

Liquidity, Ownership Structure and Dividend Policy: Evidence from China's Split Share Structure Reform

Shuyue Chen, PBC School of Finance, Tsinghua University
Bin Dang, ABC Wealth Management Co., Ltd.

Abstract

Since ownership structure has played an increasingly significant role in corporate governance, considerable importance has been attached to the relationship between firm's corporate ownership structure and its dividend policy. In this study, the Split Share Structure Reform that allowed previously non-tradable shares to be freely tradable in the secondary market and were implemented in batches could be treated as an exogenous shock for stock liquidity and thus a diff-in-diff method could be adopted as the natural experiment for the relationship between ownership structure and dividend policy change due to the stock liquidity increase in Chinese stock market. We find that the average dividend of Chinese-listed firms increased after the reform. Additionally, firms with multi relative controlling shareholders and firms with only minority shareholders experienced a significant increase in dividend while firms with absolutely controlling shareholder suffered a significant dividend reduction. The mechanism for the influence of stock liquidity increase on dividend policy change for firms with above three ownership structures could be explained by the internal fund channel, the agency problem channel and the wealth expropriation channel separately.

1. Introduction

This paper examines the effect of stock liquidity on dividend policy of firms in the context of China's Split Share Structure Reform commenced in 2005. This reform specified a time period during which shareholders of non-tradable share were required to convert

their stock into tradable ones by offering appropriate compensation to holders of tradable shares. Since stock liquidity increased sharply when firms completed the reform, we could adopt the diff-in-diff method and treat the implementation of the Split Share Structure Reform in batches as an exogenous shock to stock liquidity of firms to explore the relationship between stock liquidity and dividend policy.

Shareholders of previous non-tradable shares in Chinese A-share market are typically large ones with strong influential power on the dividend policy of firms. So, the stock liquidity increase after the reform that makes their shares tradable would enhance incentives for large shareholders to be concerned about share prices. The reason is that they can realize gains and obtain cash by selling shares after the reform while could realize gains and obtain cash only from cash distributions, including dividend prior to the reform.

We consider three channels through which the reform affects dividend policy: one negative, wealth expropriation channel and two positive, agency problem channel and internal fund channel. These three channels would exert opposite influence on the dividend policy. In this paper, we aim to identify which channel is more realistic in Chinese market? And under different ownership structures of firms, which channel is more plausible?

Firstly, for the **wealth expropriation channel**, we suggest that the liquidity increase in the reform would lower the propensity as well as the level of dividend distribution. Specifically, we hypothesize that before the reform, large non-tradable shareholders could take advantage of its monopolizing voting power to control the dividend distribution process and thus obtain private benefits at the expense of minority shareholders' interest by offering much higher level of dividend. However, when reform completed, the non-tradable shares became tradable at the secondary market, which may lead large shareholders to take more consideration of the influence of dividend policy on stock price. So, in the tradeoff of shareholders between benefits to expropriate corporate resources in the form of dividend and costs of stock price decrease by offering too much dividend and thus violating minority shareholders' interest, dividend may be lower relative to the pre-reform level.

Secondly, for the **agency problem channel**, we suggest that the liquidity increase in the reform would enhance the propensity as well as the level of dividend distribution.

Specifically, we hypothesize that since the dividend policy should be negotiated among shareholders, which was costly and difficult to reach an agreement, the dividend policy was somewhat set by managers because of the strong incentive of the minority shareholders to be free-rider due to their unobtrusive preference for dividend. Due to incentives of managers to preserve money in order to enhance their control right and the non-tradability characteristic reducing the weight of stock price in evaluating managers' performance, firms were possible to keep a lower level of dividend and preserve quite a lot money. However, when the firm completed the reform, the fact that their non-tradable shares became tradable at the secondary market may induce them to care more about capital gain in manager evaluation. Since a suitable and relatively competitive dividend policy would have a positive effect on stock price, in the tradeoff of managers between benefits of much controlling right by preserving money and costs of lower performance-based compensation due to lower evaluation from the shareholder, the propensity and level of dividend may be higher relative to pre-reform level.

