for cash but also for stock dividend policy which has received much less attention in literature and into the interrelationship between these two types of dividend payout. Our findings also offer policy implications to policy makers and regulators for the development of external corporate governance mechanism in the emerging market context.

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Table 1. Corporate governance characteristics in China.

Year	FIRMS	STATE(%)	BD_SIZE	BD_MEETING	BD_IND(%)	DUALITY(%)	MAN_OWN(%)	BD_OWN(%)
1999	615	88.46	9.67	8.46	1.00	22.00	0.02	0.04
2000	704	86.51	9.49	7.82	2.00	16.00	0.01	0.03
2001	824	85.68	9.38	6.15	6.00	12.00	0.01	0.03
2002	898	81.74	9.86	8.5	24.00	11.00	0.02	0.03
2003	997	78.23	9.88	7.52	33.00	12.00	0.03	0.06
2004	1065	73.43	9.68	7.35	34.00	12.00	0.05	0.09
2005	1167	70.27	9.6	7.41	35.00	11.00	0.09	0.18
2006	1178	66.47	9.46	8.02	35.00	12.00	0.09	0.18
2007	1250	61.20	9.38	9.68	36.00	14.00	0.13	0.26
2008	1356	58.26	9.27	9.49	36.00	15.00	0.24	0.41
2009	1408	56.61	9.17	8.34	36.00	16.00	0.27	0.46
2010	1503	54.76	9.14	8.79	37.00	17.00	0.32	0.54
2011	1725	48.17	9.06	9.41	37.00	21.00	0.47	0.78
2012	1840	49.08	9.02	9.35	37.00	22.00	0.63	0.9
2013	1907	48.03	8.89	8.78	37.00	21.00	0.65	0.95

Note: This table shows the total number of firms, the percentage of firms where the state is the largest shareholder STATE(%), the average percentage of shares held by senior managers MAN_OWN(%), the average percentage of shares owned by the board of directors BD_OWN(%), the average number of directors on the board BD_SIZE, the average number of board meetings per year BD_MEETING, the average percentage of independent directors BD_IND(%) and the percentage of firms where CEO is also the chair of the board of directors DUALITY(%) for all the sample firms from 1999 to 2013. All data is sourced from the China Stock Market and Accounting Research database.

Table 2. Summary Statistics.

Panel A. All the firms.

	Obs.	Mean	Std.	Q1	Median	Q3
M/B	17554	1.51	1.06	0.90	1.18	1.72
dA/A	17554	0.06	0.42	-0.04	0.04	0.12
E/A	17554	0.05	0.07	0.03	0.05	0.08
SIZE	17554	0.53	0.27	0.30	0.54	0.77
FCF	17554	3.68	15.68	0.13	1.09	3.24
D/E	17554	1.38	1.88	0.49	0.92	1.61
RE/BE	17554	0.00	1.45	0.11	0.22	0.33
STATE	17554	0.66	0.47	0.00	1.00	1.00
ILLIQ	17331	0.02	0.02	0.00	0.01	0.03
SYS	17248	0.02	0.01	0.01	0.02	0.02
IDIO	17248	0.02	0.01	0.02	0.02	0.03
BD_SIZE	17421	9.32	2.06	9.00	9.00	10.00
BD_MEETING	17519	8.50	3.40	6.00	8.00	10.00
BD_IND	17410	0.31	0.12	0.33	0.33	0.36
DUALITY	17415	0.16	0.37	0.00	0.00	0.00
MAN_OWN	17417	0.27	0.80	0.00	0.00	0.02
BD_OWN	17481	0.42	1.07	0.00	0.00	0.04

Panel B. Cash-dividend Payers and non-Cash-dividend Payers.

