

Stock Dividend Puzzles in China

Abstract

We examine the stock dividend puzzle in China during 1992-2008 by analysing the market reaction, who pays more or solely stock dividends compared to cash dividends and why. In general, stock dividends send a positive market signal which is stronger for larger stock dividends and simultaneous cash dividend declarations. Companies take advantage of this positive announcement reaction when they are cash poor, or have low profitability. In addition, when the overall market underperforms, cash dividends decrease while stock dividends increase significantly. Non-tradable shares are owned by two distinct groups who have different incentives and therefore are likely to prefer different dividend policies. Consistent with this, we find evidence that state-owned shareholders prefer cash dividends, while legal-person shareholders prefer stock dividends.

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1. Introduction

Stock dividend puzzles have been studied for many years. In theory, stock dividends are viewed as a cosmetic change to a company's ownership structure but have no impact on proportional ownership or future cash flows. However, research finds that the stock dividends are especially popular in the Chinese stock market, which is fast-growing but with relatively low level of corporate governance and with complicated ownership structures. This paper aims to investigate the stock dividend puzzle in China, in order to answer the following questions: what is the scope of the stock dividend payments by the Chinese listed companies; why are so many companies engaged in such financial activities; what kinds of companies are likely to pay more or solely stock dividends; and what are the market reactions to the stock dividend announcements? In addition, we also study the characteristics of cash dividend paying companies to form a complete picture of stock dividend payment behaviour and the relationship between the stock dividends and cash dividends. We examine the market reaction around stock dividend announcements between 1992 and 2007. However, due to data restrictions, the characteristics and the motivations of stock and cash dividend paying companies are examined over the period 2000 and 2008.

Numerous empirical studies have attempted to explain the mysteries of stock dividends. The empirical evidence mainly supports the signalling hypothesis, the trading range hypothesis and the cash substitution hypothesis, such as Woolridge (1983a), Lakonishok and Lev (1987) and McNichols and Dravid (1990) in the U.S. market, Masse et al. (1997) in the Canadian market, Batchelor and Orakcioglu (2003) in the Turkish market and Bechmann and Raaballe (2007) in the Danish market.

In China, the Shanghai Stock Exchange (SHSE) was established in December 1990 and the Shenzhen Stock Exchange (SZSE) in July 1991. In March 2009, the total market capitalization of SHSE grew from RMB 2.94 billion in 1991 to RMB 12.73 trillion and SZSE from RMB 7.98 billion in 1991 to RMB 3.42 trillion. During this period, the total number of listed companies was increased from 6 to 864 in SHSE and from 9 to 738 in SZSE. Although the Chinese economy is one of the biggest in the world, the Chinese stock market is still new and developing. In comparison with developed markets, the regulations of the Chinese stock market are less sophisticated, and the degree of information disclosure and the corporate governance level are relatively lower. Further, the ownership structure of Chinese listed companies is more complicated compared to companies domiciled in developed financial markets. Due to the socialism characteristics of China's economy, most listed companies have non-tradable shares (including state-owned shares and legal-person shares) and tradable shares (including A-, B- and H-shares). Chen et al. (2002) summarize that on average about one third of listed companies are held by the government, one third by legal entities and one third by individuals or private shareholders. These characteristics of Chinese listed companies and the Chinese stock market could lead to different financial behaviours and dividend policies.

A small number of studies have examined stock dividends in China. The main focus of the existing literature is on dividend preference theory, i.e. how tradable and non-tradable shares affect dividend policies of Chinese listed companies. Wei et al. (2004), Wei and Xiao (2009) and Cheng et al. (2009) find that stock dividends are preferred by tradable shareholders and the non-tradable shareholders prefer cash dividends. Yi

et al. (2007) use a 2003-2004 sample of dividend distributions to test the shareholder wealth effects of dividend policy in Chinese separated equity market, and find that shareholders of non-tradable stocks get a high return from cash dividends, while tradable shareholders obtain a high short-term return from stock dividends. Yi et al. (2007)'s findings empirically support the dividend preference theory documented by Wei et al. (2004), Wei and Xiao (2009) and Cheng et al. (2009).

In contrast the research on the three popular hypotheses of explaining stock dividends in China is limited with mixed results. Wei et al. (2004) find some evidences to support the cash substitution hypothesis. Chen et al. (2002) find stock dividends can be used as signalling device and stock dividends have a small association with stock returns. However, Su (2005) find that shareholders react negatively to stock dividend distributions in China and there is no evidence that firms paying stock dividends have better investment opportunities. Contrary to other papers, he also finds that firms with a relatively high degree of government control are more likely to distribute stock dividends than cash dividends.

In comparison with the existing literature, the main contributions of our study are as follows. First, although existing studies agree that the ownership structure impacts on the dividend policy in China, these studies focus on the difference between tradable and non-tradable shares. As mentioned earlier, non-tradable shares comprise the two distinct groups of state-owned shares and legal person shares. Even though these two types of shares are both non-tradable on stock exchanges, they represent different owners with different incentives and their trading ability off the stock exchange is different. Therefore, we believe these two ownership types have the incentives and

capability to impact stock dividend payment differently. Our empirical results strongly support this proposition. We also find that companies that have high stock dividend payout ratio and companies that only pay stock dividends have quite different characteristics.

The rest of the paper is organized as follows: Section 2 provides a literature review; Section 3 introduces data, statistic summary and the event study; Section 4 discusses the hypotheses for this study; Section 5 explains the regression results and robustness tests; and Section 6 conclusions.

2. Literature Review

2.1. The Signalling Hypothesis

The signalling hypothesis suggests that in the presence of information asymmetry between managers and investors, managers have private information about a company's future perspectives. The information needs to be conveyed to the market through a credible channel, and stock dividends can be a signalling device. Stock dividends may provide this signalling mechanism as it results in a transfer of distributable profits from retained earnings to paid-up capital. This improves debtholders' position at the expense of shareholders and therefore it is argued that stock dividends are a costly signalling device (see for example, Grinblatt, Masulis and Titman, 1984; Rankine and Stice, 1997; and Bechmann and Raaballe, 2007).

Bechmann and Raaballe (2007) show that stock dividend announcement returns are related to company cash dividend payout policy, while false signals (where future cash dividends are not at least proportionally increased) exhibit negative announcement returns. McNichols and Dravid (1990) show that stock dividend and split factors are positively related to earnings forecast errors and there is a strong statistical relationship between announcement returns and split factor signals. These findings are largely consistent with support for the signalling hypothesis in other US studies (Grinblatt, Masulis and Titman, 1984 and Rankine and Stice, 1997). Management perceptions of investors also support the signalling hypothesis. Baker and Phillips (1993) employ survey questionnaire technique to study stock dividends and show that US managers strongly believe that stock dividends have a positive investor psychological impact, and investors perceive stock dividend announcements as positive signals of future performances and investment opportunities.

In China the empirical evidence also suggests that stock dividends are used to signal future earnings information to the market. Chen et al. (2002) study 1232 pairs of earnings and cash dividend announcements and 1142 pairs of earning and stock dividend announcements of Chinese listed companies during the period of 1994-1997. The results indicate that when earnings and stock dividend announcements are following the same directions (either increase or decrease), there will be significant abnormal returns. In contrast, the impacts of cash dividend announcements are weak and insignificant. They conclude that stock dividends are more valued by Chinese investors than cash dividends.

2.2. The Cash Substitution Hypothesis

The cash substitution hypothesis suggests that due to the limited financial resources or asset expansion requirements, instead of paying cash dividends, companies can use stock dividends to compensate their shareholders. In the survey study of Baker and Phillips (1993), they report that 40.8% of total responses agree that stock dividends are used as temporary substitute for cash dividends. For the companies that are regularly paying stock dividends, 28.9% of them agree that stock dividends are a substitute for cash dividends. Lakonishok and Lev (1987) find that the average dividend yields (cash dividends divided by stock prices) at the end of stock dividend announcement month are 1.69% for the sample and 2.1% for the control group and this difference is statistically significant. However, when comparing these ratios for 3 years before stock dividend announcements, they find that the dividend yields for the sample and control group are almost identical, 1.57% and 1.58%. Therefore, the declining in cash dividend yields suggests that stock dividends are used as a temporary substitution of cash dividend.

The Chinese cash substitution hypothesis evidence is mixed. Wei et al. (2004) examine the relationship between dividend payouts in Chinese listed companies and their ownership structure during 1995-2001. They find positive and significant relationships between cash levels, investment opportunities and stock dividend payout ratios. They conclude that in order to satisfy the financial requirements for future growth, companies with good investment opportunities are more likely to pay stock dividends, and stock dividends are used as substitute of cash dividends for conserving cash flows. However, Su (2005) studies the sample period from January 1996 to July

2000 and finds no evidence that companies are more likely to pay stock dividends in China when they have better investment opportunities.

2.3. The Trading Range Hypothesis

The trading range hypothesis suggests that stock dividends could lead to a decrease in share prices to a desired range which makes the stocks more attractive to investors. McNichols and Dravid (1990) find that share price is positively related to stock dividend payout ratio, and the market value of equity is negatively related to stock distribution ratio, which supports the trading range hypothesis. In a study of Korean stock market, Dhatt et al. (1997) find that stock dividends paying companies have higher stock prices and higher book-to-market ratios than controlled companies, and stock dividend payout ratios are positively related to stock prices and negatively related to firm size before stock dividends announcements. Also, positive risk-adjusted monthly announcement abnormal returns are found in their study. As far as we are aware, Wei and Xiao (2009) is the only study that attempts to test this hypothesis in China, but they find that management does not use stock dividends to reduce share prices, since there is no significant relationship between stock price and stock dividend payout ratios.