Thirdly, for the **internal fund channel**, we suggest that the liquidity increase in the reform would enhance the propensity as well as the level of dividend distribution. Specifically, we hypothesize that since the dividend policy should be negotiated among shareholders, the largest one is difficult to control this process by himself and thus could not easily expropriate corporate resources at the expense of minority shareholders' interest before the reform. So if the firms had better performance as well as higher growth opportunities, the non-tradable shareholders were highly possible to keep a lower level of dividend and preserve the money as internal fund for firm's future development. However, when firms completed reform, the fact that their non-tradable shares became tradable at the secondary market may induce them to care more about the effect of capital gain by offering relatively more competitive dividend policy. So, in the tradeoff of shareholders between benefits of capital gain due to higher level dividend and costs of less future development opportunity by not preserving much internal fund, the propensity and level of dividend may be higher relative to the pre-reform period level.

In order to identify which channel is more realistic in Chinese market? And under different ownership structures of firms, which channel is more plausible? We use a panel of 1,123 Chinese-listed nonfinancial firms, and a sample period covering 2000–2010, we

find that for our 9,401 firm-year observations, the average dividend significantly increased for most of our four proxies for dividend propensity and level after the reform. This result seems to support the internal channel and the agency problem channel. However, this result may only be a mix of different channels for firms with different ownership structure, which we need to do more discussion in the cross-section analysis.

There are still two considerations that we need to mention in order to make our result robust. The first one is that in our main regression in section 3.2.1, the time of dividend issuance is defined as the declaration date. We consider that the announcement date could reflect the effect of the reform on dividend policy in a larger degree than declaration date since there is some time between firms making decision and the real dividend distribution. We would change the definition for the time of dividend issuance to the announcement date for robustness test in section 3.3.1 and show there is no significant differences between these two different dividend date measurements.

The second consideration is that since the pre-reform period and the post-reform period are different for different firms, there may exist some doubts that whether the result about the influence of liquidity increase due to the reform on dividend policy shown in our main regression in section 3.2.1 are robust. That is to say, whether the firm-specific time variant factors would have influence on our result and whether our result of dividend increase is not driven by liquidity increase due to the reform but omitted factors. In order to rule out this possibility, in section 3.3.2, we adopt another diff-in-diff method in which the pre-reform period and post-reform period are the same for all firms in the sample for robustness test and show that our result of average dividend increase is robust to different diff-in-diff specification.

Based on the tests we mentioned above, we could answer our first question that the internal fund channel and the agency problem channel which indicate a dividend increase after the reform are more realistic in Chinese market in general. Then we adopt a cross-sectional analysis to answer the second question that under different ownership structures of firms, which channel is more plausible? Since the three different channels may have different explanatory power for different subsamples, we hypothesize that the wealth expropriation channel, the agency problem channel and the internal fund channel may be

dominated for the firms with absolutely controlling shareholder, only minority shareholders and multi relative controlling shareholders respectively in section 2.

In order to test our hypotheses and explore the influence of ownership structure, we first separate the full sample into four subsamples based on the *largest NTS shareholding ratio* defined as the largest non-tradable shareholding ratio of the ultimate controller of firms before the reform. Specifically, four subsamples consist of firms with *Largest NTS shareholding ratio* higher than 80%, from 50% to 80%, from 20% to 50% and less than 20% respectively. The first two subsamples could be regarded as the firms with absolutely controlling shareholder, the third subsample could be regarded as the firms with several relatively controlling shareholders while the last subsample could be regarded as the firms with only minority shareholders.

The results in section 3.2.2 indicates that for higher ownership concentration firms¹, the increase liquidity due to the reform results in decrease in both propensity and level of dividend after controlling for a series of financial variables which is consistent with the wealth expropriation channel. While for the middle range ownership concentration firms², the increase liquidity due to the reform results in increase in both propensity and level of dividend, after controlling for a series of financial variables, which is consistent with the internal fund channel. And for the lower ownership concentration firms³, the increase liquidity due to the reform results in increase in both propensity and level of dividend, after controlling for a series of financial variables which is consistent with the agency problem channel.

To further explore these effects and to test our hypotheses, we introduce a series of dummy variables that capture ownership structure and the interaction between reform dummy and ownership structure dummy into the main regression. The result of the regression supports our hypotheses for the influence of ownership structure on the reflection of dividend on stock liquidity increase.

Finally, in order to verify whether firms with higher ownership concentration before

¹ Higher ownership concentration firm refers to firm with *Largest NTS shareholding ratio* > 50%.

² Middle ownership concentration firm refers to firm with *Largest NTS shareholding ratio* from 20% to 50%.

