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GENERAL & APPLIED ECONOMICS | RESEARCH ARTICLE

Dividend payout policies in the pre and post split share structure reform in China

Yufan Zhao¹ and Sin Huei Ng^{2*}

Abstract: This paper examines the motivation of dividend payout policies for Chinese listed firms before and after the Split Share Structure Reform in China from the corporate governance-related viewpoint. Analysis was carried out using panel data with random effect from a sample of firms listed on the A-share Chinese market in the period of 2001–2004 (before the reform) and 2014–2017 (after the reform). It is found that (1) the incentive of tunnelling via dividend by controlling shareholders is weakened after the reform; (2) dividends are taken as a measure to reduce agency problems caused by free cash flows after the reform; (3) dividends after the reform become more stable than those before the reform. (4) in general, the market reacts positively to the increase of dividend both before and after the reform. It can be concluded that dividend policies are taken as the measure of minority shareholder protection and signalling rather than expropriation after the reform. This paper contributes to the literature by comparing dividend payout policies during the full circulation era with that before the reform was initiated.

Keywords: dividend policy; split share structure reform; tunnelling; free cash flow; expropriation; stock market reaction

Subjects: Chinese Economics; Corporate Finance; Corporate Governance

ABOUT THE AUTHORS

Yufan Zhao is currently a postgraduate student at the School of Economics in Xiamen University, China. She is currently undertaking research in a finance-related area in which the research in this paper will be of use in providing the direction or the path of her next research investigation.

Sin Huei Ng is currently an associate professor at the School of Economics & Management in Xiamen University Malaysia. His research interests are mainly in the areas related to corporate finance & governance, sustainable finance, and investments.

PUBLIC INTEREST STATEMENT

Based on samples collected from two separate periods: 2001–2004 and 2014–2017, we examine the change in dividend policy of listed companies in China before and after the implementation of the Split-Share Structure Reform (SSSR) in 2005 in China. Before the reform, shares of listed companies in China were split into tradable shares and non-tradable shares with about two-third of them non-tradable. After the reform, almost all shares became tradable. We find that the overall impact brought about by the reform is positive in terms of bringing down the potential incentive of the controlling shareholders to tunnel via excessive dividend payments to themselves. Also, dividends are able to serve as a better signaling tool after the reform. For the readers, we hope to shed lights that even in the country where listed companies are highly state-controlled or influenced, there is still light at the end of tunnel, with economically-driven political will, to keep improving the corporate governance environment via institutional and market reforms.

1. Introduction

The significance of a company's dividend policy, both as a key indicator of corporate governance and as a potential driver of stock market performance, has been a widely debated topic in corporate finance over the years. Although the Modigliani and Miller (MM) theory argues that dividend is irrelevant to firm value in a perfect capital market (M. Miller & Modigliani, 1961), the capital market is not perfect in the real world. As evidenced by a vast and growing literature on the subject, corporate dividend policy is crucial in signalling future profitability, reducing agency costs and triggering clientele effect.

Earmarked as one of the three major corporate financial policies, dividend policy is a trade-off between profit reinvestment and profit distribution, depending on various factors that include firm liquidity and ownership structure. Because of its complexity, Black (1976) calls dividend policy a "dividend puzzle". By combining agency theory with shareholder rights protection to analyse dividend policy, researchers have proposed and tested two dividend models: the outcome model and the substitute model (La Porta et al., 2002). Despite the differing views on how governance affects dividend payout, both models concur that corporate dividend policy is not driven by internal factors alone. External and uncontrollable macro-environmental factors such as the legal system may also significantly influence a company's dividend payout behaviour. For instance, dividend may be used by the controlling shareholders to expropriate the minority shareholders in countries with inadequate or relatively weak enforcement of regulations.

For years the combination of factors such as the unconventional split share structure, the flawed capital market and the insubstantial regulatory system had made dividend policy in China seem like pieces of an intricate puzzle that somewhat refused to fall into place to form a coherent picture. The long-overdue split share structure reform (SSSR or the reform hereafter) that eventually took place in 2005 initiated the conversion of all non-tradable shares to tradable ones, which has since triggered a wave of notable shifts in dividend policy. Considered a milestone for the Chinese securities market that has helped reinvigorate the entire Chinese economy, the SSSR has been integral to the sustained, rapid and thriving development of China's stock market, playing a crucial role in improving the corporate governance of listed companies. This study examines the change in dividend policy of listed companies in China by testing three corporate governance-related dividend payout incentives: the signalling theory, the tunnelling theory and the free cash flow (agency) theory. This study also investigates the dividend payout incentive based on stock market reaction.

The reform has also imposed restrictions on the trading of converted tradable shares, prohibiting any immediate selling of those shares to the public. In order to maintain a thriving stock market, the China Securities Regulatory Commission allows no conversion in the first year, less than 5% conversion within one year and less than 10% conversion within two years. The primary concern is that if too many non-tradable shares are sold to the market at once, the stock price may decline substantially. With the non-tradable shares being gradually converted to tradable ones over a number of years instead, the impact of the reform could then be sustained over a longer term. Although prior researchers did investigate the impact of SSSR on dividend policy, most of their studies were carried out when the non-tradable shares had not fully been converted into tradable shares. Hence, it is necessary to follow up on this research to gauge the long-term influence of the reform on dividend policy. This paper fills the research gap by comparing the dividend policy during the full circulation era (2014–2017) with the dividend policy before the reform was initiated (2001–2004). The existing literature does not draw a clear conclusion on the motivation behind dividend payment in China, and this paper contributes to the empirical literature by uniquely testing the motivation of dividend distribution from both the company and the stock market perspective. Our empirical results indicate that dividend tunneling has subsided and dividend seems to have been much more influential in curbing agency problems after the reform. In terms of dividend signalling, dividend payment has shown greater stability since the reform, which has basically allowed dividend to transmit a greater load of information and become a much more effective signalling tool. Last but not least, investors in

China seem to perceive dividend favourably too—as evidenced by the positive cumulative abnormal returns generated by the dividend increase before and after the reform.

2. Literature review

2.1. *Unique institutional background in China*

In 1978 China launched major economic reforms that marked the nation's transformation from a centrally planned economy to a market economy. Although the capital market in China was subsequently established in the 1990s, the overall financial market in China is still new and developing compared to the ones in developed countries. Because of the unique institutional setup, some interesting patterns have been observed in the dividend payment practices in China. From 1990 to 2004 Chinese listed companies recorded an average dividend payout ratio of 19.98% with a median of 0%, readings which were much lower than other countries', as roughly half of those companies did not pay any dividends at all. However, the variation of dividend payment among Chinese listed companies was quite large with some high dividend payout ratios reaching 140% (Chen et al., 2008). This strange phenomenon is attributable to the unique split share structure in China.

Before the split share structure reform which commenced from 2005, shares of listed companies in China were divided (split) into tradable shares (1/3) and non-tradable shares (2/3) which could not be circulated upon issuance (Xu & Liu, 2009). Approximately half of the non-tradable shares, which could not be circulated upon issuance, were state-owned shares held by government departments and state-owned enterprises (SOEs) whereas the rest were legal-person shares held by legal entities such as SOEs, other Chinese firms and non-bank financial institutions (Wang et al., 2011). With the non-tradable shares outnumbering the tradable ones and being owned by controlling shareholders, the shareholding structure of listed companies became highly concentrated. Consequently, the dividend policy of listed companies with such a highly concentrated ownership structure was invariably dictated by those controlling shareholders.

Huang and Shen (2007) point out that the dividend policy of Chinese listed companies with concentrated ownership structure tended to serve the needs of major shareholders at the expense of the interests of minority shareholders. Since non-tradable shareholders could not profit from any capital gains due to the inability to sell off their shares, dividends would represent the only returns on their investments. Besides, non-tradable shares were sold at a significant discount, which indirectly handed a higher dividend yield to the non-tradable shareholders on a plate. Therefore, non-tradable shareholders' strong preference for dividend and incentive to use it to transfer wealth from companies' coffers could help explain why some listed companies were so keen to pay excess cash dividends. With the tradable shareholders favouring the tax-free capital gain instead, the split share structure inevitably created a serious conflict of interest between tradable shareholders and non-tradable shareholders.