	Cash dividend payer in year t (1)						Non-cash-dividend payer in year t (2)						(1)-(2)
	Obs.	Mean	Std.	Q1	Median	Q3	Obs.	Mean	Std.	Q1	Median	Q3	t-value
M/B	10268	1.42	0.95	0.88	1.13	1.62	7286	1.64	1.20	0.93	1.25	1.88	(-13.58)***
dA/A	10268	0.05	0.29	-0.03	0.04	0.13	7286	0.06	0.55	-0.07	0.03	0.10	-1.56
E/A	10268	0.07	0.06	0.04	0.06	0.09	7286	0.03	0.08	0.02	0.04	0.06	(32.30)***
SIZE	10268	0.59	0.27	0.38	0.62	0.83	7286	0.46	0.26	0.24	0.43	0.66	(33.15)***
FCF	10268	4.94	17.75	0.38	1.58	4.28	7286	1.91	11.95	-0.02	0.60	1.96	(12.67)***
D/E	10268	1.09	1.14	0.44	0.81	1.39	7286	1.79	2.53	0.59	1.10	1.94	(-24.71)***
RE/BE	10268	0.25	0.49	0.18	0.26	0.38	7286	-0.36	2.12	-0.10	0.13	0.25	(28.55)***
STATE	10268	0.66	0.47	0.00	1.00	1.00	7286	0.66	0.48	0.00	1.00	1.00	0.93
ILLIQ	10177	0.02	0.02	0.00	0.01	0.03	7154	0.02	0.02	0.01	0.01	0.04	(-13.47)***
SYS	10174	0.02	0.01	0.01	0.02	0.02	7074	0.02	0.01	0.01	0.02	0.02	(-12.31)***
IDIO	10174	0.02	0.01	0.02	0.02	0.02	7074	0.02	0.01	0.02	0.02	0.03	(-22.34)***
BD_SIZE	10218	9.48	2.08	9.00	9.00	11.00	7203	9.11	2.01	8.00	9.00	9.00	(11.76)***
BD_MEETING	10248	8.38	3.29	6.00	8.00	10.00	7271	8.66	3.54	6.00	8.00	10.00	(-5.23)***
BD_IND	10214	0.31	0.12	0.33	0.33	0.36	7196	0.32	0.12	0.33	0.33	0.38	(-2.57)**
DUALITY	10192	0.16	0.36	0.00	0.00	0.00	7223	0.17	0.37	0.00	0.00	0.00	-1.34
MAN_OWN	10189	0.34	0.89	0.00	0.00	0.03	7228	0.16	0.64	0.00	0.00	0.01	(15.06)***
BD_OWN	10226	0.53	1.18	0.00	0.01	0.07	7255	0.26	0.86	0.00	0.00	0.02	(16.70)***

Panel C. Stock-dividend Payers and non-Stock-dividend Payers.

	Stock dividend payer in year t (1)						Non-stock-dividend payer in year t (2)						(1)-(2)
	Obs.	Mean	Std.	Q1	Median	Q3	Obs.	Mean	Std.	Q1	Median	Q3	t-value
M/B	1033	1.92	1.42	1.02	1.45	2.22	16521	1.48	1.03	0.89	1.17	1.69	(12.84)***
dA/A	1033	0.08	0.36	-0.10	0.06	0.18	16521	0.06	0.42	-0.04	0.03	0.11	(1.65)*
E/A	1033	0.10	0.06	0.06	0.08	0.12	16521	0.05	0.07	0.03	0.05	0.08	(20.45)***
SIZE	1033	0.67	0.25	0.49	0.71	0.88	16521	0.53	0.27	0.29	0.53	0.76	(16.22)***
FCF	1033	2.39	12.20	0.00	1.03	3.14	16521	3.76	15.87	0.14	1.10	3.25	(-2.73)***
D/E	1033	1.11	1.04	0.48	0.86	1.39	16521	1.40	1.92	0.49	0.92	1.62	(-4.69)***
RE/BE	1033	0.32	0.16	0.21	0.29	0.41	16521	-0.02	1.49	0.10	0.21	0.33	(7.36)***
STATE	1033	0.65	0.48	0.00	1.00	1.00	16521	0.66	0.47	0.00	1.00	1.00	-0.52
ILLIQ	1020	0.02	0.02	0.00	0.01	0.02	16311	0.02	0.02	0.00	0.01	0.03	(-5.05)***
SYS	1021	0.02	0.01	0.01	0.02	0.02	16227	0.02	0.01	0.01	0.02	0.02	(-3.79)***
IDIO	1021	0.02	0.01	0.02	0.02	0.03	16227	0.02	0.01	0.02	0.02	0.03	(2.43)**
MAN_OWN	1024	0.21	0.67	0.00	0.00	0.02	16393	0.27	0.81	0.00	0.00	0.01	(-2.34)**
BD_OWN	1032	0.36	0.95	0.00	0.01	0.06	16449	0.42	1.08	0.00	0.00	0.03	(-1.75)*
BD_SIZE	1029	9.38	2.10	9.00	9.00	11.00	16392	9.32	2.05	9.00	9.00	10.00	0.95
BD_MEETING	1032	8.56	3.46	6.00	8.00	10.00	16487	8.49	3.40	6.00	8.00	10.00	0.65
BD_IND	1028	0.27	0.15	0.22	0.33	0.36	16382	0.32	0.12	0.33	0.33	0.36	(-10.46)***
DUALITY	1025	0.15	0.36	0.00	0.00	0.00	16390	0.16	0.37	0.00	0.00	0.00	-1.03

Note: This table presents descriptive statistics for all the sample firms in Panel A, and for cash dividends payers and non-cash dividends payers in Panel B, and for stock dividend payers and non-stock dividends payers in Panel C. The t-value of a t-test for the difference in sample means (payers less non-payers) are presented in parentheses.