2.4. Ownership Structure and Stock Dividends

Ownership represents shareholders' voting rights in a company and the power of claim on a company's equity, and dividends represent the outcomes of investment on

a company. Hence, in order to maximize returns, controlling shareholders might expropriate minority shareholders through dividend policy.

Mancinelli and Ozkan (2006) investigate the relationship between dividend policy and ownership structure for 139 Italian listed firms in 2001. The ownership structure of Italian companies is highly concentrated. Therefore, they conjecture that large non-controlling shareholders have the incentives to protect themselves from the largest controlling shareholder's expropriating by introducing limitations to the largest controlling shareholder. Their results show that there is a significantly negative relationship between proportional shareholding by the largest shareholder and cash dividend payout ratios. Based on the agency cost theory, Khan (2006) examines the relationship between dividends and ownership structure of 330 large UK companies from 1985 to 1997. The empirical results indicate that there is a strong positive relationship between dividend payout ratio and ownership concentration in the UK market, which implies that large controlling shareholders are able to impose their preferred payout policy upon companies to restrict cash flows availability to managers.

According to La Porta et al. (2000), China is a civil law country with weak investor protection. In the Chinese stock markets, most Chinese listed companies were state-owned; after listing, the state-ownership still remains around one third; the top one shareholder, which is usually either the state or the legal person, often is the controlling shareholder in the company; and non-tradable shares are issued at a significant discount price than tradable shares. These unique institutional features for Chinese listed companies could lead to different financial behaviours and dividend policies. Yi et al. (2007) study dividend policy of Chinese listed companies during

2003 and 2004. They document that in the Chinese stock markets, non-tradable shareholders are often the largest shareholders and they have the powers to influence dividend policies for their high returns. The empirical evidence shows that non-tradable shareholders prefer cash dividends rather than stock dividends, since the shares paid as dividends cannot be traded. On the other hand, stock dividends are preferred by tradable shareholders, as abnormal returns from stock dividends are significantly larger than those from cash dividends in short-run. Cheng et al. (2009) and Wei and Xiao (2009) both find similar results in their studies that the cash dividend level is significantly and positively associated with the proportion of non-tradable shares and the stock dividend level is significantly and positively related to the proportion of tradable shares.

3. Data and Market Reaction of Stock Dividends Announcements

3.1. Data

In this paper, we study stock dividends of Chinese non-financial companies which are listed on the Shanghai Stock Exchange and the Shenzhen Stock Exchange. All of the dividend announcements, financial information and market returns are collected from the China Stock Market and Accounting Research (CSMAR) database. We have two sample periods in this paper. In the event study, our sample is the stock dividend announcements from 1992 to 2007 with complete trading information during the estimation period and the window period. Our regression analysis sample period is from January 2000 to December 2008, since the corporate governance data used as independent variables is only available in CSMAR database during this period. After

the adjustment of missing data, our sample size in the event study is 1993 stock dividend announcements, while the regression analysis includes 1633 stock dividend announcements and 5633 cash dividend announcements. Further, there are 1023 cumulative abnormal returns surrounding stock dividend announcements that can be matched with the independent variables.

3.2 Statistic Summary

3.2.1. Stock Dividends and Cash dividends in China

Table 1 shows stock dividend payment information from 1990 to 2008. On average, 20.14% of Chinese listed companies pay stock dividends with an average payout ratio of 0.37. Table 1 and Figure 1 both indicate that when comparing with the 2000-2008 period, the percentage of listed companies that pay stock dividends during 1990-1999 is higher (25.42% vs. 14.27%), while the payout ratio is much lower (0.28 vs. 0.47).

Although the focus of this paper is stock dividends in Chinese listed companies, we also investigate cash dividend payment of Chinese listed companies for comparison purposes. Table 2 shows cash dividend payment information from 1990 to 2008. On average, 35.05% of Chinese listed companies pay cash dividends with an average payout ratio of 0.13 per share. Table 2 and Figure 2 reveal that the percentage of cash dividend paying companies is lower in the 1990s (24.17% vs. 47.15%).

Table 3 shows that on average the percentage of Chinese listed companies that pay both stock dividends and cash dividends on the same day was 10.76% during 1990-

1999 and 9.89% during 2000-2008. In addition, on average, the percentage of Chinese listed companies which pay either cash or stock dividends (or both) during 1990-1999 was 38.38%, which increased to 51.53% during 2000-2008. Therefore, over half of Chinese listed companies do not pay dividends of any form during 1990-2008.

3.2.2. Ownership Structure of Chinese Listed Companies

From Table 4a, we can find out that during 2000-2008, on average, 58.78% of ownership in Chinese listed companies are non-tradable shares and 41.15% are tradable shares. A-share proportion is the highest of 37.39%, but A-shares are widely spread among individual investors. The second highest proportion is 34.23%, which is owned by the State (either the central or local government). This practically makes the State the controlling shareholder in Chinese listed companies. The average shares owned by the domestic legal persons consist of 21.24%. In total, foreign shares, employee shares, B shares, H shares and other shares only count about 7% ownership in Chinese listed companies.

Table 4b shows that ownership structure of Chinese listed companies is highly concentrated. On average, the largest shareholder owns 42.65% of Chinese listed companies during 2000-2008. On the other hand, the average sum of shares held by the top 2 to 10 shareholders is only 18.44%. It is obvious that Chinese listed companies are under the control of non-tradable shareholders, which is typically the State or the legal person. This finding is similar to Sun and Tong (2003), Wei et al. (2004) and Cheng et al. (2009). Hence, the state or legal person shareholders have powers to generate favourable dividend policy for their own benefit.

3.3. Market Reaction of Stock Dividends Announcements

3.3.1. Measuring CARs

An event study is used in this paper to investigate the risk-adjusted market reaction of stock dividends announcements from January 1992 to 2007. After cleaning the data and deleting the announcements that have missing stock return data, the sample we use in the event study analysis is 1993 stock dividends announcements. The market model used to calculate the daily abnormal return A_{jt} , for firm J, on day t, is shown below:

$$A_{jt} = R_{jt} - (\hat{\alpha}_j + \hat{\beta}_j \times R_m) \quad (1)$$

where R_{jt} is the return for share of company j as observed at day t, and R_m is the index return at day t. The estimation period is 250 working days (from t_{-271} to t_{-21}). The daily stock and index returns, during this estimation period, are used to estimate the coefficients alpha and beta. The event window is 41 days surrounding the stock dividend announcement date, but we only report 9-day results in the paper (from t_{-4} to t_4). While both the standard Ordinary Least Square (OLS) regression and the Scholes-Williams (1977) adjusted beta coefficients are estimated we report risk adjusted returns based on the Scholes-Williams beta¹.

We use Boehmer, Musumeci and Poulsen (1991)'s (BMP) z-statistic in order to compensate for possible changes in returns' variance around the announcement date.

¹ The mean OLS beta, for the entire sample, is 0.75 (median = 0.91), which is lower than the mean Scholes-Williams beta of 0.92 (median = 0.98).

Unlike the standard t-statistic, the BMP z-statistic is computed by first estimating the standardised residuals and then using the event-day cross-sectional standard deviation, instead of the variance calculated in the estimation period. Corrado (1989)'s non-parametric rank test is also used as robustness test, since the observed returns may not be normally distributed. In comparison with the standard parametric test, this procedure is less influenced by increases of variance on the event-date. The rank test methodology treats the combined estimation period (250 days) and event period (41 days) as a single set of returns. Each firm's daily returns, within the 291-day time period, are assigned with a rank K_{jt} , where ranking number 1 is for the smallest number.

3.3.2. Event Study Estimation Results

The event study results are contained in Table 5. The average abnormal return is 1.49% (median=1.07%) on the day of the announcement and 0.51% (median=0.15%) on the day following the announcement. On both days (Day 0 and Day 1), the results are statistically significant at the 0.1% levels using both BMP's z-statistic and Corrado's non-parametric rank test. The average cumulative return of Day 0 and Day 1 is also statistically significantly positive at the 0.1% level. On the second day following the announcement, the average abnormal daily return (0.13%) is still significantly positive at the 1% level using BMP's z-statistic. However, the impact of the announcement lessens as days go by and the mean abnormal return from the third day following the announcement starts to become negative. Interestingly, the BMP's z-statistic shows that on the day prior to the announcement the abnormal mean return (0.18%) is also statistically positively significant at the 1% level (although the

Corrado rank test is insignificant). Overall, we find that stock dividends offer positive abnormal returns for investors who hold the shares that can be traded.

4. Explaining Stock Dividends in China

From Section 3, we can see that stock dividends in China are popular and the market reaction of stock dividends announcements is significantly positive. In this section, we seek to explain the stock dividend payment behaviour in China using regression analysis. In order to understand stock dividends better, we will not only use the stock dividend payment information as the dependent variable in the regression, but also use the cash dividend payment information, as well as the stock dividend announcement CARs estimated in the previous section.

4.1. Hypotheses for Stock Dividend Payments

In the Chinese stock markets, ownership structure is an important issue for studying Chinese listed companies, due to its complexity features. In Table 4a, we can see that on average non-tradable shares consist of 58.78% of total shares in Chinese listed companies during 2000-2008. Within non-tradable shares, the state shareholders and the legal person shareholders are the two largest groups of shareholders with the average state ownership of 34.23% and the average legal person ownership of 21.24%. As pointed out by Sun and Tong (2003) and Wei et al. (2004), the state shareholders represent powers of the Chinese central or local government and are often controlling shareholders in the Chinese listed companies. On the other hand, the owners of legal

person shares can be local governments (Sun and Tong, 2003), state-owned companies or private owners (Delios and Wu, 2005).