2.2. *The impact of SSSR*

The SSSR with the aim of allocating equivalent rights and benefits to shares of the same class, focused on promoting all non-tradable shares of listed companies in China for potential secondary market transaction. Since then, almost all shares in the Chinese capital market have gradually become tradable and as many of the initial owners of non-tradable shares have gradually reduced their shareholdings, the ownership structure of listed companies has become increasingly diversified. Before the reform, both the mean and the median shareholdings of the largest shareholders in Chinese listed companies stayed above 40% of the total shares. According to Claessens et al. (2000), the largest shareholders controlled 35.25% and 33.68% of total shares in Thailand and Indonesia respectively—two countries with the highest ownership concentration among East Asian countries. The figures suggest that the ownership concentration in China was actually more severe. But since the reform commenced, both the mean and the median shareholdings of the largest shareholders have dropped, hovering around the 33% mark in 2019.

Because the previously non-tradable shares could now be circulated, the controlling shareholders could tap into both capital gains and dividends, making the interests of the majority shareholders more acutely aligned with those of the minority shareholders, and combined with ongoing improvements to the market system, the incentive behind dividend payout may have gradually changed. SSSR has also been pivotal to building stronger corporate governance, which has offered greater protection for the interests of small and medium investors.

2.3. Testing tunnelling theory in China

There are three main viewpoints in existing literature regarding the relationship between ownership structure and level of dividend payment in China: U-shaped relationship, positive relationship and negative relationship which is suggested by free cash flow theory. Before the SSSR, most literature supports the notion of companies with the most concentrated ownership distributing the most dividends as a result of the tunnelling incentive. According to the U-shaped viewpoint, when the largest shareholder's shareholding ratio is low, the company reduces the dividend payment as the shareholding ratio increases; but when the shareholding ratio exceeds a certain threshold, the company reacts by increasing the dividend payment as the shareholding structure becomes more concentrated. The U-shaped viewpoint therefore suggests a strong likelihood of companies with highly concentrated ownership distributing larger cash dividends for personal gains. Y.J. Tang and Xie (2006) also discover a U-shaped relationship between non-tradable shareholders' shareholding ratio and dividend payout rate in China.

Over the years, numerous researchers have examined the positive relationship between ownership concentration and dividend payout before the SSSR in China. Yan (2004) and Yuan and Su (2004), for instance, find a significant positive relationship between dividend policy of listed companies in China and concentration of ownership where the non-tradable controlling shareholders use cash dividends for tunnelling. Meanwhile, Yuan (2001) notices that the larger shareholders' motivation of expropriating funds through dividend payout becomes stronger with concentration of ownership structure. According to C.W.J. Lee and Xiao (2002), when large shareholders hold a high proportion of shares, they tend to issue cash dividend, which is a handy tool for tunnelling. This opinion is consistent with what numerous researchers have found (Wang, 2013; H. Y. Chen & Huang, 2005).

Since the reform commenced, the ownership structure of Chinese listed companies has become less concentrated. Various studies have argued that the presence of other blockholders (the second- to the fifth-largest shareholder, for example) helps mitigate the largest shareholder's tunnelling behaviour through stricter oversight that acts as an effective counterbalance (Bennedsen & Wolfenzon, 2000; Cronqvist & Nilsson, 2003; Ng, 2015; Pagano and Roel, 1998; Stepanov & Suvorov, 2017; Tang et al., 2007). Nevertheless, Xu and Liu (2009) find that the reform failed to eliminate the cash dividend tunnelling practices of listed companies in China. On the other hand, several researchers have endorsed the notion of the reform giving rise to greater protection for small shareholders in general. For example, Wu and Zhai (2013) study the impact of the reform on dividend policy by sampling 642 companies and find a notable decline in expropriation behaviour that could have resulted from the reform, despite large shareholders' continued inclination towards cash dividend payout. Liu and Huang (2012) remark that the higher the concentration of ownership structure, the higher the amount of cash dividend payment, but acknowledge the role of the reform in weakening this relationship tremendously.

Hypothesis 1a: Before the SSSR, tunnelling incentive dominated cash dividend payment. Hence, companies with the most concentrated ownership structure distributed the most dividends.

Hypothesis 1b: After the SSSR, tunnelling incentive becomes weaker. Hence, there is no significant difference in dividend payments between companies with concentrated ownership structure and companies with less concentrated ownership structures.

2.4. Testing free cash flow theory in China

In China, the principal–agent agency problem (based on free cash flow theory) generally receives less attention than the principal–principal agency problem (where a common issue of it is tunnelling). According to Jensen’s free cash flow theory, dividend distribution is an effective way to reduce free cash flow in the hands of managers, therefore the greater the dividend payment, the lower will the level of free cash flow be. Around the globe, many researchers confirm a negative relationship between free cash flow and dividend under the free cash flow theory (Kadioglu & Yilmaz, 2017; Rostamli et al., 2016). Wei and Liu (2007) examine the relationship between corporate governance of state-owned listed companies, cash dividend policy and corporate investment behaviour in China before the SSSR began. They believe that the payment of cash dividends could reduce the free cash flow within the firm and help minimize overinvestment. Despite some evidence for free cash flow hypothesis, it is doubtful that when ownership structure is highly concentrated, the payment of dividend is used for tunnelling instead of reducing free cash flow. Using data from 1994 to 2006, Huang et al. (2011) discover that propensity to pay dividend is not related to free cash flow, which is also observed by J. Lee and Xiao (2007).

With the shareholding structure becoming more diversified after the SSSR though, dividend might finally be used as a tool to mitigate agency problems between managers and shareholders. Using the free cash flow theory, Liu et al. (2015) sample state-owned enterprises to empirically test the relationship between dividend policy, free cash flow and overinvestment from 2006 to 2013. In line with Jensen’s free cash flow hypothesis, their findings reiterate the potential use of cash dividends to limit managers’ overinvestment tendencies. Xu et al. (2015) point out that paying cash dividends helps to reduce the improper behaviour of managers and improve operational efficiency, thereby significantly reducing the agency costs between shareholders and managers. Zhong and Lu (2013) discover that for high agency cost companies, cash dividend distribution is beneficial to ease the agency costs between external investors and management.

Hypothesis 2a: Before the SSSR, dividend was not used to mitigate agency problems between managers and shareholders.

Hypothesis 2b: Since the SSSR began, dividend has been used to mitigate agency problems between managers and shareholders by restricting managers’ access to free cash flow.

2.5. Testing signalling theory in China

Chinese researchers have not managed to reach a unanimous conclusion on whether the signalling theory can help justify the dividend policy in China. From the viewpoint of asset pricing, Eun and Huang (2007) find that dividend-paying shares from 1995 to 2004 enjoyed a higher premium. Z. Li and Song (2007) maintain that cash dividends could play a signalling role from the perspective of earnings continuity. Nonetheless, many researchers have contended that the signalling power of dividends is rather obscure in China (Lü & Xu, 2010). As highlighted by L. N Chen and Yao (2000) using event study methodology, cash dividend has not become an effective signalling tool despite the potential. C.W.J. Lee and Xiao (2002) find that the Chinese stock market responds positively to reduced dividends, but does not respond positively to increased dividends. From the perspective of dividend stability, many Chinese researchers have deduced that unlike the developed markets, the relatively unstable dividend policy of Chinese listed companies lacks the continuity required to send credible signals to the stock market (Xu & Liu, 2009; Yang et al., 2017; R. Zhang, 2005).

Nevertheless, with SSSR promoting the standardization of the financial market, dividend is expected to eventually function as a signalling tool. As suggested by Lin et al. (2016), despite the lack of information being conveyed to the stock market by dividend payout in China, companies with greater information asymmetry normally deliver higher dividends—thanks to the moderating

effect of the reform. Deng et al.'s (2016) empirical results strongly indicate that dividend has information content in China. Likewise, S. Tang and Huang (2020) find that dividend carries substantial signaling in China. As for dividend smoothing, Hu and Chen (2012) sample panel data from 2002 to 2011 and find that Chinese firms adopted a stable dividend policy; but Wang et al. (2011), who sample data from 1998 to 2008, notice a lack of dividend smoothing instead—probably because plenty of data are taken from the pre-reform period. According to Xu and Liu (2009), the instability of dividend payment before the reform could be attributable to the highly concentrated ownership structure where the controlling shareholders could have exploited their absolute discretion in setting the dividend policy. Since the start of the reform though, the ownership structure has become a lot more diversified so the dividend decisions have been made with greater supervision from the other shareholders—resulting in more consistent dividend payouts.

Hypothesis 3a: Before the SSSR, dividend payment in China lacked stability. Hence, the signalling function of dividend was weak.

Hypothesis 3b: After the SSSR, the stability of dividend payment has improved. Hence, the signalling function of dividend has become stronger.