Table 3. Correlation Matrix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	
(1) CD	1																			
(2) SD	0.04	1																		
(3) M/B	-0.10	0.10	1																	
(4) dA/A	-0.01	0.01	-0.01	1																
(5) E/A	0.24	0.15	0.13	0.23	1															
(6) SIZE	0.24	0.12	0.13	0.04	0.29	1														
(7) STATE	0.01	0.00	-0.15	-0.02	-0.05	0.20	1													
(8) FCF	0.10	-0.02	-0.08	-0.05	0.07	0.26	0.11	1												
(9) RE/BE	0.21	0.06	-0.23	0.13	0.24	0.19	0.02	0.06	1											
(10) D/E	-0.18	-0.04	0.02	-0.10	-0.26	-0.08	0.05	0.06	-0.67	1										
(11) ILLIQ	-0.10	-0.04	-0.28	-0.11	-0.21	-0.40	0.11	-0.14	-0.13	0.05	1									
(12) SYS	-0.09	-0.03	-0.02	-0.05	-0.08	-0.10	-0.01	-0.08	0.06	-0.03	-0.05	1								
(13) IDIO	-0.17	0.02	0.22	0.06	0.01	-0.08	-0.10	-0.08	-0.09	0.07	-0.17	0.37	1							
(14) MAN_OWN	0.11	-0.02	0.00	0.03	0.08	-0.20	-0.40	-0.05	0.07	-0.11	-0.14	-0.01	0.06	1						
(15) BD_SIZE	0.09	0.01	-0.12	-0.02	0.02	0.20	0.21	0.12	0.06	0.02	0.03	-0.03	-0.07	-0.11	1					
(16) BD_OWN	0.13	-0.01	0.02	0.03	0.09	-0.20	-0.48	-0.06	0.07	-0.12	-0.16	0.00	0.07	0.85	-0.13	1				
(17) BD_MEETING	-0.04	0.01	0.02	0.06	0.00	0.06	-0.10	0.03	-0.01	0.08	-0.15	0.10	0.11	0.04	-0.05	0.05	1			
(18) BD_IND	-0.02	-0.08	0.08	0.06	0.01	0.00	-0.21	0.08	0.00	0.06	-0.26	0.11	0.13	0.15	-0.15	0.17	0.13	1		
(19) DUALITY	-0.01	-0.01	0.06	0.01	0.01	-0.09	-0.21	-0.06	-0.02	-0.03	-0.04	-0.01	0.03	0.28	-0.11	0.20	0.01	0.04	1	

Note: This table presents the Pearson correlations for the sample observations for all the variables used. Figures in bold means significance at 5%.

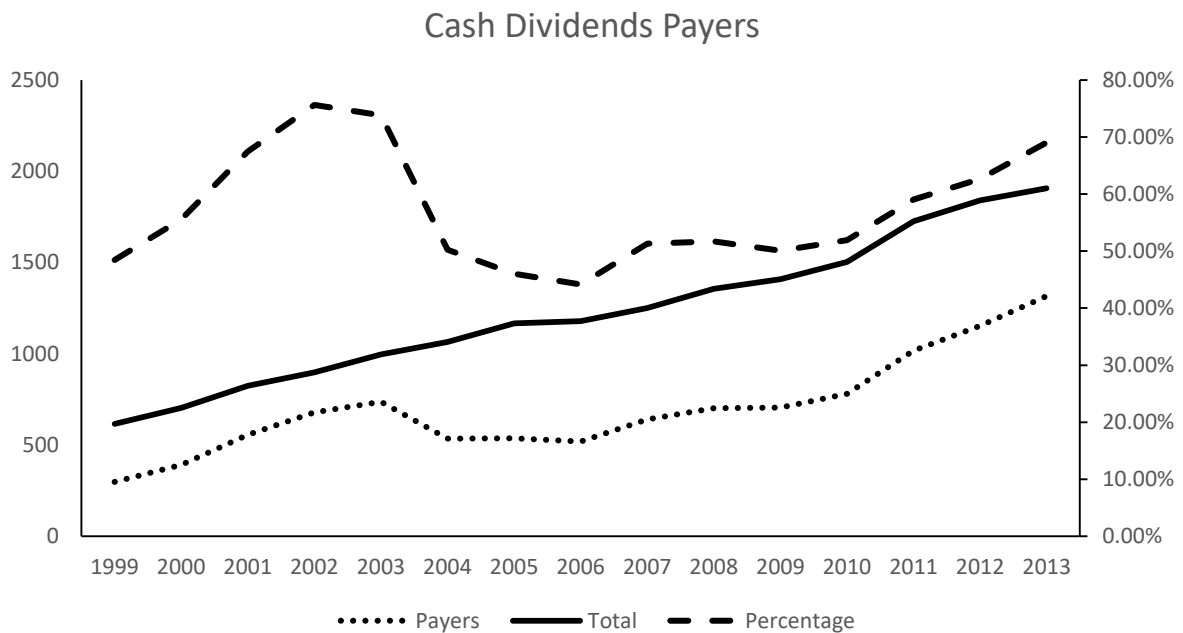
Table 4. Number Of Cash/Stock-Dividend-Paying Firms, Non-Cash/Stock-Dividend-Paying Firms and the Percentage of Cash/Stock-Dividend-Paying Firms, 1999-2013.