Although both the state-owned shares and legal-person shares are non-tradable shares, their ability to trade off the stock exchanges is different. While the state-owned shares are hard to be transferred into non-state shareholders, legal person shares are actually transferable between legal person shareholders under government permissions (SAMB, 1997). The trading price range of legal person shares is also more flexible than that of the state-owned shares. Therefore, legal person shareholders can benefit from the share price appreciation. While previous studies examine the impact of ownership structure on Chinese company dividend decisions these focus on the impact of non-tradable shares vs. tradable shares, without separating the impacts of state owned shares and legal person shares within the non-tradable shares² (e.g. Cheng et al., 2009). In this study, we argue that when studying the impact of ownership structure on dividend policy, the state-owned shares and legal-person shares need to be treated separately. Besides the difference on the ability to trade, research (Sun and Tong, 2003; Firth et al., 2008; and Wei et al., 2005) has shown that the state and the legal persons have different motivations and play different roles in monitoring the company's performance. While state shareholders represent the government and have their political consideration on companies, legal person shareholders, being mainly the corporations, pay more attention to financial gain of listed companies.

² Wei and Xiao (2009) is the only study that investigates the different impact of state-owned shares and legal person shares on dividend policy in China. However, their definition of these two groups is different from ours and they focus on this impact on cash dividends rather than stock dividends.

Therefore, we have different hypothesis for the state-ownership and legal person ownership variables. We expect there will be a negative relationship between the state ownership and the stock dividend payment, measured by stock dividend per share (SDPS), since the tradability of state-owned shares is minimal. However, for legal person shareholders, we expect a positive relationship between the legal person ownership and the stock dividends payments as their shares are tradable off-market and stock dividend announcements generate positive abnormal returns as highlighted in the previous section. Therefore there is financial motivation for legal person shareholders to support the stock dividend payment in listed companies.

SD H₁: There is a negative relationship between the state ownership and the stock dividend per share. State (-)

SD H₂: There is a positive relationship between the legal person ownership and the stock dividend per share. Legal (+)

According to the cash substitution hypothesis, the motivations of paying stock dividends could be either conserving cash flows for further growth or due to lacking of cash flows. Wei et al. (2004) find that Chinese listed companies with better investment opportunities tend to pay stock dividends and those companies often have higher cash level. However, their study fails to control for company size in measuring cash level. In this study, we use cash-to-assets ratio as a proxy of company's cash level and assets growth ratio as a proxy of investment opportunities. If we assume that companies with good investment opportunities are more likely to pay stock dividends for conserving cash flows, we would expect there is a positive relationship between company's cash level, assets growth rate and stock dividend per share. However, if a

listed company pays stock dividends due to the fact that it does not have enough cash, then there will be a negative relationship between company's cash level and stock dividend per share.

SD H₃: There is a positive relationship between company's assets growth rates and stock dividend per share. GrwAssets (+)

SD H₄: There is a positive/negative relationship between company's cash level and stock dividend per share. Cash-to-assets (+/-)

Companies' financial performance plays a very important role in dividend policies. EPS, Return of Assets (ROA) and Return on Equity (ROE) are widely used as measurements of profitability. Cheng et al. (2009) argue that ROA and ROE can be inflated in order to satisfy the financial requirements and they suggest using most common measurement of profitability, EPS. In this study, following Cheng et al. (2009)'s suggestion, we use EPS as a proxy of company's profitability. Generally speaking, profitable companies are more likely to pay both cash dividends and stock dividends as returns to shareholders. Therefore, we expect that EPS is positively related to stock dividend per share.

SD H₅: There is a positive relationship between EPS and stock dividend per share.
EPS (+)

We also include the following variables and hypotheses in our study which are rarely tested in previous studies on Chinese stock dividends.

In theory, stock dividend payments do not require any cash flows from companies, but will increase the total number of outstanding shares. If everything else holds constant, increasing in total number of outstanding shares will dilute some financial ratios, such as EPS in the long run. Therefore, we expect that companies with large number of outstanding shares would tend to avoid paying stock dividends.

SD H₆: There is a negative relationship between total number of outstanding shares and stock dividend per share. Shares (-)

In general, young or newly listed companies are at the early stage of their business cycle with more investment opportunities. They would tend to pay stock dividends rather than cash dividends to maintain the growth of the company. In addition, since stock dividend announcements are associated with positive abnormal market returns, young or newly listed companies have incentives to pay stock dividends to make their stocks more attractive to investors without involving cash outflows. We then expect a negative relationship between the listing time and the stock dividend per share.

SD H₇: There is a negative relationship between the listing time and stock dividend per share. Listing time (-)

Although the Chinese stock market is a fast growing market, investor protection and corporate governance in this market is relatively weak. On 16th August 2001, the China Securities Regulatory Committee (CSRC) issued “Guides on Establishing the Independent Director System in Listed Companies”, which requires Chinese listed companies to have at least one third of its board members to be independent directors. The main motivation of introducing independent directors is to provide better

protections for shareholders, especially for small individual shareholders. We expect that if a company has more independent directors than required (more than one third), the company's corporate governance will be better. If the stock dividend payment is mainly used to stimulate stock returns and due to lack of cash, then we would expect a negative relationship between the independent director dummy (1 if the proportion of independent directors is more than one third) and the stock dividend per share.

SD H₃: There is a negative relationship between the independent director dummy and the stock dividend per share. Independent directors (-)

We also include year dummy in our regression analysis to control for the overall market performance. If Chinese listed companies use stock dividends to stimulate their share prices, then we would see more stock dividends payments during the years when the market index performs relatively poor.

4.2. Hypotheses for Cash Dividend Payments

Although the focus of this paper is stock dividends in Chinese listed companies, we also investigate cash dividends payment and use cash dividend per share (CDPS) as dependent variable in our regression analysis to understand the relationship between the two.

As we mentioned above, since the state-owned shares cannot be traded and the state usually has controlling powers in the listed companies, between stock dividends and cash dividends, the state-owned shareholders would prefer cash dividends for their

financial benefit. Therefore, we expect a positive relationship between the state ownership and the cash dividend per share. In Section 4.1, we discuss that under the cash substitution hypothesis, listed companies would pay stock dividends due to the constraint of cash flows. Due to the weak corporate governance in China, a lot of listed companies think that if they pay stock dividends to investors, then they do not have to pay many cash dividends and they would not look bad in the market. If our assumption is correct, we would see a negative relationship, rather than a positive one between stock dividend per share and cash dividend per share.

CD H₁: There is a positive relationship between the state ownership and cash dividend per share. State (+)

CD H₂: There is a negative relationship between stock dividend per share and cash dividend per share. SDPS (-)

We also keep most of the independent variables in the SDPS regression model when we use CDPS as the dependent variable for comparison purposes.

4.3. Hypotheses for CARs around Stock Dividend Announcements

According to the signalling hypothesis, in the presence of information asymmetry between managers and investors, stock dividends can be a signalling device to convey inside information to outside investors, and stock dividend announcements are often associated with positive effects on stock returns. Evidences to support signalling hypothesis are found by Woolridge (1983a), McNichols and Dravid (1990), Lakonishok and Lev (1987) and Crawford and Franz (2001). For Chinese listed

companies, Chen et al. (2002) compare the market effects of cash dividend announcements and stock dividend announcements and find that stock dividends are more valued by Chinese investors and offer higher abnormal returns. In this study, we expect that stock dividend payout ratios have positive impacts on stock announcement returns. If the listed company announces cash dividends at the same time, then it will be a very strong signal of good performance to the market. Hence, cash dividend payout ratio should also have positive impacts on stock abnormal returns. We use cumulative abnormal returns from Day 0 to Day 1 to measure the market reaction of the stock dividend announcements.

We also include some other independent variables to control for the financial performance and corporate governance of listed companies. If Chinese investors are mature and experienced, we should see positive relationship between the financial performance and corporate governance measures and the market reactions around the stock dividend announcements.

CARs H₁: There is a positive relationship between stock dividend payout ratio (SDPS) and CARs around the announcements. SDPS (+)

CARs H₂: There is a positive relationship between cash dividend payout ratio (CDPS) and CARs around the announcements. CDPS (+)

4.4. Regression Models

We first use the Ordinary Least Square (OLS) regression method in our empirical tests. The description of all the variables used in the regression analyses shown below are contained in Table 6. The regression models using stock dividend per share as

dependent variable to examine the determinants of stock dividend payout ratio are shown in Equations 1 and 2.

Equations (1-2)

$$\begin{aligned}
 SDPS_{it} = & \alpha_0 + \beta_1 \text{State}_{it}/\text{Legal}_{it} + \beta_2 \text{Cash} - \text{to} - \text{assets}_{it} + \beta_3 \text{GrwAssets}_{it} + \\
 & \beta_4 \text{EPS}_{it} + \beta_5 \text{Shares}_{it} + \beta_6 \text{Listing Time}_{it} + \\
 & \beta_7 \text{Independent Directors}_{it} + \beta_8 \text{YRD00}_{it} + \beta_9 \text{YRD01}_{it} + \\
 & \beta_{10} \text{YRD02}_{it} + \beta_{11} \text{YRD03}_{it} + \beta_{12} \text{YRD04}_{it} + \beta_{13} \text{YRD06}_{it} + \\
 & \beta_{14} \text{YRD07}_{it} + \beta_{15} \text{YRD08}_{it} + \mu_{it}
 \end{aligned}$$

In Table 7 the correlation between the state-ownership variable and the legal-person ownership variable is very high (over 0.7) and therefore to avoid multicollinearity, we separate these two independent variables into the two regressions.