2.6. Stock market reaction to different dividend payout incentives

According to the dividend signalling theory, as highlighted by Bhattacharya (1979), John and Williams (1985), and M. H. Miller and Rock (1985), dividend payout contains information about the company's future profit and corporate value. Managers can therefore use it to convey that information to the stock market in order to mitigate the information asymmetry between management and external stakeholders. Prior research has provided plenty of evidence that in accordance with the signalling theory, the announcement of the company's decision to increase the dividend can produce positive cumulative abnormal return (CAR) (Abeyratna et al., 1996; Hussin et al., 2010; Mrzygłód & Nowak, 2017). Empirical research by Aharony and Swary (1980), and Asquith and Mullins (1983) also find that when companies increase cash dividend or distribute it for the first time, stock prices rise, but when companies reduce cash dividend or stop distributing it altogether, stock prices fall.

Similarly, dividend should be able to bring positive CAR if it is used to reduce agency problems. The free cash flow (agency) theory explains dividend policy from the viewpoint of conflicting interests between shareholders and managers. Easterbrook (1984) suggests that the payment of dividends might force managers to face the pressure of external financing that would arise from the supervision of creditors, which would in turn reduce the supervision costs borne by shareholders. From the perspective of investment, Jensen (1986) proposes the free cash flow hypothesis of cash dividends, which states that distribution of cash dividends lessens the company's free cash flow, thereby lowering the agency costs and elevating the firm value. Using Tobin's Q to indicate overinvestment, Lang and Litzenberger (1989) divide their sample into two sub-groups: one consisting of companies which have overinvestment behaviours and one comprising companies which have no overinvestment behaviours. They discover positive market reactions to dividend announcements in the first group. Their findings are consistent with the notion that if dividend is used to reduce agency costs, the stock market is set to react positively to the dividend announcement. Gugler and Yurtoglu (2003) reach a similar conclusion, albeit in German context.

However, if dividend is used for tunnelling—at the expense of the interests of medium and small investors—the stock market tends to respond negatively to the dividend announcement or dividend increase. As defined by Johnson and La Porta (2000), tunnelling is the controlling shareholders' malpractice of using dividend payment, related party transactions or other unscrupulous ways to exploit minority shareholders' interest. Based on evidence offered by a vast literature on the subject, large shareholders have the ability to encroach disproportionate interests and redirect resources from

companies, severely undermining the firm value in the process (Barclay & Holderness, 1989; Chiou et al., 2010; Gordon & Pound, 1993; Gugler, 2003; Holmen & Knopf, 2004; Ng, 2014; Ngo et al., 2018; Truong & Heaney, 2007). Using CAR to test market reaction in China, Chen et al. (2008) discover controlling shareholders' practice of using dividend for tunnelling rather than using it as a tool for signalling or mitigating principal-agent problems. Likewise, Cheng et al. (2009) also investigate the stock market reaction to dividend using the CAR approach. Their analysis reveals that positive abnormal returns are associated with unexpected dividend cut or zero dividend payment—indicating further the negative market response and tunnelling behaviour. Dong et al.'s (2019) empirical findings also confirm that Chinese investors generally do not welcome cash dividends.

Hypothesis 4: Judging from the stock market reaction, if dividend is used for tunnelling, an increase in dividend brings a negative cumulative abnormal return. Conversely, if dividend is used for signalling or reducing agency costs, an increase in dividend would bring a positive cumulative abnormal return.

3. Data and methods

3.1. Sample selection and data source

In order to make a symmetrical comparison between the dividend policy before and after the SSSR, the sample is divided into two sub-intervals: the period 2001–2004 before the reform and the period 2014–2017 after the reform which is under the full circulation era. Sample selection criteria are as follows. All the A share listed companies in China listed before 2001 are selected in order to only include companies which experienced the SSSR so that consistent comparisons could be made. Companies in the financial industry are excluded due to their different business models and capital structures. Meanwhile, companies that never paid dividends during the two sample periods are not considered because they could not be used to compare the dividend policy before and after the reform. Companies with incomplete data are removed, so only 795 companies are eventually included in the sample. All the data are taken from the Wind database and analysed based on the panel data regression models. Random effect model specifications are used for all three models based on the result of Hausman test. All the models are estimated by the Generalised Least Square (GLS) procedure. White standard errors are used to account for heteroscedasticity between individuals.

3.2. Variable definition and model specification

3.2.1. Model 1: determinants of dividend payment

Dividend per share is used as the dependent variable in Model 1 to represent the company's dividend policy. In accordance with Xu and Liu (2009), the company ownership structures are classified into three categories according to the specified criteria:

1. If the company's largest shareholder holds more than 50% of the shares, the company has absolutely controlled ownership structure (ABS). ABS is the most concentrated ownership structure because the other minority shareholders do not have the power to influence the largest shareholder's decision-making.
2. If the company's largest shareholder holds less than 50% of the shares, and the difference between the largest shareholder's shareholding ratio and the sum of the second- to fifth-largest shareholder's shareholding ratios is more than zero, the company has relatively controlled ownership structure (REL). REL is less concentrated than ABS since the second- to fifth-largest shareholders may collectively possess some influencing power.
3. If the company's largest shareholder holds less than 50% of the shares, and the difference between the largest shareholder's shareholding ratio and the second largest shareholder's

shareholding ratio is less than 10%, the company has restrictively controlled ownership structure (RES). RES is the most dispersed structure because the second-largest shareholder alone has some influencing power.

With three categories in total, two dummy variables are included in the regression model. Dummy variables REL and RES are used as the two main testing variables in this model.

In line with Huang et al. (2011), free cash flow per share is added as a proxy for agency cost. Free cash flow per share is also used as a variable of interest to test whether dividend is used to contain agency problems in China. Variable free cash flow per share (fcf) is a key testing variable.

To be consistent with the existing literature, these control variables are selected: debt to assets ratio as a proxy representing the liability constraint of dividend policy; cash per share as a proxy representing the liquidity constraint of dividend policy; Tobin's Q as a proxy for the value of listed companies; growth rate of operating income as a proxy for company growth rate; natural logarithm of total asset to control company size; earnings per share to measure company profitability; independent director ratio as a proxy for corporate governance. In order to capture the impact of time difference and industry difference, year dummy variable and industry dummy variable are included in the regression model. All the variables of Model 1 are defined in Table 1 where the subscript it denotes company i in year t .

Model 1 specification

$$\begin{aligned} Div_{it} = & (b_0 + v_i) + b_1REL + b_2RES + b_3Fcf_{it} + b_4Tobinq_{it} \\ & + b_5EPS_{it} + b_6Cash_{it} + b_7Growth_{it} + b_8Debt_{it} \\ & + b_9Indep_{it} + b_{10}Lnasset_{it} + b_{11}Industry\ Dummy + b_{12}YearDummy + u_{it} \end{aligned} \quad (1)$$

3.2.2 Model 2: Lintner's partial adjustment model of dividend payment

Lintner (1956) discovers that firms prefer a stable dividend policy that would send out a better signal to the market. In the case of a sharp increase in earnings, the company tends to gradually increase the dividend payment over a number of years instead of significantly increasing the dividend payment at once. Firms also try to avoid dividend cuts, which would usually send out a negative signal. Based on these findings, Lintner (1956) establishes the partial adjustment model of dividends:

$$D_{it} = \alpha + \nu p E_{it} + (1 - \nu) D_{it-1} + \varepsilon_{it}$$

where D_{it} represents the target dividend payment of company i in year t , p measures the target dividend payout ratio, ν measures the target dividend adjustment speed, E_{it} represents the earnings of company i in year t , and D_{it-1} represents the dividend payment of company i in year $t - 1$. In accordance with Lintner's model, target dividend per share is selected as a dependent variable. The target dividend adjustment speed and the target dividend payout ratio are calculated using the estimated parameter of current earnings per share and past dividend per share. In line with Xu and Liu (2009), cash, debt to asset ratio, total assets and Tobin's Q are used as control variables in this model. In order to control the impact of time difference and industry difference, year dummy variable and industry dummy variable are added. All the variables in Model 2 are defined in Table 1 where the subscript it denotes company i in year t .