Year	Total	Cash Dividend			Stock Dividend		
		Payers	Non-Payers	Payers Percentage	Payers	Non-Payers	Payers Percentage
1999	615	298	317	48.46%	85	530	13.82%
2000	704	391	313	55.54%	86	618	12.22%
2001	824	556	268	67.48%	67	757	8.13%
2002	898	679	219	75.61%	44	854	4.90%
2003	997	736	261	73.82%	79	918	7.92%
2004	1065	535	530	50.23%	48	1017	4.51%
2005	1167	537	630	46.02%	55	1112	4.71%
2006	1178	520	658	44.14%	77	1101	6.54%
2007	1250	641	609	51.28%	114	1136	9.12%
2008	1356	701	655	51.70%	67	1289	4.94%
2009	1408	705	703	50.07%	93	1315	6.61%
2010	1503	780	723	51.90%	97	1406	6.45%
2011	1725	1018	707	59.01%	61	1664	3.54%
2012	1840	1152	688	62.61%	43	1797	2.34%
2013	1907	1316	591	69.01%	45	1862	2.36%

Note: This table presents the number Of Cash/Stock-Dividend-Paying Firms, Non-Cash/Stock-Dividend-Paying Firms and the percentage of cash/stock dividend payers from 1999 to 2013. The sample includes all the Chinese non-financial companies over the period 1999-2013 that satisfy the data availability requirements. A firm is a dividend-payer if it has a positive dividend per share, otherwise it is a non-payer.

Figure 1. Number of Cash/Stock Dividend-Paying Firms, Number of Total Firms, and Percentage of Cash/Stock Dividend-Paying Firms among Chinese Firms, 1999-2013. The sample includes all the Chinese non-financial companies over the period 1999-2013 that satisfy the data availability requirements. Firms are classified as payers if they have positive dividends per share. Panel A reports the figure for cash dividends, and Panel B reports the figure for stock dividends.

Panel A



Panel B

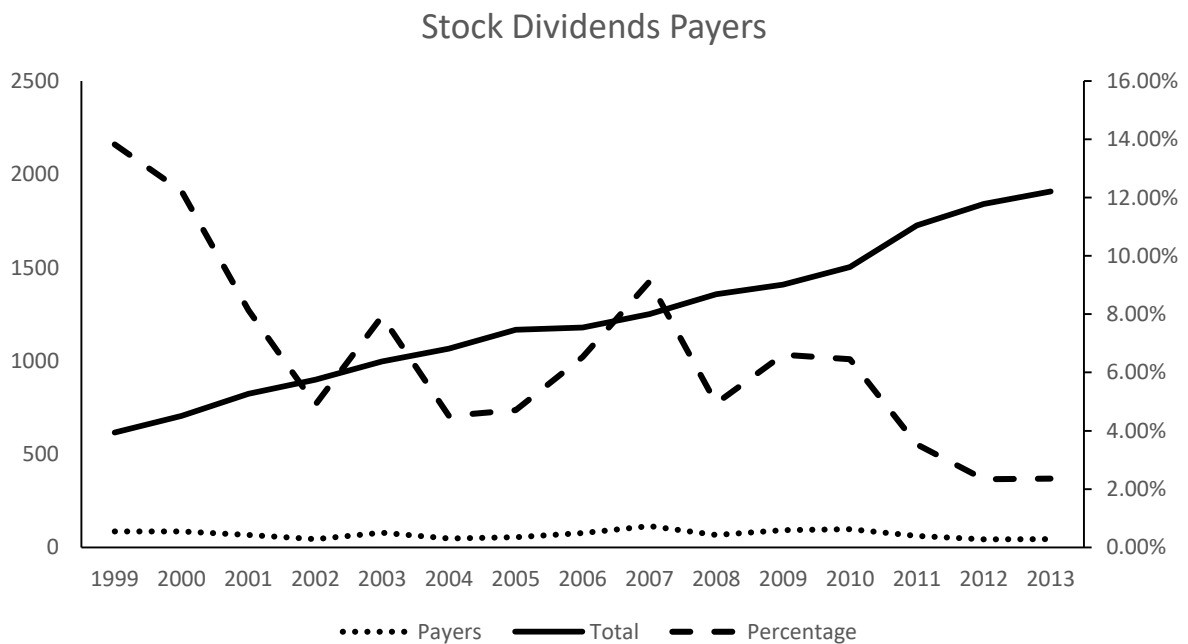


Table 5. Cash/Stock Dividend Premium, 1999-2013.