In Equations 3 and 4, we use cash dividend per share as the dependent variable to allow comparisons with stock dividends and to examine whether there is a substitute relationship between stock dividends and cash dividends. In order to examine this substitution relationship, SDPS is used as an independent variable for CDPS equations. All other explanatory variables are the same as in Equations 1 and 2.

Equations (3-4)

$$\begin{aligned}
 CDPS_{it} = & \alpha_0 + \beta_1 \text{State}_{it}/\text{Legal}_{it} + \beta_2 \text{SDPS}_{it} + \beta_3 \text{Cash} - \text{to} - \text{assets}_{it} + \\
 & \beta_4 \text{GrwAssets}_{it} + \beta_5 \text{EPS}_{it} + \beta_6 \text{Listing Time}_{it} + \\
 & \beta_7 \text{Independent Directors}_{it} + \beta_8 \text{YRD00}_{it} + \beta_9 \text{YRD01}_{it} + \beta_{10} \text{YRD02}_{it} +
 \end{aligned}$$

$$\beta_{11} \text{YRD03}_{it} + \beta_{12} \text{YRD04}_{it} + \beta_{13} \text{YRD06}_{it} + \beta_{14} \text{YRD07}_{it} +$$

$$\beta_{15} \text{YRD08}_{it} + \mu_{it}$$

Equations 5 and 6 are aimed to examine the signalling hypothesis whether stock dividend announcements have impacts on CARs around the announcements. The key independent variables are SDPS and CDPS. Other explanatory variables which are similar to those in the SDPS and CDPS regressions are used to control for the financial performance and corporate governance of a listed company. In Equation 6, instead of using previous year end's EPS, we use current year's EPS, which is announced on the same day with stock dividend announcement or earlier in the same financial year. Therefore the sample size in Equation 6 is reduced from 1023 to 667.

Equations (5-6)

$$\begin{aligned} \text{CARs}_{it} = & \alpha_0 + \beta_1 \text{SDPS}_{it} + \beta_2 \text{CDPS}_{it} + \beta_3 \text{Cash} - \text{to} - \text{assets}_{it} \\ & + \beta_4 \text{GrwAssets}_{it} + \frac{\beta_5 \text{EPS}_{it}}{\text{EPS Current}_{it}} + \beta_6 \text{Listing Time}_{it} \\ & + \beta_7 \text{Independent Directors}_{it} + \beta_8 \text{YRD00}_{it} + \beta_9 \text{YRD01}_{it} \\ & + \beta_{10} \text{YRD02}_{it} + \beta_{11} \text{YRD03}_{it} + \beta_{12} \text{YRD04}_{it} + \beta_{13} \text{YRD06}_{it} \\ & + \beta_{14} \text{YRD07}_{it} + \mu_{it} \end{aligned}$$

5. Empirical Results for Regression Analyses

The OLS regression results are presented in Table 8 and are discussed below.

5.1. Determinants of Stock Dividend Payments

In Equations 1 and 2, when stock dividend per share is used as the dependent variable, both coefficients of the state ownership and legal-person ownership are statistically significant at the 1% level with expected signs. The findings are consistent with our predictions that the state-owned and the legal person shareholders have different preferences and impact on stock dividends payment. As the tradability of state-owned shares is the lowest among all shares in Chinese listed companies, stock dividends are not as attractive to state-owned shareholders compared to cash dividends. In contrast, legal person shareholders can trade their shares among institutions under the government supervision with more flexible trading price range than state-owned shares. Since stock dividends usually have positive market reaction, it is beneficial for legal person shareholders to have stock dividends. As both the state-owned and legal person shareholders usually have strong powers in listed companies to influence company's dividend policy, we can see a significant negative relationship between the percentage of the state-owned shares and the stock dividends payment and a significant positive relationship between the percentage of the legal-person shares and the stock dividends payment.

We find that the coefficient of assets growth rates is significantly positive at the 5% level, indicating that companies which have better investment opportunities tend to pay more stock dividends. This result is consistent with the cash substitution hypothesis. However, we do not find any significant relationship between the cash-to-assets variable and the stock dividend per share. Since the cash-to-assets variable is measured using the previous year end data, the explanation could be that for some

companies, stock dividends are paid to save cash for future investment purposes, while for others, stock dividends are paid due to lack of cash. Therefore, there are some companies with high cash levels, while others with low cash levels. When using the whole sample set, the overall relationship between the cash-to-assets and stock dividend payment becomes insignificant. We test this relationship further in our robustness tests.

The coefficient of EPS is significantly positive at the 1% level, which is similar to Baker and Phillips (1993), Lakonishok and Lev (1987) and Cheng (2009) that in general, profitable companies tend to pay out more stock dividends.

As we predicted, a company's total number of outstanding shares is negatively related to the stock dividend payout ratio at the 1% significance level, which implies that companies that have high total number of outstanding shares are more cautious in terms of paying stock dividends, since paying stock dividends will further increase the companies' total number of shares and decrease some important financial ratios in the long-run, such as EPS.

Our results also show a significantly negative relationship between the listing time and stock dividend payout ratio. Generally speaking, newly listed or young companies have better investment opportunities (Al-Malkawi, 2008). Thus, newly listed or young companies have incentives to pay stock dividends for conserving cash flows or to make their shares more attractive to investors, since usually stock dividend announcements are associated with positive market reactions. In contrast, when

companies are listed for long time in the market, they will be more concerned about the impact of stock dividends on the total number of shares and the financial ratios.

We find that the dummy variable of independent directors does not show a significant relationship with stock dividend payout ratio, indicating that independent directors might be more of a formality and do not have much influence on listed companies' dividend policy as investors or policy makers expected.

The year dummy variables are used to see whether the overall market performance has any impact on stock dividend payments. The results on year dummies show that in 2003, 2004 and 2008, stock dividend payout ratios are significantly larger than those in other years. In Figure 3, we can see that the average A-share market returns are -1.10%, -1.21% and -5.82% in 2003, 2004 and 2008, which is much lower than the average of 3.29% between 1990 and 2008. Combining these two results together, we can see that Chinese listed companies tend to pay more stock dividends when the market underperforms.

To summarize, our results support hypotheses one, two, three, five, six, and seven but not hypotheses four and eight.

5.2. Stock Dividends can be a Substitute for Cash Dividends

Since the corporate governance level in China is relatively low, researchers suggest there is a possibility that listed companies pay stock dividends to avoid paying cash dividends. In our paper, we use SDPS as independent variable when CDPS is the

dependent variable and we find a negative relationship between SDPS and CDPS. This relationship is statistically significant at the 1% level. We also find that companies with higher cash level, low investment opportunity, and higher profitability pay more cash dividends. In addition, the regression results on year dummies are very interesting. When the market is at its lowest (2008), the cash dividend payout ratio is significantly lower than those in other years, while in Equations 1 and 2, the stock dividend payout ratio in 2008 is significantly higher than those in other years. Our result indicate that in China cash dividend payment is more consistent with the economic conditions of the companies and the market, while stock dividends may be used as substitutes to cash dividends during poorer corporate and/or economic conditions.

The coefficient of the state-ownership variable is significantly positive at the 1% level, which is consistent with our expectation and other studies (such as Wei et al., 2004). To the state-owned shareholders, cash dividends provide much higher returns than stock dividends which cannot be traded (Yi et al., 2007). Therefore, they would prefer to have cash dividends rather than stock dividends. In addition, researchers report that Chinese IPO companies go through a make-up period before listing. Therefore, the operating performance of Chinese IPO firms deteriorates after listing (Chi and Padgett, 2006). In our study, we find that companies pay less cash dividends as their listing time increases, which is consistent with the findings on the operating performance's change of IPO firms.

5.3. Determinants of CARs around Stock Dividend Announcements

In Table 8, Equations 5 and 6 represent OLS results when CARs is used as the dependent variable to examine the signalling hypothesis in Chinese stock markets. Similar to previous studies (Woolridge, 1983b; Grinblatt et al., 1984; and Banker et al., 1993), we find that the stock dividend payout ratio has a significantly positive impact on CARs (the cumulative abnormal returns on day 0 and day 1 around the stock dividend announcements). In addition, we find that if listed companies also announce cash dividends on the same day, the cash dividend payout ratio has significantly positive impact on the CARs as well and the coefficient of CDPS is twice the coefficient of SPDS in the regression results. Our findings indicate that investors believe that stock dividends are positive signals of companies' performance, and their belief is stronger when companies pay cash dividends at the same time.

In addition, we find there is a significantly positive relationship between the listing time and CARs at the 5% level, which implies that if a company is listed in the stock market for longer time and still pays stock dividends (our previous results show that the longer the listing time, the less dividends a company pays), it is a sign of strong growth and good performance of the company.

5.4. Logit Model for Robustness Test

Finally, we use the binary logit model to investigate the characteristics of the firms which only pay stock dividends. Among all stock dividends announcements, 29% of them are stock dividend only announcements. In the logit model, we use all dividend announcements as our sample (announcements paying stock dividends only, paying cash dividends only and paying both dividends). The independent variables are the same as those we used in OLS regressions. The logit models using “SD Only” as the dependent variable are shown as follows. We also use “CD Only” and “SD and CD” as dependent variables for comparison purposes.