Model 2 Specification:

$$\begin{aligned} DPS_{it} = & (\beta_0 + v_i) + \beta_1EPS_{it} + \beta_2DPS_{it-1} + \beta_3Tobinq_{it} + \beta_4Cash_{it} + \beta_5Debt_{it} \\ & + \beta_6Lnasset_{it} + \beta_7Industry\ Dummy + \beta_8YearDummy + u_{it} \end{aligned} \quad (2)$$

Table 1. Variable description & operationalization

Variable Name	Description & Operationalization
Dependent Variables	
Dividend Per Share (Div)	Dividend per share distributed by the company for the year.
DPS	Target dividend per share.
CAR	12-month cumulative abnormal return starting from the month of dividend declaration.
Key Testing Variables	
Ownership Structure (REL/RES)	If ownership structure of the company is relatively controlled, REL equals 1 or otherwise equals 0. If ownership structure of the company is restrictively controlled, RES equals 1 or otherwise equals 0.
Free Cash Flow per share (Fcf in Model 1)	The free cash flow to firm divided by the total number of shares outstanding.
EPS (in Model 2)	The net earnings attributed to ordinary shareholders divided by the weighted average number of common shares issued.
DPS_{it-1}	Dividend per share of company i in year $t-1$.
Change in Dividend (ΔDiv)	Percentage change in dividend per share.
Control Variables	
EPS (in Model 1)	The net earnings attributed to ordinary shareholders divided by the weighted average number of common shares issued.
Cash	Model 1& 2: The year-end total cash balance scaled by the year-end total number of shares outstanding. Model 3: The year-end total cash balance scaled by the year-end total assets.
$Lnasset$	Natural logarithm of the year-end total assets.
Free Cash Flow (Fcf in Model 3)	The free cash flow to firm scaled by the year-end total assets.
Growth Rate (Growth)	Year-on-year growth rate in operating income.
Debt to Assets Ratio (Debt)	The year-end total liabilities divided by the year-end total assets.
Tobin's Q (Tobinq)	The year-end market value of the listed company divided by the replacement cost of the company. Year-end market value = year-end market value of all tradable shares outstanding + year-end number of non-tradable shares \times year-end A share closing price \times 30% Replacement cost = year-end total asset value [the above calculation method is based on Xu and Liu (2009)]
Independent Director Ratio (Indep)	The number of independent directors divided by the number of total directors.
Net Income (Ni)	The year-end total net income scaled by the year-end total assets.
Change of Net Income (ΔNi)	The difference between the year-end total net income and the previous year-end net income, scaled by the year-end total assets.
Price to Book Ratio (PB)	The market price per share divided by the book value per share.
Year Dummy	Year 2001 as the reference year for the regression model before the split share structure reform and Year 2014 as the reference year for the regression model after the split share structure reform (3 year-dummy variables were included in each regression model).
Industry Dummy	Nine industries in total were chosen: energy, materials, industrials, healthcare, consumer discretionary, consumer staples, information technology, utilities and real estate. Therefore, eight industry-dummy variables were included.

3.2.3 Model 3: stock market reaction to dividend payment

In accordance with He and Chen (2002), Cheng et al. (2009), and Bradford et al. (2013), 12-month cumulative abnormal return (CAR) starting from the month of dividend declaration is chosen as a dependent variable to represent the stock market reaction to change in dividend payment. The formula for CAR is:

Normal monthly return = Average 5-year monthly return

(Calculation of normal return follows the constant mean model which assumes that the average return of a security does not change over time)

Abnormal return (AR) of each month = Realized monthly return - Normal monthly return

One-year cumulative abnormal return (CAR) = \sum Abnormal return of each month

Change of dividend each year (either dividend increase or dividend cut) is used as the key testing variable in Model 3. As an important characteristic of listed companies that influences the timeliness and reliability of financial information disclosure, the size of the company does influence the stock market reaction. In this study, the size of the company is controlled using the natural logarithm of total assets. In accordance with similar research, other continuous control variables are selected to control different aspects of financial status and corporate governance of listed companies.

Due to the change in macroeconomic conditions and people's investment attitude, the market's reaction to dividend information and other financial information may differ each year. Therefore, year dummy variable is added to control the effect of time. According to the clientele effect, investors with common preferences tend to hold the same type of stock. Since the stock market reaction to dividend payment is related to the type of investors holding the stock, investors who prefer high-growth stock may regard dividend negatively while investors who invest in traditional industries may favour cash dividend. In order to control the impact of industry difference, industry dummy variable is therefore added. All the variables in Model 3 are defined in Table 1 where the subscript it denotes company i in year t .

Model 3 specification

$$CAR_{it} = (\beta_0 + v_i) + \beta_1 \Delta Div_{it} + \beta_2 \Delta Ni_{it} + \beta_3 Ni_{it} + \beta_4 Cash_{it} + \beta_5 Debt_{it} + \beta_6 Fcf_{it} + \beta_7 PB_{it} + \beta_8 Growth_{it} + \beta_9 Indep_{it} + \beta_{10} Lnasset_{it} + \beta_{11} Industry Dummy + \beta_{12} Year Dummy + u_{it} \quad (3)$$

4. Findings and discussion

4.1. Descriptive statistics

As shown in Table 2, it is evident that most companies in China before the reform had absolutely controlled ownership structure, but the percentage of such companies declined significantly after the reform. While most of the companies had relatively controlled ownership structure after the

Table 2. Percentage of companies of different ownership structure out of full sample

Before the Reform			
Year	ABS%	REL%	RES%
2001	43.34	39.23	15.19
2002	41.72	38.48	16.31
2003	39.85	39.23	16.81
2004	37.86	38.11	16.94
After the Reform			
Year	ABS%	REL%	RES%
2014	22.42	56.04	17.81
2015	19.18	57.04	19.05
2016	17.68	56.04	21.67
2017	16.31	55.04	21.67

Table 3. Descriptive statistics of continuous variables

Before the Reform							
	Dividend per share	Cash/Asset	Debt to Asset (%)	EPS	Growth (%)	Tobinq	Lnasset
Mean	0.07	0.16	49.87	0.12	54.40	2.60	21.16
Median	0.03	0.13	47.62	0.14	15.75	2.10	21.11
Std	0.10	0.11	45.31	0.51	797.66	2.05	0.92
After the Reform							
Mean	0.10	0.16	51.07	0.23	21.58	2.41	22.75
Median	0.04	0.13	51.83	0.16	4.96	1.79	22.66
Std	0.20	0.11	21.27	0.66	242.64	2.19	1.28
Before the Reform							
	Independent Director Ratio (%)	NI/Asset	FCF per share	PB	Div	ΔNi/Asset	CAR
Mean	17.28	0.01	0.06	6.44	−0.09	0.00	−8.38
Median	20.00	0.03	0.08	3.77	0.00	0.00	−7.76
Std	14.52	0.20	0.78	122.49	0.73	0.23	25.97
After the Reform							
Mean	37.30	0.03	−0.005	4.31	0.10	0.01	3.093
Median	35.71	0.02	0.05	2.98	0.00	0.00	−15.58
Std	5.54	0.16	1.79	28.45	1.31	0.00	61.39

reform, the percentage of restrictively controlled companies increased year by year—implying that the ownership structure in China is becoming less and less concentrated, and more and more akin to the companies in developed capital markets.

The mean, median and standard deviation of dividend per share and other continuous variables are summarized in Table 3. For dividend per share, the mean is greater than the median before and after the reform—an indication of the distribution of dividend per share being skewed to the right. While the average dividend per share increases after the reform, the mean and median for Lnasset are very close, implying a symmetrical distribution of the size of listed companies in China. It is worth noting that PB ratio is very high before the split share structure reform. After the reform, both mean and median of PB decline. Meanwhile, the debt to total assets ratio for the sample firms hovers around the 50% mark—an indication of approximately half of the total assets being financed by borrowing. The debt to total assets ratio is not high because most of the sample firms are state-owned enterprises with the advantage of raising funds from the equity market. In China, the highly restrictive seasoned equity offering must be approved by the China Securities Regulatory Commission (CSRC) but it is easier for SOEs to get approval since they are owned by the government (Bradford et al., 2013). On the other hand, the independent director ratio increases a lot after the reform—suggesting stronger corporate governance in China. Likewise, both the mean and the median of net income and earnings per share improve after the reform, highlighting the greater profitability enjoyed by listed companies.

Table 4 presents the industry distribution of sample firms and statistics of SOEs. The industries with the three highest proportions—industrials, consumer discretionary and materials—account for 21%, 19% and 17% of the sample respectively. And 63% of sample firms are state-owned enterprises.

4.2. Variable correlation test

Correlation matrices of independent variables in each model are presented in Table 5. The correlation coefficients among independent variables are low, indicating that the variables in each model have no obvious multi-collinearity problems.

Table 4. Sample distribution

Industry	Number	Percentage	SOE	Percentage of SOE
Real Estate	88	11%	47	53%
Healthcare	64	8%	27	42%
Industrials	164	21%	121	74%
Consumer Staples	52	7%	34	65%
Information Technology	61	8%	31	51%
Materials	132	17%	85	64%
Utilities	58	7%	45	78%
Energy	24	3%	17	71%
Consumer Discretionary	152	19%	95	63%
Total	795	100%	502	63%

(Note: SOE stands for state-owned enterprises).