Year	Cash Dividend			Stock Dividend		
	Payers	Non-Payers	CDP	Payers	Non-Payers	SDP
1999	0.888	1.097	-21.172	4.983	4.284	15.119
2000	1.179	1.368	-14.882	5.867	4.397	28.829
2001	1.028	1.119	-8.525	5.100	4.805	5.957
2002	0.895	0.878	1.849	4.100	3.710	9.989
2003	0.828	0.923	-10.857	2.829	3.202	-12.382
2004	0.753	0.844	-11.451	2.698	2.406	11.486
2005	0.727	0.807	-10.435	1.783	1.628	9.083
2006	0.998	0.910	9.189	2.386	2.159	9.964
2007	1.546	1.683	-8.487	4.595	4.087	11.703
2008	0.961	0.937	2.617	2.978	4.365	-38.214
2009	1.555	1.528	1.761	4.204	3.224	26.522
2010	1.589	1.501	5.670	3.093	2.782	10.609
2011	1.243	1.186	4.673	4.332	3.375	24.977
2012	1.200	1.158	3.552	3.533	2.410	38.248
2013	1.252	1.168	6.924	3.602	2.047	56.487

Note: This table presents the Cash/Stock Dividend Premium from 1999 to 2013. A firm is a dividend-payer if it has a positive dividend per share, otherwise it is a non-payer. The dividend premium is the difference in the logs between the book-value-weighted market-to-book ratio of payers and that of non-payers.

Table 6. Logit Estimation Explaining the Probability of Being a Cash -Dividend-Payer, 1999-2013.

	Dependent Variable: Cash Dividend Payer or Not							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
M/B	-0.786*** (-4.74)	-0.784*** (-4.86)	-0.779*** (-4.76)	-0.792*** (-4.58)	-0.768*** (-4.57)	-0.784*** (-4.62)	-0.771*** (-4.65)	-0.768*** (-4.62)
dA/A	-0.920*** (-4.91)	-0.965*** (-4.88)	-0.933*** (-4.72)	-0.884*** (-4.97)	-0.870*** (-4.94)	-0.909*** (-4.90)	-0.910*** (-4.78)	-0.900*** (-4.83)
E/A	5.831*** (4.24)	5.803*** (4.38)	5.669*** (4.25)	5.568*** (4.09)	5.427*** (3.94)	5.390*** (4.15)	5.272*** (3.99)	5.292*** (4.05)
SIZE	1.369*** (9.88)	1.783*** (8.57)	1.250*** (10.48)	1.480*** (11.50)	1.484*** (11.11)	1.714*** (11.56)	1.699*** (11.85)	1.722*** (12.00)
FCF	-0.545 (-1.30)	-0.452 (-1.19)	-0.732 (-1.71)	-0.528 (-1.33)	-0.543 (-1.36)	-0.632 (-1.70)	-0.006 (-1.72)	-0.645 (-1.73)
D/E	-0.119*** (-4.05)	-0.131*** (-4.64)	-0.122*** (-4.47)	-0.111*** (-3.81)	-0.108*** (-3.79)	-0.118*** (-4.21)	-0.118*** (-4.37)	-0.116*** (-4.30)
RE/BE	2.614*** (4.74)	2.652*** (4.77)	2.585*** (4.68)	2.557*** (4.70)	2.571*** (4.92)	2.517*** (4.62)	2.571*** (4.76)	2.550*** (4.79)
STATE	-0.040 (-0.70)	-0.049 (-0.86)	-0.049 (-0.80)	0.064 (1.04)	0.071 (1.19)	0.049 (0.76)	0.019 (0.30)	0.063 (1.01)
ILLIQ		13.957* (2.06)				11.624* (1.94)	12.373* (1.89)	12.441* (1.93)
SYS			-26.967** (-2.58)			-23.998** (-2.37)	-24.212** (-2.25)	-23.307* (-2.12)
IDIO			-25.408*** (-3.94)			-23.567*** (-3.99)	-22.678*** (-3.64)	-23.042*** (-3.60)
MAN_OWN				2.663 (1.28)		2.502 (1.28)	2.473 (1.25)	
BD_OWN					0.177** (2.42)			0.187** (2.32)
BD_SIZE					0.043*** (3.38)		0.039*** (3.05)	0.039** (2.96)
BD_MEETING					-0.020*** (-3.17)		-0.015** (-2.46)	-0.015** (-2.60)
IND_PER					-0.225 (-0.66)		-0.246 (-0.63)	-0.269 (-0.70)
DUALITY					-0.060 (-1.07)		-0.135** (-2.36)	-0.072 (-1.28)
CONS	-0.128 (-0.52)	-0.667*** (-4.27)	0.565 (1.46)	-0.307 (-1.14)	-0.507 (-1.35)	0.242 (0.71)	0.071 (0.16)	0.024 (0.05)