Equations (7-8)

$$\begin{aligned} SD \text{ Only}_{it} = & \alpha_0 + \beta_1 \text{state}_{it}/\text{Legal}_{it} + \beta_2 \text{Cash} - \text{to} - \text{assets}_{it} + \beta_3 \text{GrwAssets}_{it} + \\ & \beta_4 \text{EPS}_{it} + \beta_5 \text{Shares}_{it} + \beta_6 \text{Listing Time}_{it} + \\ & \beta_7 \text{Independent Directors}_{it} + \beta_8 \text{YRD00}_{it} + \beta_9 \text{YRD01}_{it} + \\ & \beta_{10} \text{YRD02}_{it} + \beta_{11} \text{YRD03}_{it} + \beta_{12} \text{YRD04}_{it} + \beta_{13} \text{YRD06}_{it} + \\ & \beta_{14} \text{YRD07}_{it} + \beta_{15} \text{YRD08}_{it} + \mu_{it} \end{aligned}$$

The results of logit models are shown in Table 9. We find that most results are consistent with those in OLS regressions. However, interestingly, the listed companies that only pay stock dividends have significantly lower cash to assets ratios and lower EPS, while the coefficients of cash-to-assets and EPS are insignificant and significantly positive in OLS regression results. This difference shows that when Chinese listed companies do not perform well, they would pay stock dividends only. The results here again provide support for the cash substitution hypothesis.

6. Conclusions

This paper investigates the stock dividends puzzle in Chinese stock markets. First, we find that overall only a half of the Chinese listed companies pay either cash dividends or stock dividends. However, with the development of the market and the corporate governance, there are different trends on the stock dividends and cash dividends payout behaviours. When we divide the whole sample period into two (from 1990 to 1999 and from 2000 to 2008), we find that the percentage of firms paying stock dividends is much less in the second half, but with much larger payout ratios, while the percentage of companies paying cash dividends is much higher in the second half, but with lower payout ratios.

Using the event study, we find that stock dividends announcements have significantly positive market reaction between Day -1 and Day 2. The average CARs between Day 0 to Day 1 is 2%, which is significantly positive at the 1% level. The OLS regression results show that the most important variable that influences CARs is the stock dividend payout ratio. The higher the payout ratios are, the higher the CARs. In addition, if the company announces cash dividends on the same day, the cash dividend payout ratio will also have significantly positive impact on CARs.

We then use the OLS model and logit model to investigate the use of stock dividends and the characteristics of the stock dividend paying companies. Even though we find that companies with high EPS tend to have high stock dividends payout ratio, which is consistent with the economic rational that better performed companies offer higher

returns to investors, we also find some interesting results to show that in Chinese stock markets, where the corporate governance level is relatively low, the stock dividends have other use to controlling shareholders and to listed companies.

First, we find that since the tradability level of state-owned shares is the lowest, the state ownership has a significantly negative impact on stock dividends payout ratios. The state-owned shareholders much more prefer cash dividends to maximize their returns. Second, we find the following characteristics of listed companies which pay more or only stock dividends. In the OLS model, we find a significantly negative relationship between the stock dividends payout ratio and the cash dividends payout ratio, indicating that listed companies do use stock dividends to substitute cash dividends. Our logit model shows that the companies that only pay stock dividends have the lowest cash-to-assets level and EPS. In addition, our results on year dummies in the OLS regression show that when the market is down, cash dividends payments decrease significantly while surprisingly stock dividends payments increase significantly. All these results show that listed companies use stock dividends to boost investor confidence on the companies when the companies or the market is not performing well.

Since Chinese listed companies seem to have some “hidden agendas” rather than just offering investors returns of investments when paying stock dividends, the next question will be whether listed companies have concerns when they pay out stock dividends. Our OLS and logit model both show that the stock dividends payment is significantly negatively related to the total number of shares of the company,

indicating that as much as listed companies like to use stock dividends to attract investors, they are concern about deterioration in certain financial ratios (such as EPS). To conclude, in this paper, we find that Chinese investors like stock dividends and stock dividend payout ratios positively impact on CARs around the announcements. However, our results provide the evidence that some listed companies take the advantage of the positive reaction of investors and pay only stock dividends when the company is short of cash, or has low profitability or when the market performance is poor to increase the confidence of investors.

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Table 1: Stock Dividends Payment

Table 1 shows stock dividend payment information from 1990 to 2008. On average, 20.14% of Chinese listed companies pay stock dividends with an average payout ratio of 0.37. In comparison with the period of 1990-1999, during 2000-2008, the percentage of listed companies that pay stock dividends is lower (14.27% vs. 25.42%), while the payout ratio is much higher (0.47 vs. 0.28).

1a: 1990-1999

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
Number of companies paying stock dividend	0	1	4	63	166	145	200	323	268	249	
Total number of listed companies	6	13	71	217	345	381	599	821	931	1031	
Percentage of stock dividend paying companies	0%	7.69%	5.63%	29.03%	48.12%	38.06%	33.39%	39.34%	28.79%	24.15%	25.42%
Stock Dividend Per Share: Mean	0	0.20	0.28	0.22	0.31	0.20	0.28	0.42	0.40	0.45	0.28
Stock Dividend Per Share: Median	0	0.20	0.25	0.20	0.20	0.20	0.20	0.30	0.30	0.42	0.23
Stock Dividend Per Share: Mode	0	N/A	0.20	0.20	0.20	0.10	0.10	0.30	0.20	0.50	0.20
Stock Dividend Per Share: Standard Deviation	0	N/A	0.10	0.12	0.21	0.14	0.24	0.29	0.25	0.25	0.18
Stock Dividend Per Share: Minimum	0	0.20	0.20	0.10	0.03	0.03	0.03	0.01	0.10	0.05	0.07
Stock Dividend Per Share: Maximum	0	0.20	0.40	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.71

1b: 2000-2008

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2000-2008 Average	1990-2008 Average
Number of companies paying stock dividend	169	181	154	146	235	170	195	219	397		
Total number of listed companies	1174	1253	1318	1377	1473	1475	1526	1624	1684		
Percentage of stock dividend paying companies	14.40%	14.45%	11.68%	10.60%	15.95%	11.53%	12.78%	13.49%	23.57%	14.27%	20.14%
Stock Dividend Per Share: Mean	0.46	0.46	0.36	0.46	0.53	0.46	0.46	0.47	0.57	0.47	0.37
Stock Dividend Per Share: Median	0.48	0.50	0.30	0.40	0.50	0.50	0.40	0.33	0.50	0.43	0.33
Stock Dividend Per Share: Mode	0.50	0.50	0.30	0.20	0.50	0.50	0.50	1.00	1.00	0.56	
Stock Dividend Per Share: S.D.	0.29	0.24	0.24	0.29	0.29	0.28	0.27	0.32	0.31	0.28	
Stock Dividend Per Share: Minimum	0.06	0.10	0.02	0.02	0.02	0.05	0.08	0.03	0.05	0.05	
Stock Dividend Per Share: Maximum	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Table 2: Cash Dividends Payments

Table 2 shows cash dividend payment information during 1990 and 2008. On average, 35.05% of Chinese listed companies pay cash dividends with an average payout ratio of 0.13 per share. In comparison with 1990-1999, during 2000-2008, the percentage of cash dividend paying companies is higher (47.15% vs. 24.17%), while the payout ratio is lower (0.14 vs. 0.45).

2a: 1990-1999

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
Number of companies paying cash dividend	0	0	3	35	150	235	213	202	267	282	
Total number of listed companies	6	13	71	217	345	381	599	821	931	1031	
Percentage of cash dividend paying companies	0.00%	0.00%	4.23%	16.13%	43.48%	61.68%	35.56%	24.60%	28.68%	27.35%	24.17%
Cash Dividend Per Share: Mean	0	0	3.38	0.08	0.15	0.19	0.17	0.16	0.17	0.17	0.45
Cash Dividend Per Share: Median	0	0	0.10	0.07	0.11	0.15	0.15	0.13	0.15	0.15	0.10
Cash Dividend Per Share: Mode	0	0	N/A	0.06	0.10	0.10	0.20	0.10	0.10	0.10	0.08
Cash Dividend Per Share: Standard Deviation	0	0	5.73	0.05	0.12	0.15	0.12	0.13	0.13	0.13	0.66
Cash Dividend Per Share: Minimum	0	0	0.05	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01
Cash Dividend Per Share: Maximum	0	0	10.00	0.24	1.20	1.30	0.72	1.00	0.74	1.25	1.65

2b: 2000-2008

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2000-2008 Average	1990-2008 Average
Number of companies paying cash dividend	344	745	719	653	658	763	656	737	822		
Total number of listed companies	1174	1253	1318	1377	1473	1475	1526	1624	1684		
Percentage of cash dividend paying companies	29.30%	59.46%	54.55%	47.42%	44.67%	51.73%	42.99%	45.38%	48.81%	47.15%	35.05%
Cash Dividend Per Share: Mean	0.16	0.10	0.12	0.13	0.14	0.16	0.15	0.16	0.17	0.14	0.13
Cash Dividend Per Share: Median	0.13	0.10	0.10	0.10	0.10	0.12	0.10	0.10	0.10	0.11	0.10
Cash Dividend Per Share: Mode	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
Cash Dividend Per Share: S.D.	0.11	0.10	0.09	0.10	0.12	0.14	0.15	0.17	0.18	0.13	
Cash Dividend Per Share: Minimum	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	
Cash Dividend Per Share: Maximum	0.80	0.70	0.66	0.60	1.00	1.50	1.87	3.00	2.00	1.35	

Table 3: Stock Dividend and/or Cash Dividend Payment

Table 3 shows that on average the percentage of Chinese listed companies that pay both stock dividends and cash dividends on the same day was 10.76% during 1990-1999 and slightly decreased to 9.89% during 2000-2008. In addition, on average, the percentage of Chinese listed companies which pay dividends (cash dividends or stock dividend) during 1990-1999 was 38.38% and this number increased to 51.53% during 2000-2008. On another words, over half of Chinese listed companies do not pay any dividends during 1990-2008.