4.3. Regression analysis and results

4.3.1. Discussion of model 1 regression results

Parameter estimation results are presented in Table 6. Before the SSSR, both the coefficients of REL and RES are negative whereas the coefficient of RES is smaller than that of REL—indicating that the absolutely controlled companies pay the most dividend, followed by the restrictively controlled companies and the relatively controlled companies which pay the least dividend ($ABS > RES > REL$). This finding is consistent with Xu and Liu (2009) who select the period 2003–2005 as a sub-sample before the reform. As highlighted by the regression results, before SSSR, absolutely controlled companies pay the most dividend. Controlling shareholders before the reform were mostly non-tradable shareholders who acquired the shares at much cheaper prices. But with no avenues to benefit from any capital gain, the opportunist in the controlling shareholders of absolutely controlled companies could only use dividend payout for tunnelling purposes. This finding suggests that Hypothesis 1a is true.

After the reform, both the coefficients of REL and RES are still negative but their coefficients are not statistically significant, denoting that the absolutely controlled companies, the relatively controlled companies and the restrictively controlled companies pay similar dividends ($ABS \approx RES \approx REL$). The result implies that the difference between the level of dividend issued by absolutely controlled companies and the level of dividend issued by the other two types of companies does lessen after the reform. This finding suggests that to some extent SSSR does restrain the tunnelling tendencies of shareholders in highly concentrated companies, indicating that Hypothesis 1b is true. Our finding is thus different from Xu and Liu (2009) who select the period 2006–2008 (which is only a year after the commence of the reform) as a sub-sample after the reform and find that absolutely controlled companies still pay the most dividend, an indication of continued presence of dividend tunnelling. Thus we believe that one of the possible reasons why the results differ is that the period chosen in our study after the reform from 2014–2017 is the period of full circulation era where the reform has long been completed with practically all the shares have become tradable in which the full impact of the reform can be established. In essence, the reform has somewhat mitigated the institutional defects of China's stock market, and combined with the improvement of market supervision and corporate governance standards, large shareholders' expropriation has diminished significantly.

Besides, the estimated coefficient of free cash flow before the reform is not significant, indicating that dividend is not used to reduce agency cost and Hypothesis 2a is true—in line with Hussin et al. (2010). The estimated coefficient of free cash flow after the reform is positively significant at 5% level, suggesting that dividend is used as a tool to reduce free cash flow in the hand of managers, which is consistent with numerous empirical research studies under the free cash flow

Table 5. Correlation matrices of each model

Model 1(Before the Reform/After the Reform)

	Cash	Debt	EPS	Fcf	Growth	Indep	Tobinq	Lnasset
Cash	1.000							
Debt	-0.042/ 0.226	1.000						
EPS	0.208/ 0.329	-0.337/-0.125	1.000					
Fcf	-0.074/ 0.103	-0.041/-0.056	0.090/ 0.062	1.000				
Growth	0.006/ 0.000	0.019/0.017	0.018/- 0.010	-0.022/- 0.064	1.000			
Indep	0.014/ 0.014	0.054/0.015	0.015/- 0.012	-0.010/- 0.034	0.013/ 0.045	1.000		
Tobinq	-0.198/- 0.198	0.263/-0.244	-0.089/- 0.031	-0.051/ 0.017	0.011/ 0.036	-0.249/0.017	1.000	
Lnasset	0.284/ 0.417	-0.114/0.396	0.232/ 0.187	0.050/- 0.036	-0.014/ 0.006	0.143/0.056	-0.519/0.540	1.000

Model 2 (Before the Reform/After the Reform)

	DPS _{it-1}	EPS	Lnasset	Cash	Debt	Tobinq
DPS _{it-1}	1.000					
EPS	0.306/0.440	1.000				
Lnasset	0.289/0.289	0.232/ 0.187	1.000			
Cash	0.252/0.419	0.208/ 0.329	0.284/ 0.417	1.000		
Debt	-0.149/-0.077	-0.337/- 0.125	-0.114/ 0.396	-0.042/0.226	1.000	
Tobinq	-0.068/-0.077	-0.089/- 0.031	-0.519/- 0.540	-0.198/-0.198	0.263/-0.244	1.000

Model 3 (Before the Reform/After the Reform)

	ΔDiv	Cash	Debt	Fcf	Growth	Indep	Ni	PB	ΔNi	Lnasset
ΔDiv	1.000									
Cash	-0.002/ 0.042	1.000								
Debt	0.003/- 0.022	-0.153/ 0.179	1.000							
Fcf	-0.001/- 0.014	0.000/ 0.006	-0.164/ 0.015	1.000						
Growth	0.010/ 0.012	-0.001/- 0.005	0.019/ 0.017	-0.024/- 0.008	1.000					
Indep	0.064/- 0.007	-0.068/ 0.049	0.054/ 0.015	-0.013/- 0.044	0.013/ 0.045	1.000				
Ni	0.025/ 0.048	0.161/ 0.014	-0.589/- 0.134	0.354/- 0.164	0.011/ 0.007	0.017/0.008	1.000			
PB	0.001/- 0.003	0.009/- 0.016	0.005/ 0.034	-0.046/- 0.016	0.011/- 0.032	-0.032/0.014	-0.001/-0.019	1.000		
ΔNi	0.032/ 0.023	0.057/- 0.002	-0.157/ 0.022	0.232/- 0.231	0.012/ 0.008	0.035/0.007	0.679/0.839	0.001/- 0.005	1.000	
Lnasset	0.071/ 0.075	-0.039/ 0.523	-0.114/ 0.396	0.095/ 0.061	-0.014/ 0.006	0.143/0.056	0.197/-0.007	-0.020/- 0.088	0.013/-0.019	1.000

Table 6. Model 1 regression results

Variables	Before the Reform	After the Reform
β_0	−0.660*** (0.000)	−1.063*** (0.000)
REL	−0.024*** (0.000)	−0.016 (0.184)
RES	−0.013*** (0.005)	−0.006 (0.752)
Fcf	0.000 (0.929)	0.005** (0.013)
Tobinq	0.008*** (0.008)	0.006*** (0.002)
Lnasset	0.033*** (0.000)	0.052*** (0.000)
EPS	0.031*** (0.000)	0.070*** (0.000)
Cash	0.094*** (0.000)	0.139*** (0.000)
Debt	0.000 (0.374)	−0.001* (0.065)
Growth	0.000 (0.784)	0.000*** (0.001)
Indep	0.000 (0.316)	−0.001*** (0.000)
N	3050	3021
F-statistic	23.289	42.183
Prob (F-statistic)	0	0
R-squared (%)	13%	22%

(1. P-values are disclosed in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels respectively. 2. Industry and year dummies are added in the regression but results are not reported.)

theory. This finding supports Hypothesis 2b, offering some evidence that since the reform, dividend in China has started to help mitigate the agency problems between managers and shareholders.

As for the controlling variables, the estimated coefficients of Tobin's Q, Lnasset, EPS and cash before and after the reform are positively significant at 1% level—an indication of profitable leading companies, large companies, high-value companies and companies with ample cash in China issuing better dividends. On the other hand, the coefficient of debt to total assets ratio before the reform is statistically insignificant whereas the coefficient after the reform is negatively significant, suggesting a possibly negative relationship between dividend and borrowing in China. Remarkably, the coefficient of independent director ratio after the reform is much more significant—implying that independent directors are now playing a greater role in corporate governance.

4.3.2. Discussion of model 2 regression results

Generally, the target dividend adjustment speed represents the information content of dividend policy (Xu & Liu, 2009). So, higher dividend adjustment speed means lesser information content. Since the target dividend adjustment speed in mature capital markets is low, the company's dividend policy naturally becomes an effective signalling tool. Dewenter and Warther (1998) estimate an average dividend adjustment speed of 0.055 for US firms and 0.094 for Japanese firms. Based on the EPS_{it} and DPS_{it-1} coefficients shown in Table 7, the target dividend adjustment speed, v before and after the reform is calculated. As shown in Table 8, it decreases from 0.494 to 0.303, highlighting the expected greater stability of dividend payment after the reform—a finding that supports Hypotheses 3a and 3b, and the notion that the signalling power of dividend has become stronger after the reform. The result is in line with Wang et al. (2011) who regress the partial dividend adjustment model each year from 1998 to 2008 and obtain adjustment speed of 0.588, 0.657, 0.745, 0.637, 0.437, 0.472, 0.550, 0.517, 0.585, 0.273 and 0.66 for each year respectively in which the average adjustment speed dropped from 0.584 to 0.509, suggesting an improved stability for dividend distribution after the reform.