Note: This table reports the logit regression results using Fama and MacBeth (1973) style estimation, with Newey–West t statistics reported in parentheses. The dependent variable is equal to one if the firm pays dividend that year and zero otherwise. The explanatory variables are market-to-book ratio (M/B), assets growth (dA/A), earnings-to-asset ratio (E/A), size percentile (SIZE), whether a firm is state owned (STATE), free cash flow (FCF), leverage ratio (D/E), retained earnings-to-book equity ratio (RE/BE), liquidity measure proxied by turnover ratio (ILLIQ), systematic risk (SYS), idiosyncratic risk (IDIO), percentage of shares held by senior managers (MAN_OWN), number of board members (BD_SIZE), percentage of shares held by board members (BD_OWN), percentage of independent board (BD_IND), number of board meetings per year (BD_MEETING) and CEO duality (DUALITY). Columns (1) - (8) report the estimates of the various logit regressions with Fama and French (2001) firm characteristic variables, state owner proxy, free cash flow, life-cycle proxy, leverage ratio and other explanatory variables. *** indicates significance at 1%, ** indicates significance at 5%, * indicates significance at 10%.

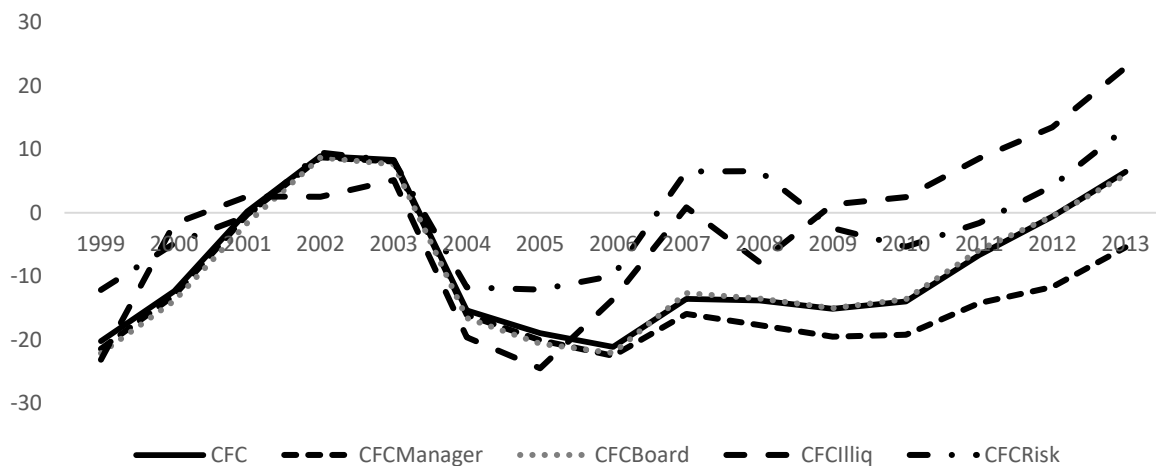
Table 7. Logit Estimation Explaining the Probability of Being a Stock -Dividend-Payer, 1999-2013.