3a: 1990-1999

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
Number of companies paying dividends	0	1	5	69	211	278	333	460	470	470	
Total number of listed companies	6	13	71	217	345	381	599	821	931	1031	
Percentage of dividend paying companies	0.00%	7.69%	7.04%	31.80%	61.16%	72.97%	55.59%	56.03%	50.48%	45.59%	38.83%
Number of companies paying both CD and SD on the same day	0	0	2	29	105	102	80	65	65	61	
Percentage of CD and SD paying companies	0.00%	0.00%	2.82%	13.36%	30.43%	26.77%	13.36%	7.92%	6.98%	5.92%	10.76%

3b: 2000-2008

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2000-2008 Average	1990-2008 Average
Number of companies paying dividend	443	784	759	697	716	792	728	805	938		
Total number of listed companies	1174	1253	1318	1377	1473	1475	1526	1624	1684		
Percentage of dividend paying companies	37.73%	62.57%	57.59%	50.62%	48.61%	53.69%	47.71%	49.57%	55.70%	51.53%	44.85%
Number of companies paying both CD and SD on the same day	70	142	114	102	177	141	123	151	281		
Percentage of CD and SD paying companies	5.96%	11.33%	8.65%	7.41%	12.02%	9.56%	8.06%	9.30%	16.69%	9.89%	10.34%

Table 4a: Descriptive Statistics of Ownership Structure, 2000-2008

From Table 4a, we can see that during 2000-2008, on average, 58.78% of ownership in Chinese listed companies are non-tradable shares and 41.15% are tradable shares. A-share proportion is the highest of 37.39%, but A-shares are widely spread among individual investors. The second highest proportion is 34.23%, which is owned by the state (either the central government or the local government). This practically makes the state the controlling shareholder in Chinese listed companies. The average shares owned by the domestic legal persons consist of 21.24%. In total, foreign shares, employee shares, B shares, H shares and other shares only count about 7% ownership in Chinese listed companies.

<i>Non-tradable Shares</i>	2000	2001	2002	2003	2004	2005	2006	2007	2008	<i>Average</i>
State Shares	35.40%	36.92%	37.16%	36.85%	37.03%	35.50%	34.18%	29.36%	25.66%	34.23%
Domestic Legal Person Shares	24.74%	22.72%	22.15%	22.18%	21.74%	22.35%	21.30%	18.57%	15.38%	21.24%
Foreign Shares	1.38%	1.29%	1.09%	1.06%	1.22%	1.28%	1.43%	1.57%	1.83%	1.35%
Employee	1.64%	0.99%	0.75%	0.47%	0.22%	0.26%	0.13%	0.24%	0.54%	0.58%
Other Shares	1.22%	0.61%	0.29%	0.37%	0.42%	1.37%	1.75%	2.69%	3.72%	1.38%
<i>Total Non-tradable Shares</i>	64.37%	62.52%	61.44%	60.93%	60.63%	60.75%	58.78%	52.44%	47.13%	58.78%
<i>Tradable Shares</i>										
A Shares	31.40%	33.49%	34.52%	35.15%	35.58%	35.70%	37.64%	43.80%	49.21%	37.39%
B Shares	3.48%	3.35%	3.35%	3.16%	2.99%	2.84%	2.82%	2.66%	2.49%	3.02%
H Shares	0.74%	0.62%	0.69%	0.75%	0.77%	0.73%	0.76%	0.80%	0.88%	0.75%
<i>Total Tradable Shares</i>	35.62%	37.47%	38.56%	39.06%	39.34%	39.27%	41.22%	47.26%	52.58%	41.15%
<i>Total Shares</i>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 4b: Descriptive Statistics of Ownership Concentration, 2000-2008

Table 4b shows that ownership structure of Chinese listed companies is highly concentrated. On average, the Top One shareholder owns 42.65% of Chinese listed companies during 2000-2008. On the other hand, the average sum of shares held by Top 2 to Top 10 shareholders is only 18.44%. It is obvious that Chinese listed companies are under the control of non-tradable shareholders, which is often the state or the legal person.

<i>Proportional Share holdings by Top1 shareholder's</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>Average</i>
Mean	46.79%	46.33%	45.23%	44.52%	43.48%	42.57%	41.04%	37.19%	36.70%	42.65%
Median	47.11%	46.33%	45.17%	44.41%	42.57%	41.03%	38.89%	34.98%	35.13%	41.73%
Standard Deviation	17.55%	17.73%	17.35%	17.09%	16.92%	16.65%	16.13%	15.29%	15.45%	16.69%
Proportional Share holdings by Top2-Top10 shareholders'	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Mean	16.81%	16.63%	16.55%	17.49%	18.33%	19.81%	20.10%	20.19%	20.08%	18.44%
Median	12.94%	12.47%	12.68%	14.25%	15.49%	17.89%	18.58%	18.47%	17.75%	15.61%
Standard Deviation	13.56%	13.82%	13.69%	13.88%	14.13%	14.45%	14.08%	13.51%	13.16%	13.81%
Proportional Share holdings by Top10 shareholders	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Mean	63.60%	62.96%	61.78%	62.02%	61.82%	62.38%	61.13%	59.48%	58.95%	61.57%
Median	65.08%	64.01%	62.93%	63.24%	63.32%	63.66%	62.52%	57.81%	56.72%	62.14%
Standard Deviation	12.64%	12.83%	12.34%	12.38%	12.26%	12.13%	12.43%	50.82%	51.59%	21.05%

Table 5: Event Study Results

The average abnormal return is 1.49% (median=1.07%) on the day of the announcement and 0.51% (median=0.15%) on the day following the announcement. On both days (Day 0 and Day 1), the results are statistically significant at the 0.1% levels using both BMP's z-statistic and Corrado's non-parametric rank test. The average cumulative return of Day 0 and Day 1 is also statistically significantly positive at the 0.1% level. On the second day following the announcement, the average abnormal daily return (0.13%) is still significantly positive at the 1% level using BMP's z-statistic. However, the impact of the announcement lessens as days go by and the mean abnormal return from the third day following the announcement starts to become negative. Interestingly, the BMP's z-statistic shows that on the day prior to the announcement the abnormal mean return (0.18%) is also statistically positively significant at the 1% level. Overall, we find that stock dividends offer positive abnormal returns for investors who hold the shares that can be traded.

Day	Mean	Cumulative Return	Median	Positive/Negative	% Greater 0	BMP* z-statistic	Rank Test
-4	-0.02%	-0.02%	-0.15%	916:1080	45.9%	-0.059	-0.45
-3	0.04%	0.02%	-0.12%	928:1068	46.5%	0.937	0.17
-2	0.08%	0.10%	-0.13%	924:1072	46.3%	0.887	-0.18
-1	0.18%	0.28%	-0.02%	985:1011	49.3%	2.944 **	1.45
0	1.49%	1.77%	1.07%	1382:614	69.2%	20.705 ***	10.93 ***
1	0.51%	2.28%	0.15%	1066:930	53.4%	8.288 ***	3.49 ***
2	0.13%	2.41%	-0.03%	985:1011	49.3%	2.636 **	1.17
3	-0.14%	2.27%	-0.27%	854:1142	42.8%	-2.712 **	-1.78
4	-0.08%	2.19%	-0.30%	880:1116	44.1%	-2.141 *	-1.76
[0,1]	2.00%		1.44%	1403:593	70.3%	19.927 ***	10.198 ***

Notes:

- 1) *, **, and *** denote statistic significance at the 5%, 1% and 0.1% levels, respectively, using a one-tail test.
- 2) BMP* stands for Boehmer, Musumeci and Poulsen's z-statistic.

Table 6: Description of Variables in the Regression Analysis

This table shows the descriptions of dependent and independent variables used in the OLS model and logit model.

Variables	Descriptions
SDPS	Stock dividend per share.
CDPS	Cash dividend per share.
CARs	Two-day cumulative abnormal returns (Day 0 and Day 1).
State	Proxy for government or state ownership, measured by the ratio of total number of state-owned shares to total number of outstanding shares.
Legal	Proxy for legal person ownership, measured by the ratio of total number of legal person shares to total number of outstanding shares.
GrwAssets	Is the proxy for investment opportunities and is measured as the annual growth in total assets.
Cash-to-assets	Is calculated as total amount of cash and cash equivalent assets divided by total assets.
EPS	Earnings per share is the proxy for company's profitability.
EPS Current	Proxy of company's profitability which only includes the EPS announcements that are announced on the same day with stock dividend announcements or earlier than stock dividend announcements in the same financial year.
Shares	Logarithm of total number of outstanding shares.
Listing Time	Represents time in years a company is listed in the stock market, starting from 1 in the listing year.
Independent Director	Is a dummy variable, which equals to 1, if the company has more than one third of board members be independent directors, otherwise equals to 0.
YRD00--YRD08	Are year dummy variables which equals to 1 if the company have stock dividend announcement in that particular year otherwise equals to 0 (except for YRD05).
SD Only	Dependent variable for logit model, =1 if the company only have stock dividend announcements on certain day; otherwise, =0.
CD Only	Dependent variable for logit model, =1 if the company only have cash dividend announcements on certain day; otherwise, =0.
SD and CD	Dependent variable for logit model, =1 if the company announces both cash dividends and stock dividends on the same day, otherwise, =0.