Meanwhile, the target dividend payout ratio, p increases from 0.071 to 0.192 after the reform. By way of comparison, dividend payout ratio in developing markets ranges from 0.3 to 0.4 while in developed market, it ranges from 0.61 to 0.72 (Glen et al., 1995). The dividend payout ratio in China is much lower

Table 7. Model 2 regression results

Variables	Before the Reform	After the Reform
β_0	−0.308*** (0.000)	−0.269*** (0.000)
EPS	0.035*** (0.000)	0.058*** (0.000)
DPS _{it-1}	0.506*** (0.000)	0.697*** (0.000)
Lnasset	0.015*** (0.000)	0.013*** (0.000)
Debt	0.000 (0.798)	0.000** (0.020)
Cash	0.008*** (0.000)	0.006*** (0.003)
Tobinq	0.003** (0.013)	0.002*** (0.000)
N	3180	3180
F-statistic	146.932	430.192
Prob (F-statistic)	0	0
R-squared (%)	43%	69%

(1. P-values are disclosed in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels respectively. 2. Industry and year dummies are added in the regression but results are not reported.)

Table 8. Target dividend adjustment speed and target dividend payout ratio

	Before the Reform	After the Reform
v	0.494	0.303
ρ	0.071	0.191

Table 9. Summary of model 1 and 2 results

Dividend Payout Incentive	Changed after the reform
Tunnelling	Declined after the reform
Signalling	Became stronger after the reform
Mitigation of Agency Cost	Started after the reform

compared to developed markets but after reform there is a little improvement. [Table 9](#) summarizes the results of Models 1 and 2.

4.3.3. Discussion of model 3 regression results

[Table 10](#) shows the regression results of Model 3. The coefficient of ΔDIV is positive before and after the reform, highlighting the market's generally positive response to dividend increase—a finding consistent with Cheng et al. (2009). But both coefficients are close to 1, suggesting that the dividend increase—compared to the change of net income—only makes a marginally positive impact on the stock price movement. As evidenced by Model 1, for companies with highly concentrated ownership structure investors might react negatively to dividend increase, which could be a sign of tunnelling behaviour. Considering the results from all three models on the whole, we could deduce that the market perceives dividend payment as a signalling device and a tunnelling tool before the SSSR. As the negative tunnelling effect offsets the positive signalling effect, the overall coefficient of ΔDIV is small. The use of dividend for signalling aside, investors after SSSR start to view dividend as a way to curb agency problems.

On the surface it is arguable that the signalling power of dividend soars and the occurrence of tunnelling dwindles. And with the growing influence of dividend in containing agency problems, investors should have seen the dividend increase in a more positive light—resulting in a larger

Table 10. Model 3 regression results

Variables	Before the Reform	After the Reform
β_0	-61.724** (0.032)	115.632 (0.113)
ΔDiv	1.519** (0.039)	1.072*** (0.008)
Ni	3.853 (0.484)	39.963*** (0.000)
ΔNi	9.574*** (0.000)	-30.336*** (0.000)
Cash	9.098** (0.209)	-11.370** (0.033)
Debt	-0.011 (0.407)	0.152** (0.028)
Fcf	-8.365*** (0.007)	-5.344*** (0.000)
Growth	0.001** (0.037)	-0.001 (0.254)
Indep	0.012 (0.563)	0.058 (0.336)
PB	0.000 (0.593)	-0.006 (0.806)
Lnasset	2.125 (0.112)	-1.565 (0.641)
N	3180	3180
F-statistic	106.034	403.263
Prob (F-statistic)	0	0
R-squared (%)	40%	72%

(1. P-values are disclosed in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels respectively. 2. Industry and year dummies are added in the regression but results are not reported.)

coefficient of ΔDIV after the reform. But why has the coefficient of ΔDIV decreased slightly instead? As suggested by M. L. Li and Wu (2015), a possible explanation could be the 2015–2016 stock market crash in China, which was caused by a huge stock market bubble fuelled incessantly by liquidity easing, high leverage and overzealous retail investors jumping on the bandwagon. Once the collapse became inevitable, swarms of investors driven by the herd effect sold off their shares quickly—with little regard to any of the available financial information that could have helped them gauge the companies' chances of surviving a catastrophe of such magnitude. Understandably, dividend increase is therefore irrelevant throughout this period. Apart from this anomaly, though, it is not difficult to deduce that dividend increase in China is perceived positively by investors in general. There is also sufficient evidence to suggest that since the reform, dividend has been more widely used for signalling and agency cost mitigation purposes rather than tunnelling, which is prevalent before the reform. Table 11 summarizes the results of Models 1, 2 and 3.

4.3.4. Robustness test

The other possible measures of abnormal return are employed to perform a robustness test on the regression results of Model 3. One-year alpha and one-year Jensen alpha are used as dependent variables in Model 3. Both alpha and Jensen alpha data are obtained from the Wind database. Detailed regression results of these two robustness test models are shown in Table 12. In line with the initial findings, the increase in dividend generates positive abnormal return before and after the reform while the coefficient of change in dividend after the reform is marginally lower. Therefore, the main findings of Model 3 remain unchanged.

5. Conclusions

This paper studies the motivation of dividend payout policies and the stock market reaction to dividend payout in China from the corporate governance-related perspective. To be precise, dividend payout incentive is explored from the viewpoint of signalling hypothesis, free cash flow hypothesis and tunneling hypothesis. Since the SSSR that commenced in 2005 is a monumental institutional change which makes a sizable impact on dividend policy of listed companies, the change in dividend policy is examined through a comparison between the pre-reform period and the post-reform period.

Table 11. Summary of model 1, 2 and 3 results

Dividend Payout Incentive	Before SSSR After SSSR	Effect
Tunnelling	Yes No	Weaker
Signalling	Yes Yes	Stronger
Mitigation of Agency Cost	No Yes	Stronger

Table 12. Robustness test on model 3

Variables	Model 3 Using Alpha		Model 3 Using Jensen Alpha	
	Before the Reform	After the Reform	Before the Reform	After the Reform
β_0	-10.121*** (0.000)	15.272*** (0.000)	-0.099*** (0.000)	0.149*** (0.000)
ΔDiv	0.250*** (0.000)	0.095* (-0.072)	0.002*** (0.000)	0.001** (-0.040)
N_i	0.857** (-0.011)	5.878*** (0.000)	0.007** (-0.027)	0.059*** (0.000)
	0.587*** (-0.010)	-3.296*** (0.000)	0.006*** (-0.004)	-0.033*** (0.000)
Cash	0.515 (-0.106)	-0.091 (-0.891)	0.005 (-0.132)	-0.001 (-0.890)
Debt	-0.001 (-0.520)	0.025*** (0.000)	0.000 (-0.445)	0.000*** (0.000)
Fcf	-1.1449*** (0.000)	-0.319 (-0.518)	-0.011*** (0.000)	-0.003 (-0.572)
Growth	0.000 (-0.389)	0.000 (-0.686)	0.000 (-0.391)	0.000 (-0.688)
Indep	0.004 (-0.290)	-0.002 (-0.898)	0.000 (-0.250)	0.000 (-0.966)
PB	0.000 (-0.781)	0.000 (-0.840)	0.000 (-0.752)	0.000 (-0.862)
Lnasset	0.484*** (0.000)	-0.460*** (0.000)	0.005*** (0.000)	-0.005*** (0.000)
N	3180	3180	3180	3180
F-statistic	22.148	85.545	21.408	85.401
Prob (F-statistic)	0	0	0	0
R-squared (%)	13%	36%	12%	36%

(1. P-values are disclosed in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels respectively. 2. Industry and year dummies are added in the regression but results are not reported.)

As reflected by the empirical results of this study, absolutely controlled companies record the highest dividend payout level, confirming the ubiquity of tunnelling practices before the reform. With the number of companies with highly concentrated ownership structure on the slide after the reform, the findings suggest that the tunnelling tendencies have been kept in check. Because of the highly concentrated ownership structure before the reform, dividend is scarcely used for limiting agency problems. After the reform, though, dividend seems to have been much more influential in reducing agency cost. As for dividend signalling, the fall in dividend adjustment speed after the reform

indicates that dividend may now carry a greater load of information and function as a more effective signal of the company's future profitability.