	Dependent Variable: Stock Dividend Payer or Not							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
M/B	0.558*** (5.10)	0.580*** (5.04)	0.511*** (4.21)	0.565*** (5.11)	0.574*** (5.19)	0.526*** (4.35)	0.541*** (4.46)	0.537*** (4.47)
dA/A	-0.160 (-1.21)	-0.135 (-0.99)	-0.097 (-0.80)	-0.180 (-1.37)	-0.156 (-1.23)	-0.115 (-0.91)	-0.101 (-0.80)	-0.096 (-0.78)
E/A	6.564*** (7.62)	6.526*** (7.69)	6.064*** (8.79)	6.539*** (7.46)	6.521*** (7.15)	5.965*** (8.49)	6.065*** (8.05)	5.923*** (7.83)
SIZE	0.461** (2.73)	0.330 (1.20)	0.336** (2.17)	0.474** (2.82)	0.433** (2.23)	0.102 (0.44)	0.069 (0.30)	0.001 (0.01)
FCF	-2.551*** (-3.78)	-2.534*** (-3.96)	-2.682*** (-4.00)	-2.683*** (-4.09)	-2.579*** (-3.99)	-2.751*** (-4.47)	-0.026*** (-4.41)	-2.649*** (-4.30)
D/E	0.223*** (5.50)	0.235*** (5.74)	0.222*** (5.84)	0.222*** (5.61)	0.218*** (5.05)	0.227*** (5.90)	0.225*** (5.52)	0.223*** (5.29)
RE/BE	3.549*** (16.17)	3.609*** (15.15)	3.612*** (15.02)	3.529*** (16.65)	3.616*** (15.19)	3.629*** (14.77)	3.670*** (14.39)	3.720*** (13.70)
STATE	-0.291*** (-4.60)	-0.269*** (-3.72)	-0.257*** (-3.62)	-0.303*** (-4.26)	-0.287*** (-3.89)	-0.274*** (-3.44)	-0.243*** (-2.87)	-0.257*** (-3.00)
ILLIQ		-7.048 (-0.89)				-9.854 (-1.31)	-9.861 (-1.36)	-11.220 (-1.59)
SYS			-53.854*** (-3.596)			-53.499*** (-3.54)	-39.524** (-2.28)	-55.411*** (-3.80)
IDIO			5.259 (0.55)			2.707 (0.28)	2.395 (0.24)	1.743 (0.18)
MAN_OWN				0.264 (0.78)		0.281 (0.71)	0.318 (0.71)	
BD_OWN					-0.241** (-2.67)			-0.201** (-2.20)
BD_SIZE					-0.055** (-2.74)		-0.043* (-1.92)	-0.058** (-2.88)
BD_MEETING					0.031*** (3.22)		0.028** (2.58)	0.029** (2.68)
IND_PER					-0.315 (-0.50)		-0.442 (-0.78)	-0.269 (-0.70)
DUALITY					-0.078 (-0.62)		-0.091 (-0.69)	-0.069 (-0.55)
CONS	-5.155*** (-28.25)	-5.083*** (-17.03)	-4.714*** (-11.45)	-5.179*** (-26.92)	-5.254*** (-15.99)	-4.393*** (-10.44)	-4.390*** (-8.91)	-4.294*** (-8.22)

Note: This table reports the logit regression results using Fama and MacBeth (1973) estimation, with Newey–West t statistics reported in parentheses. The dependent variable is equal to one if the firm pays dividend that year and zero otherwise. The explanatory variables are market-to-book ratio (M/B), assets growth (dA/A), earnings-to-asset ratio (E/A), size percentile (SIZE), whether a firm is state owned (STATE), free cash flow (FCF), leverage ratio (D/E), retained earnings-to-book equity ratio (RE/BE), liquidity measure proxied by turnover ratio (ILLIQ), systematic risk (SYS), idiosyncratic risk (IDIO), percentage of shares held by senior managers (MAN_OWN), number of board members (BD_SIZE), percentage of shares held by board members (BD_OWN), percentage of independent board (BD_IND), yearly number of board meetings (BD_MEETING) and whether the CEO and the chair of the board of directors are the same person (DUALITY). *** indicates significance at 1%, ** indicates significance at 5%, * indicates significance at 10%.

Figure 2. Propensity to Pay Cash/Stock Dividends, 1999-2013. Panel A reports the unexplained percentage of cash dividend payers once the baseline model is taken into account, and once stock liquidity, risks, managerial ownership and board characteristics are respectively added to the baseline model. Panel B does the same for the unexpected percentage of stock dividend payers. The solid line depicts the unexpected propensity to pay based on the baseline model (CFC/SFC). It is derived from the logit model with explanatory variables of market-to-book ratio, asset growth, earnings-to-assets ratio, size percentile, state proxy, free cash flow, life-cycle proxy and leverage ratio during the base period 1999-2003. The long-dashed line depicts the unexpected propensity to pay either cash or stock dividends after the baseline model and stock liquidity have been taken into account (CFCIliq/SFCIliq), the dashed-dotted line shows the unexpected propensity to pay once risk (CFCRisk/CFCRisk) is controlled for, the short-dashed line gives an indication of the unexpected propensity to pay after managerial ownership is considered (CFCManager/SFCManager) and the grey dotted line illustrates the unexpected propensity to pay after board ownership and characteristics are accounted for (CFCBoard/CFCBoard).

Panel A. Propensity to pay cash dividends.



Panel B. Propensity to pay stock dividends.