Table 7: Correlation Matrix for Regression Analysis

Table 7 shows the correlation matrix of the variables in the OLS regression analysis. Since the correlation between the state-ownership variable and the legal-person ownership variable is very high (over 0.7), to avoid multicollinearity, we separate these two independent variables into two regressions. The variables include stock dividend per share (SDPS), cash dividend per share (CDPS), the listing time (Listtime), assets growth rates (GrwAssets), cash to assets ratios (Cash2Assets), earnings per share (EPS), the state ownership (State), the legal person ownership (Legal), total number of shares (Shares), the cumulative abnormal returns from day 0 to day 1 around the stock dividend announcements (CARs), and current year EPS (EPSCurrent).

Correlations Matrix For Stock Dividend Per Share Regression (N=1633)

	SDPS	Listtime	GrwAssets	Cash2Assets	EPS	State	Legal	Shares
SDPS	1							
Listtime	-0.201	1						
GrwAssets	0.120	-0.035	1					
Cash2Assets	0.080	-0.308	-0.053	1				
EPS	0.235	-0.229	0.183	0.155	1			
State	-0.112	0.133	-0.006	-0.071	-0.012	1		
Legal	0.080	-0.083	0.031	0.063	-0.035	-0.747	1	
Shares	-0.099	0.373	0.134	-0.273	0.083	0.206	-0.188	1

Correlations Matrix For Cash Dividend Per Share Regression (N=5633)

	CDPS	SDPS	GrwAssets	Cash2assets	EPS	Listtime	State	Legal
CDPS	1							
SDPS	0.066	1						
GrwAssets	0.006	0.02	1					
Cash2assets	0.124	0.095	-0.028	1				
EPS	0.592	0.312	0.064	0.107	1			
Listtime	-0.102	-0.164	-0.048	-0.257	-0.168	1		
State	0.043	-0.151	0.033	-0.056	-0.030	.032	1	
Legal	-0.022	0.080	-0.019	0.060	-0.028	-.042	-0.818	1

Correlations Matrix For CARs Regression (N=1023)

	CARs	SDPS	CDPS	Listtime	GrwAssets	Cash2Assets	EPSCurrent	EPS
CARs	1							
SDPS	0.039	1						
CDPS	0.051	0.096	1					
Listtime	-0.029	-0.199	-0.177	1				
GrwAssets	-0.053	0.122	0.037	0.068	1			
Cash2Assets	-0.019	0.033	0.120	-0.203	0.047	1		
EPSCurrent	0.068	0.003	0.440	-0.109	0.082	0.108	1	
EPS	0.019	0.111	-0.666	-0.126	0.155	0.109	0.653	1

Table 8: OLS Regression Results

This table shows the OLS regression results which have been corrected for heteroskedasticity with the White's test (1980). The regression model 1 is expressed as follows for example:

$$SDPS_{it} = \alpha_0 + \beta_1 \text{state}_{it} + \beta_2 \text{Cash to assets}_{it} + \beta_3 \text{GrwAssets}_{it} + \beta_4 \text{EPS}_{it} + \beta_5 \text{Shares}_{it} + \beta_6 \text{Listing time}_{it} + \beta_7 \text{Independent directors}_{it} + \beta_8 \text{YRD00}_{it} + \beta_9 \text{YRD01}_{it} + \beta_{10} \text{YRD02}_{it} + \beta_{11} \text{YRD03}_{it} + \beta_{12} \text{YRD04}_{it} + \beta_{13} \text{YRD06}_{it} + \beta_{14} \text{YRD07}_{it} + \beta_{15} \text{YRD08}_{it} + \mu_{it}$$

The dependent variables are stock dividend per share (SDPS), cash dividend per share (CDPS) and the cumulative abnormal returns from day 0 to day 1 around the stock dividend announcements (CARs). The independent variables include the state ownership (State), the legal person ownership (Legal), cash to assets ratios (Cash-to-Assets), assets growth rates (GrwAssets), earnings per share (EPS), current year EPS (EPSCurrent), the total number of shares (Shares), the listing time (Listtime), independent director dummy (Independent) and year dummies (YRD00-08, except YRD05).

<i>White Heteroskedasticity-Consistent Standard Errors & Covariance</i>						
<i>OLS Results</i>	SDPS		CDPS		CARs	
	(1)	(2)	(3)	(4)	(5)	(6)
C	1.022***	1.022***	0.056***	0.065***	-0.016	-0.027
State	-0.088***		0.019***			
Legal		0.082***		-0.005		
SDPS			-0.065***	-0.068***	0.018**	0.024***
CDPS					0.036**	0.039
Cash-to-Assets	0.003	0.008	0.067***	0.065***	0.016	-0.002
GrwAssets	0.025**	0.024**	-0.001*	-0.001*	-0.007	-0.007**
EPS/EPS Current ⁽¹⁾	0.134***	0.134***	0.285***	0.286***	-0.009	-0.008
Shares	-0.028***	-0.031***				
Listtime	-0.008***	-0.007***	-0.001**	-0.001**	0.002**	0.003**
Independent	0.016	0.019	-0.007*	-0.007*	0.010*	0.014*
YRD00	0.074	0.072	0.016**	0.016**	0.023**	0.029**
YRD01	0.046	0.041	-0.009*	-0.009*	0.007	0.011
YRD02	-0.033	-0.037	-0.019***	-0.019***	0.010	0.007
YRD03	0.054*	0.051	-0.003	-0.003	0.012	0.010
TRD04	0.121***	0.117***	-0.001	-0.001	-0.006	-0.004
YRD06	0.031	0.033	-0.002	-0.003	0.038***	0.040***
YRD07	0.007	0.018	-0.009	-0.010*	0.080***	0.078***
YRD08	0.072***	0.086***	-0.043***	-0.045***		
<i>Notes: *at the 10% significant level **at the 5% significant level ***at the 1% significant level</i>						
Number of Obs.	1633	1633	5633	5633	1023	667
Adjusted R ²	0.111	0.110	0.384	0.383	0.136	0.129

Note: (1) EPS Current is only used in Equation 6.

Table 9: Logit Model Regression Results

This table shows the logit model regression results. The regression model 7 is expressed as follows for example:

$$SD_Only_{it} = \alpha_0 + \beta_1 state_{it} + \beta_2 Cash\ to\ assets_{it} + \beta_3 GrwAssets_{it} + \beta_4 EPS_{it} + \beta_5 Shares_{it} + \beta_6 Listing\ time_{it} + \beta_7 Independent\ directors_{it} + \beta_8 YRD00_{it} + \beta_9 YRD01_{it} + \beta_{10} YRD02_{it} + \beta_{11} YRD03_{it} + \beta_{12} YRD04_{it} + \beta_{13} YRD06_{it} + \beta_{14} YRD07_{it} + \beta_{15} YRD08_{it} + \mu_{it}$$

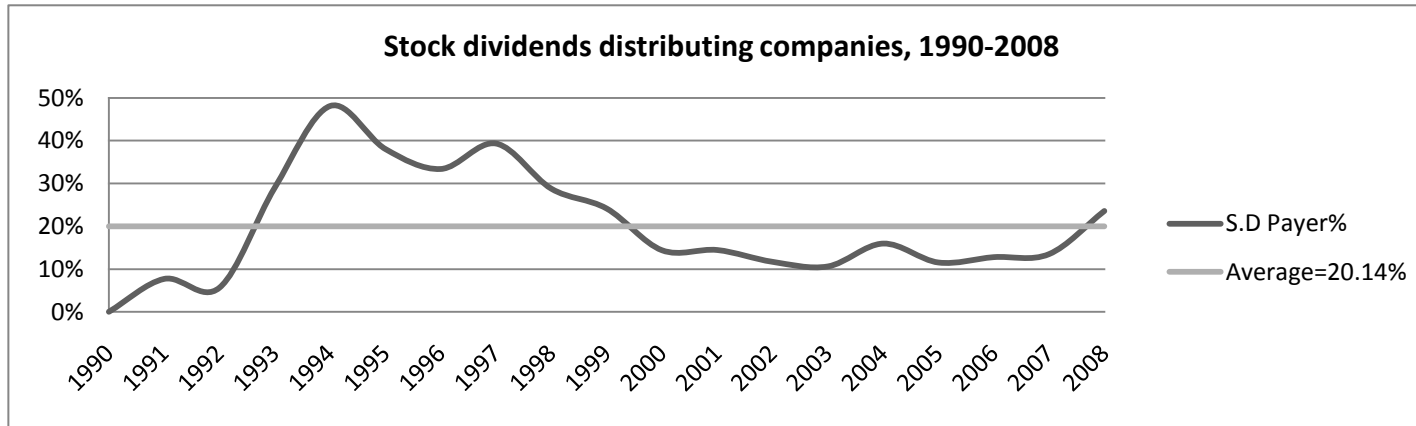
The dependent variables are stock dividends only (S.D. Only), cash dividends only (C.D. Only) and both stock dividends and cash dividends (SD and CD), which equals to 1 if a company pays stock dividends only, or pays cash dividends only or pays both at the same time, otherwise 0. The independent variables include the state ownership (State), the legal person ownership (Legal), stock dividend per share (SDPS), cash to assets ratios (Cash-to-Assets), assets growth rates (GrwAssets), earnings per share (EPS), the total number of shares (Shares), the listing time (Listtime), independent director dummy (Independent) and year dummies (YRD00-08, except YRD05).