As evidenced by the positive cumulative abnormal returns generated by the dividend increase before and after the reform, investors in China appear to perceive dividend favourably. Combining the results from the three models, it is reasonable to deduce that the negative effect of tunnelling offsets the positive effect of signalling before the reform and the overall dividend is positively perceived by the market; while after the reform, only the positive effect of both signalling and agency cost mitigation remains. On the whole, the findings lend credence to the validity of both the tunnelling and signalling hypotheses before the reform as well as the validity of the free cash flow and signalling hypotheses after the reform.

Overall, the findings are supportive of the notion that since the reform, dividend policy has been more widely used for protection of investors and maximization of firm value instead of expropriation purposes. There is a great likelihood that the dividend policy of listed companies in China is gradually becoming more and more akin to the one observed in developed countries—thanks to stronger corporate governance and a capital market that is flourishing on all fronts.

Despite the optimism, the lack of dividend smoothing compared to what is usually seen in developed countries is an issue that companies in China should address. In order to send a better signal to investors, listed companies should pay greater attention to the stability and continuity of dividend payment, and formulate clear dividend policies. The information disclosure of listed companies should also be improved to mitigate information asymmetry between management and outside investors, so that more informed investment decisions could be made.

It is worth noting that most of the investors in the Chinese stock market are retail investors who usually favour short-term gains and turn a blind eye to fundamental information on listed companies. Considering the market's highly speculative nature, it is vital to equip Chinese retail investors with prudent investment strategies. If firms intend to reap the full potential of dividend's signalling power, the market must first be in a position to digest the information that the dividend payment is tasked to convey. The pressing need here is therefore to promote a culture where investors thrive on making informed investment decisions, utilizing the luxury of information available in the market. Revitalizing the market with greater involvement of institutional investors who prioritize long-term investments would be a huge step in that direction—and not to mention that institutional investors could play a pivotal role in improving corporate governance.

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References

- Abeyratna, G., Lonie, A. A., Power, D. M., & Sinclair, C. D. (1996). The influence of company financial performance on the interpretation of dividend and earnings signals: A study of accounting-and market-based data. *The British Accounting Review*, 28 (3), 229–247. <https://doi.org/10.1006/bare.1996.0016>
- Aharony, J., & Swary, I. (1980). Quarterly dividend and earnings announcements and stockholder returns: An empirical analysis. *Journal of Finance*, 35(1), 1–12. <https://doi.org/10.1111/j.1540-6261.1980.tb03466.x>
- Asquith, P., & Mullins, D. W. (1983). The impact of initiating dividend payments on shareholders' wealth. *Journal of Business*, 56(1), 77–96. <https://doi.org/10.1086/296187>
- Barclay, M. J., & Holderness, C. G. (1989). Private benefits from control of public corporations. *Journal of*

- Financial Economics*, 25(2), 371–395. [https://doi.org/10.1016/0304-405X\(89\)90088-3](https://doi.org/10.1016/0304-405X(89)90088-3)
- Bennedsen, M., & Wolfenzon, D. (2000). The balance of power in closely held corporations. *Journal of Financial Economics*, 58(1–2), 113–139. [https://doi.org/10.1016/S0304-405X\(00\)00068-4](https://doi.org/10.1016/S0304-405X(00)00068-4)
- Bhattacharya, S. (1979). Imperfect information, dividend policy, and the ‘bird in the hand fallacy’. *Bell Journal of Economics*, 10(1), 259–270. <https://doi.org/10.2307/3003330>
- Black, F. (1976). The dividend puzzle. *Journal of Portfolio Management*, 2(2), 5–8. <https://doi.org/10.3905/jpm.1976.408558>
- Bradford, W., Chen, C., & Zhu, S. (2013). Cash dividend policy, corporate pyramids, and ownership structure: Evidence from China. *International Review of Economics and Finance*, 27(C), 445–464. <https://doi.org/10.1016/j.iref.2013.01.003>
- Chen, D. H., Jian, M., & Xu, M. (2008). Dividends for tunneling in a regulated economy: The case of China. *Pacific-Basin Finance Journal*, 17(2), 209–223. <https://doi.org/10.1016/j.pacfin.2008.05.002>
- Chen, H. Y., & Huang, G. L. (2005). An empirical study on the equity structure and cash dividend policy of Chinese listed companies. *Statistics & Decision*, 20, 115–117.
- Chen, L. N., & Yao, Z. C. (2000). The empirical study of the signaling mechanism of dividend policy. *Journal of Financial Research*, 10, 69–77.
- Cheng, L. T. W., Fung, H. G., & Leung, T. Y. (2009). Dividend preference of tradable-share and non-tradable-share holders in Mainland China. In *Accounting and finance*, 49(2), 291–316.
- Chiou, J. R., Chen, Y. R., & Huang, T. C. (2010). Assets expropriation via cash dividends? Free cash flow or tunneling. *China Journal of Accounting Research*, 3, 71–93. [https://doi.org/10.1016/S1755-3091\(13\)60020-9](https://doi.org/10.1016/S1755-3091(13)60020-9)
- Claessens, S., Djankov, S., & Lang, L. H. P. (2000). The separation of ownership and control in East Asian corporations. *Journal of Financial Economics*, 58(1–2), 81–112. [https://doi.org/10.1016/S0304-405X\(00\)00067-2](https://doi.org/10.1016/S0304-405X(00)00067-2)
- Cronqvist, H., & Nilsson, M. (2003). Agency costs of controlling minority shareholders. *Journal of Financial and Quantitative Analysis*, 38(4), 695. <https://doi.org/10.2307/4126740>
- Deng, L., Li, S., & Liao, M. (2016). Dividends and earnings quality: Evidence from China. *International Review of Economics and Finance*, 48(C), 255–268. DOI: [10.1016/j.iref.2016.12.011](https://doi.org/10.1016/j.iref.2016.12.011)
- Dewenter, K. L., & Warther, V. A. (1998). Dividends, asymmetric information, and agency conflicts: Evidence from a comparison of the dividend policies of Japanese and U.S. firms. *Journal of Finance*, 53(3), 879–904. <https://doi.org/10.1111/0022-1082.00038>
- Dong, J., Li, H., Liu, K., & Wu, X. (2019). The stock market reaction to dividend reductions and omissions in China. In *Managerial finance*, 45(3), 381–398.
- Easterbrook, F. H. (1984). Two agency-cost explanations of dividends. *The American Economic Review*, 74(4), 650–659.
- Eun, C. S., & Huang, W. (2007). Asset pricing in China’s domestic stock markets: Is there a logic? *Pacific-Basin Finance*, 15(5), 452–480. <https://doi.org/10.1016/j.pacfin.2006.11.002>
- Glen, J. D., Karmokias, Y., Miller, R. R., & Shah, S. (1995). *Dividend policy and behavior in emerging markets: To pay or not to pay* (IFC Discussion Paper No. 26).
- Gordon, L. A., & Pound, J. (1993). Information, ownership structure, and shareholder voting: Evidence from shareholder-sponsored corporate governance proposals. *Journal of Finance*, 48(2), 697–718. <https://doi.org/10.1111/j.1540-6261.1993.tb04734.x>
- Gugler, K. (2003). Corporate governance, dividend payout policy, and the interrelation between dividends, R&D, and capital investment. *Journal of Banking & Finance*, 27(7), 1297–1321. [https://doi.org/10.1016/S0378-4266\(02\)00258-3](https://doi.org/10.1016/S0378-4266(02)00258-3)
- Gugler, K., & Yurtoglu, B. B. (2003). Corporate governance and dividend pay-out policy in Germany. *European Economic Review*, 47(4), 731–758. [https://doi.org/10.1016/S0014-2921\(02\)00291-X](https://doi.org/10.1016/S0014-2921(02)00291-X)
- He, T., & Chen, X. (2002). Whether cash dividends can increase the market value of enterprises? *Journal of Financial Research*, 3, 26–38.
- Holmen, M., & Knopf, J. D. (2004). Minority shareholder protections and the private benefits of control for Swedish mergers. *Journal of Financial and Quantitative Analysis*, 39(1), 167–191. <https://doi.org/10.1017/S002210900003938>
- Hu, F., & Chen, X. D. (2012). Dividend smoothing and firm value: Evidence from Chinese firms. *International Conference on Information Management, Innovation Management and Industrial Engineering* (pp. 98–101). doi: [10.1109/ICII.2012.6339929](https://doi.org/10.1109/ICII.2012.6339929)
- Huang, J. J., & Shen, Y. F. (2007). To whom do public corporate dividend policies cater? In *Accounting research*, 36–43.
- Huang, J. J., Shen, Y. F., & Sun, Q. (2011). Nonnegotiable shares, controlling shareholders, and dividend payments in China. *Journal of Corporate Finance*, 17(1), 122–133. <https://doi.org/10.1016/j.jcorpfin.2010.09.007>
- Hussin, B. M., Ahmed, A. D., & Ying, T. C. (2010). Semi-strong form efficiency: Market reaction to dividend and earnings announcements in Malaysian stock exchange. *The IUP Journal of Applied Finance*.
- Jensen, (1986). Agency cost of free cash flow, corporate finance, and takeovers. In *The American economic review* (pp. 323–329, Vol. 76).
- John, K., & Williams, J. (1985). Dividends, dilution, and taxes: A signalling equilibrium. *The Journal of Finance*, 40(4), 1053–1070. <https://doi.org/10.1111/j.1540-6261.1985.tb02363.x>
- Johnson, S., & La Porta, R. (2000). Tunneling. In *The American economic review* (pp. 22–27).
- Kadioglu, E., & Yilmaz, E. A. (2017). Is the free cash flow hypothesis valid in Turkey? In *Borsa istanbul review*, 72(2), 111–116.
- La Porta, R., Lopez-De-Silanes, F., Shleifer, A., & Vishny, R. (2002). Investor protection and corporate valuation. *The Journal of Finance*, 57(3), 1147–1170. <https://doi.org/10.1111/1540-6261.00457>
- Lang, L. H. P., & Litzenberger, R. H. (1989). Dividend announcements: Cash flow signalling vs. free cash flow hypothesis? *Journal of Financial Economics*, 24(1), 181–191. [https://doi.org/10.1016/0304-405X\(89\)90077-9](https://doi.org/10.1016/0304-405X(89)90077-9)
- Lee, C. W. J., & Xiao, X. (2002). Cash dividend and large shareholder expropriation in China. *SSRN Electronic Journal*.
- Lee, J., & Xiao, X. (2007). Tunneling dividends. In *Working paper*. Tulane University.
- Li, M. L., & Wu, Y. P. (2015). Characteristics of stock market in China from 2014 to 2015. *Finance and Capital*, 12, 98–102.
- Li, Z., & song, Y. (2007). Dividend policy, earnings persistence and signal display. *Nankai Business Review*, 70–80.
- Lin, T. J., Chen, Y. P., & Tsai, H. F. (2016). The relationship among information asymmetry, dividend policy and