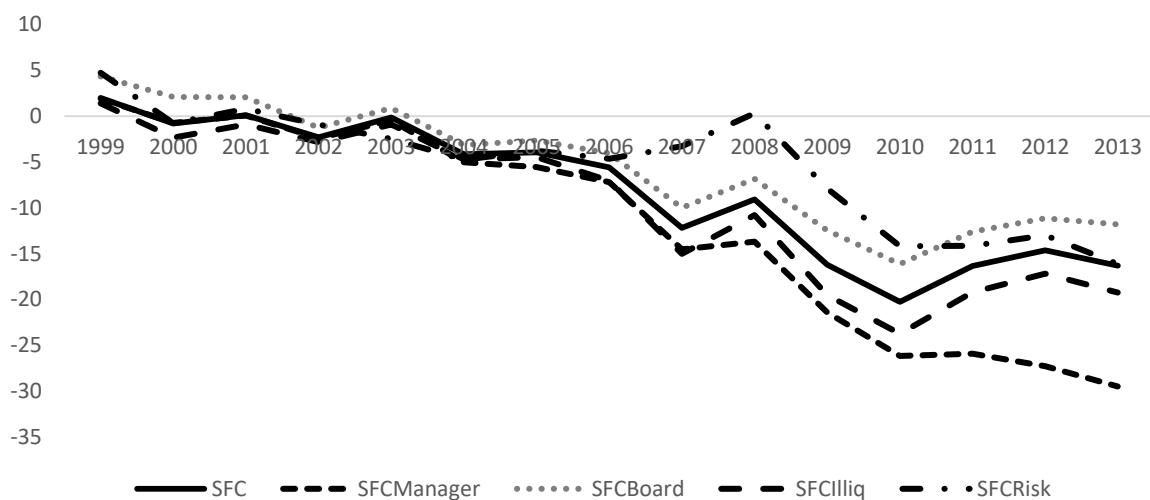


Table 8. Test of catering Incentives in Explaining Changes in Propensity to Pay Cash/stock Dividends, 2004 -2013.

Row	Logit Regression Variables	CDP	SDP	Cons	Adj. R ²
Panel A: Dependent variable=change in propensity to pay cash dividends					
(1)	Baseline model	1.357** (2.55)	-0.052 (-0.39)	3.454 (0.83)	0.403
(2)	Baseline model, Illiq	1.563* (1.98)	-0.175 (-1.01)	6.853 (1.24)	0.247
(3)	Baseline model, Risk	1.096 (1.58)	0.073 (0.89)	2.577 (0.51)	0.189
(4)	Baseline model, Man_Own	1.254** (2.42)	-0.054 (-0.44)	1.878 (0.48)	0.381
(5)	Baseline model, Board ownership and characteristics	1.339** (2.52)	-0.045 (-0.35)	3.336 (0.82)	0.402
(6)	Baseline model, Illiq, Risk, Man_Own	1.139 (1.38)	-0.039 (-0.36)	3.238 (0.59)	0.071
(7)	Baseline model, Illiq, Risk, Board ownership and characteristics	1.222 (1.49)	-0.019 (-0.17)	5.118 (0.92)	0.112
(8)	Baseline model, Illiq, Risk, Board characteristics, Man_Own	1.146 (1.38)	-0.038 (-0.34)	3.049 (0.55)	0.069
Panel B: Dependent variable=change in propensity to pay stock dividends					
(1)	Baseline model	-0.137 (-0.93)	0.093** (3.09)	-2.657* (-2.13)	0.086
(2)	Baseline model, Illiq	-0.181 (-1.01)	0.111** (3.16)	-3.106* (-2.11)	0.103
(3)	Baseline model, Risk	-0.128 (-0.97)	0.074 (1.28)	-2.221 (-1.78)	-0.003
(4)	Baseline model, Man_Own	-0.187 (-1.87)	0.084*** (4.55)	-3.937*** (-4.61)	0.337
(5)	Baseline model, Board ownership and characteristics	-0.135 (-0.94)	0.084** (2.97)	-2.867** (-2.38)	0.065
(6)	Baseline model, Illiq, Risk, Man_Own	-0.236 (-1.50)	0.091 (1.55)	-4.196** (-2.97)	0.162
(7)	Baseline model, Illiq, Risk, Board ownership and characteristics	-0.174 (-1.14)	0.088 (1.28)	-3.075* (-2.12)	0.021
(8)	Baseline model, Illiq, Risk, Board characteristics, Man_Own	-0.214 (-1.38)	0.084 (1.62)	-4.376** (-3.27)	0.135

Note: This table presents the results of test of catering incentives in explaining changes in propensity to pay cash/stock dividends from 2004 to 2013. Panel A reports the estimates of the time-series regression during 2004-2013 (Equation 3) with the explanatory variables including lagged cash dividend premium (Catering), lagged stock dividend premium (Substitution). Panel B reports the estimates of the time-series regression during 2004-2013 (Equation 3) with the explanatory variables including lagged stock dividend premium (Catering), lagged cash dividend premium (Substitution). The dependent variable is the change in propensity to pay, which is the difference between propensity to pay in year t and that in year t-1. The propensity to pay (PTP) is the difference between actual and predicted percentage of dividend-payers, the latter is calculated with mean estimates of annual logit regressions for the base period 1999-2003. The explanatory variables used in the previously conducted logit regression are reported in the Column "Logit regression variables". The numbers in parentheses are the Newey-West adjusted t-statistics. The last column reports the adjusted r-square. *** indicates significance at 1%, ** indicates significance at 5%, * indicates significance at 10%.