<i>Logit results</i>	<i>Binary Logit Model</i>					
	<i>S.D. Only</i>		<i>C.D. Only</i>		<i>SD and CD</i>	
	(7)	(8)	(9)	(10)	(11)	(12)
C	8.501***	8.610***	3.002***	3.471***	4.262***	4.691***
State	-0.541***		0.939***		-0.703***	
Legal		0.350*		-0.461***		0.388***
SDPS			-9.884***	-9.864***		
Cash-to-Assets	-1.003**	-0.978**	0.398	0.291	0.267	0.273
GrwAssets	0.019***	0.019***	-0.007	-0.006	0.010	0.009
EPS	-1.222***	-1.206***	2.011***	2.026***	1.115***	1.121***
Shares	-0.613***	-0.634***			-0.321***	-0.363***
Listtime	0.077***	0.079***	-0.019**	-0.021**	-0.006	-0.001
Independent	0.029	0.037	-0.053	-0.052	0.059	0.070
YRD00	-0.464	-0.483	1.599***	1.619***	-1.684***	-1.708***
YRD01	0.104	0.091	-0.070	-0.049	0.103	0.079
YRD02	0.176	0.165	-0.387**	-0.353**	0.009	-0.014
YRD03	0.372	0.363	-0.033	-0.007	-0.043	-0.058
TRD04	0.709***	0.698***	-0.251	-0.218	0.421***	0.399***
YRD06	0.934***	0.949***	-0.209	-0.227	0.028	0.049
YRD07	0.895***	0.954***	-0.307**	-0.384***	0.000	0.071
YRD08	1.397***	1.477***	-0.664***	-0.768***	0.272**	0.374***
<i>Notes: *at the 10%significant level **at the 5%significant level ***at the 1% significant level</i>						
Obs. with Dep=0	6797	6797	1635	1635	6100	6100
Obs. with Dep=1	469	469	5631	5631	1166	1166
Total Obs.	7266	7266	7266	7266	7266	7266

Figure 1: Stock Dividends Payments

Figure 1 indicate that in comparison with the period of 1990-1999, during 2000-2008, the percentage of listed companies that pay stock dividends is lower than the average (20.14%), while the payout ratio is much higher than the average (0.37).

1a



1b

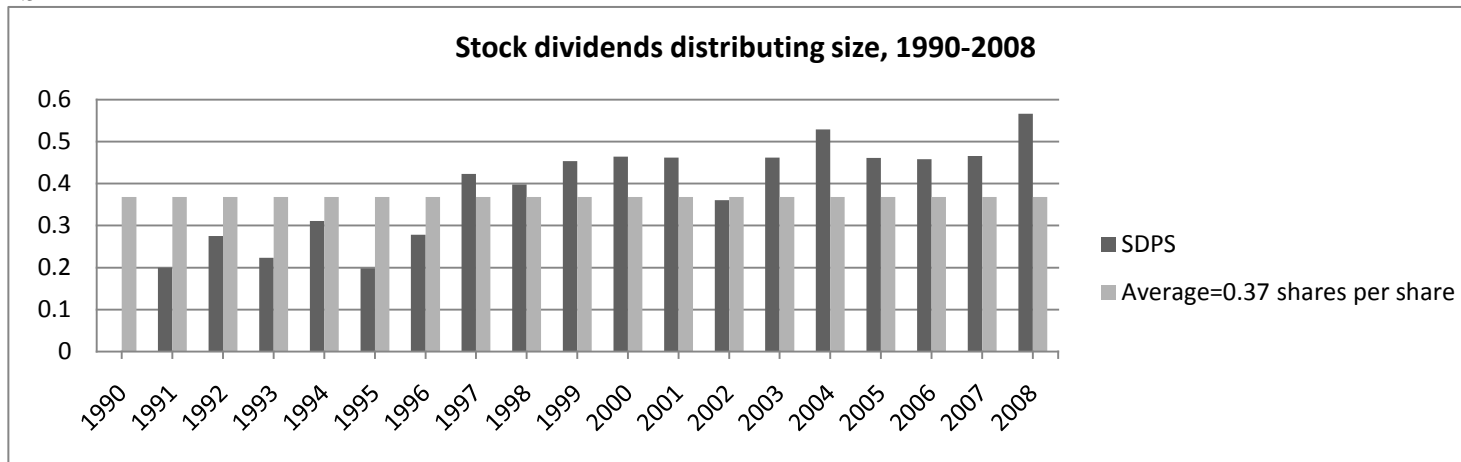
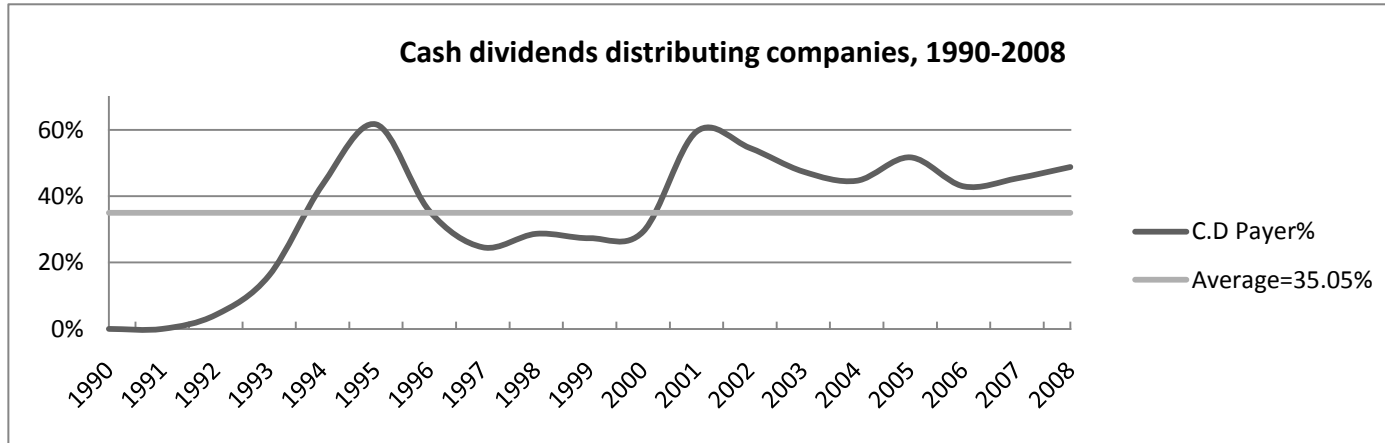


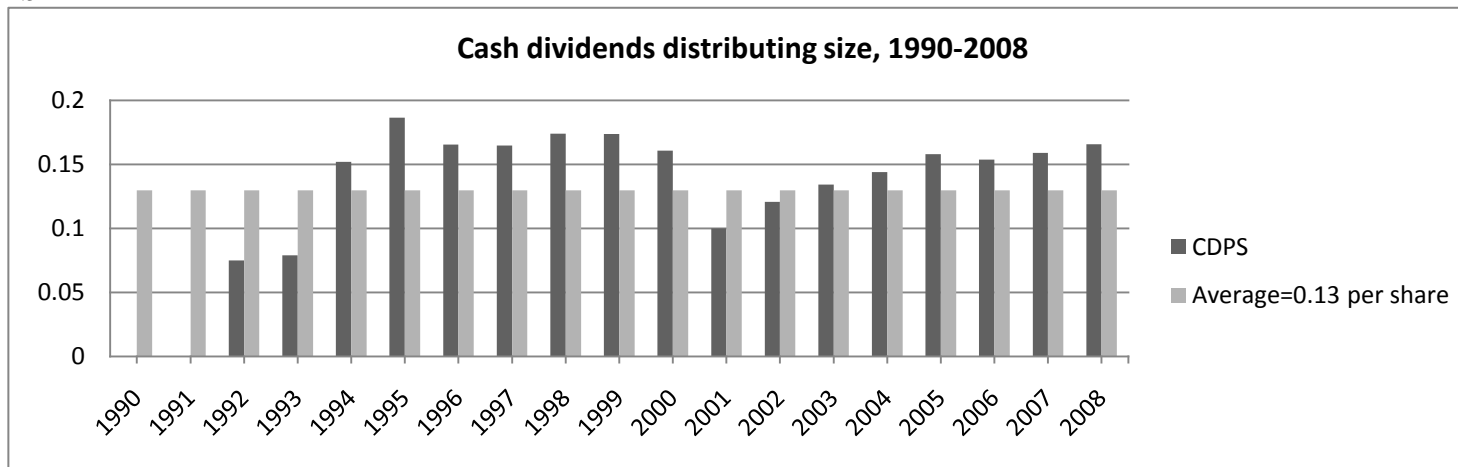
Figure 2: Cash Dividends Payments

From Figure 2, we can see that in comparison with 1990-1999, during 2000-2008, the percentage of cash dividend paying companies is higher than the average (35.05%), while the payout ratio is lower.

2a



2b



Note: We eliminate one extreme value of cash dividend distribution of stock code: 600602, announced on 9 March 1992. This cash dividend distribution size is extremely large, ¥10 RMB per share.

Figure 3: Aggregated A-share Market Monthly Returns

This figure shows the aggregated A-share market monthly returns over the period of 1991 to 2008. The purpose of this figure is to see whether there is any relationship between the market index performance and the stock and/or cash dividends payments. Combining with the regression results on year dummies, we find that when the market performs poorly, the cash dividend payment decreases significantly while the stock dividend payment increase significantly.