- ownership structure. *Finance Research Letters*, 20, 1–12. <https://doi.org/10.1016/j.frl.2016.06.008>
- Lintner, J. (1956). Distribution of incomes of corporations among dividends, retained earnings, and taxes. *The American Economic Review*, 46(2), 97–113.
- Liu, Y. G., Jiao, J., & Zhang, C. (2015). Dividend policy, free cash flow and overinvestment: An investigation based on corporate governance mechanism. *Nankai Business Review*, 4, 139–150.
- Liu, Z. R., & Huang, W. J. (2012). The impact of split share structure reform on cash dividend payment behavior of listed companies. *Journal of Zhongnan University of Economics and Law*, 4, 126–130.
- Lü, C. J., & Xu, J. J. (2010). Dividend signaling effect: From the view of dividend change announcement. *Nankai Business Review*, 90–96.
- Miller, M., & Modigliani, F. (1961). Dividend policy, growth and the valuation of shares. *Journal of Business*, 34 (4), 411. <https://doi.org/10.1086/294442>
- Miller, M. H., & Rock, K. (1985). Dividend policy under asymmetric information. *Journal of Finance*, 40(4), 1031–1051. <https://doi.org/10.1111/j.1540-6261.1985.tb02362.x>
- Mrzyglód, U., & Nowak, S. (2017). Market reactions to dividends announcements and payouts. Empirical evidence from the warsaw stock exchange. *Contemporary Economics*, 11(2), 187–204. <https://doi.org/10.5709/ce.1897-9254.236>
- Ng, S. H. (2014). How does group affiliation affect the diversification performance of family-controlled firms in Malaysia? – A governance perspective. *Asian Academy of Management Journal of Accounting and Finance*, 10(2), 81–115.
- Ng, S. H. (2015). Exploring the Relationship between “Other Block-holders” and the Performance of Family-controlled Corporations in Malaysia. *Asia-Pacific Journal of Business Administration*, 7(2), 117–139. <https://doi.org/10.1108/APJBA-03-2015-0028>
- Ngo, A., Duong, H., Nguyen, T., & Nguyen, L. (2018). The effects of ownership structure on dividend policy: Evidence from seasoned equity offerings (SEOs). *Global Finance Journal*, 44. doi.10.1016/j.gfj.2018.06.002
- Pagano, M., & Roell, A. (1998). The choice of stock ownership structure: Agency costs, monitoring and the decision to go public. *Quarterly Journal of Economics*, 113(1), 187–225. <https://doi.org/10.1162/003355398555568>
- Rostamli, A., Pirayesh, R., & Hasani, K. (2016). The effect of free cash flow-based agency costs on dividends in companies listed on the Tehran Stock Exchange (TSE). *Mediterranean Journal of Social Sciences*, 7(4), 131–138. <https://doi.org/10.5901/mjss.2016.v7n4S2p131>
- Stepanov, S., & Suvorov, A. (2017). Agency problem and ownership structure: Outside blockholder as a signal. *Journal of Economic Behavior & Organization*, 133, 87–107. <https://doi.org/10.1016/j.jebo.2016.10.024>
- Tang, S., & Huang, Y. (2020). Research on the impact of dividend announcement on stock price. *Securities and Futures of China*, 4, 78–89.
- Tang, Y. J., & Xie, R. M. (2006). The liquidity of stocks, the mechanism of equity checks and balances and the tunneling effect of cash dividends: Evidence from Chinese listed companies in 1999–2003. *China Industrial Economics*, 2, 120–128.
- Tang, Y. J., Xie, R. M., & Zhang, C. X. (2007). Counterbalance mechanism of blockholders and tunneling of cash dividend: Evidences from Chinese listed companies from 1999 to 2003. *Nankai Economic Studies*, 6, 94–105.
- Truong, T., & Heaney, R. (2007). Largest shareholder and dividend policy around the world. *The Quarterly Review of Economics and Finance*, 47(5), 667–687. <https://doi.org/10.1016/j.qref.2007.09.002>
- Wang, M. (2013). A study on the relationship between tunneling of large shareholders and the cash dividend policy of listed companies in the post-Split share structure reform era. *Foreign Investment in China*, 16, 12–17.
- Wang, X., Manry, D., & Wandler, S. (2011). The impact of government ownership on dividend policy in China. *Advances in Accounting*, 27(2), 366–372. <https://doi.org/10.1016/j.adiaac.2011.08.003>
- Wei, M. H., & Liu, J. H. (2007). State-owned enterprise dividends, governance factors and over-investment. *World of Management*, 23(4), 88–95.
- Wu, X. X., & Zhai, M. L. (2013). Empirical study on influence of ownership structure on dividend policy. *Journal of Shanxi Finance and Economics University*, 1, 84–94.
- Xu, S. F., Xu, L. B., Yu, L., & Bennett, D. (2015). Cash dividend policy, agency cost and corporate performance. *Journal of Management Science*, 61 (11), 2603–2610. <https://doi.org/10.1287/mnsc.2014.2010>
- Xu, W. B., & Liu, M. (2009). An empirical study on relationship of shareholding structure and dividend payout policy in china's listed companies- before and after non-tradable shares reform. *China Industrial Economics*, 12, 128–138.
- Yan, D. Y. (2004). An empirical study on the influence of the value orientation of the controlling shareholders of chinese listed companies on the dividend policy. *Nankai Economic Studies*, 6, 94–100.
- Yang, B., Zhuang, H., & Gan, Z. L. (2017). The dividend puzzle in China's stock market—based on the investigation of dividend data of listed companies from 1990 to 2015. *Securities Market Herald*.
- Yuan, H. Q. (2001). Analysis of dividend policy of Chinese listed companies. *Journal of Finance and Economics*.
- Yuan, T. R., & Su, H. L. (2004). Empirical research on ultra-ability cash dividend distribution of listed companies. *Accounting Research*, 10, 63–70.
- Zhang, R. (2005). *The effects of firm- and country-level governance mechanisms on dividend policy, cash holdings, and firm value: A cross-country study* https://papers.ssrn.com/sol3/papers.cfm?Abstract_id=652090
- Zhong, Y., & Lu, X. W. (2013). Financing constraints, agency cost and information content of cash dividend policy. *Soft Science*, 10, 140–144.



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