³ Lower ownership concentration firm refers to firm with *Largest NTS shareholding ratio* < 20%.

the reform do offer higher level of dividend and whether this phenomenon would change after the reform. We construct another equation to regress the proxies for dividend on *Largest NTS shareholding ratio*. Result in this part illustrates that firms with higher ownership concentration do provide higher level as well as propensity of dividend before the reform, which is consistent with our hypothesis. And for the after-reform period, the characteristic of larger dividend for higher ownership concentration firms still exists but is somewhat slighter than before because of the different channels that the liquidity increase influence the dividend.

To briefly summarize, the previous test indicates that (1) Average dividend increased for propensity as well as level after the reform, which supports that the internal fund channel and the agency problem channel are more realistic in Chinese market in general. (2) For firm with absolute controlling shareholder, the liquidity increase due to the reform results in decrease in both propensity as well as level of dividend, which supports the wealth expropriation channel. (3) For firms with multi relative controlling shareholders, the liquidity increase due to the reform results in increase in both propensity as well as level of dividend, which supports the internal fund channel. (4) For firm with only minority shareholders, the liquidity increase due to the reform results in increase in both propensity as well as level of dividend, which supports the agency problem channel.

Our paper belongs to the broad literature on the effects of ownership structure on the determinants of dividend. Much of the extant research on the relationship between ownership structure and dividend policy has been conducted from the absolute controlling shareholder and the multi relative controlling shareholders perspective. The absolute controlling shareholder perspective views dividend as an offset for minority shareholders in an environment where expropriation by large shareholder prevails (Faccio et al. 2001). Negative associations between the absolute controlling shareholding and dividend payout of the firm based on the sample drawn from Finland, Germany, Italy, Netherland and UK are observed respectively by Gugler and Yurtoglu (2003), Mancinelli and Ozkan (2006), Maury and Pajuste (2002) and Renneboog and Trojanowski (2007). However, a positive relationship is also detected by Truong and Heaney (2007) from the firms in more than 37 countries. Additionally, recent research suggests that the influence of the absolute controlling shareholding on dividend policy is in a different context. Bebchuk (1999),

Laporta et al (1999) and Gomes (2000) argue that in the countries where the legal and institutional frameworks do not offer sufficient protection for outside investors, concentrated ownership with absolute controlling shareholder playing a basic role in corporate governance would mitigate the shareholder conflicts in the same manner as the dividends do. Maury and Pajuste (2002) examine the relationship between absolute controlling shareholding and dividend payment for Finnish listed firms and illustrate that dividend payout ratio is negatively related to the control stake of the absolute controlling shareholder, which could be interpreted as evidence for the existence of private benefits of control by strong blockholders.

In contrast to the absolute controlling shareholder perspective, the multi relative controlling shareholders perspective approaches dividend payment as an alternative control mechanism for agency problem (Goergen et al. 2005). In this context, dividend payout has been regarded as a substitute channel for the multi relative controlling shareholders in mitigating agency conflicts. The influence of the multi relative controlling shareholders (excluding the absolute controlling shareholder) on dividend payout has been investigated by numerous researchers based on agency problem. Previous research reveals that the multi relative controlling shareholders could monitor the absolute controlling shareholder (Pagano and Roell 1998) and therefore limit the expropriation of minority shareholders' interest. However, there are possible collusions with multi relative controlling shareholder and the absolute controlling shareholder to expropriate corporate resources and share the private benefits at the expense of the minority shareholders' interest (Faccio et al. 2001; Pagano and Roell 1998). Although few empirical studies have been conducted in this field, there still exists some contrary views. To be more specific, Faccio (2001) finds that the exist of multi relative controlling shareholders limits the expropriation of the absolute controlling shareholder in Europe and therefore lead to higher dividend payout ratio, while the reversely lower dividend rates are observed in Asia. This phenomena may be attributed to the absolute controlling shareholder with multi relative controlling shareholders to expropriate the minority shareholders' wealth in Asia.

The studies reviewed above have provided important insights into the relationship between corporate ownership structure and dividend policy. However, there exists some gaps. Firstly, few studies have focused on the emerging markets which are quite different

from the mature market but are increasingly significant with the quick pace of internalization of capital market. Secondly, the viewpoints of different scholars are quite controversial even if they are based on the same sample. This result could be attributed to the endogeneity in the analysis.

Our paper contributes by highlighting the interaction between the ownership structure and liquidity for dividend policy. Specifically, to address the gaps identified above, we adopt the diff-in-diff method perceiving the Split Share Structure Reform commenced in 2005 in China as an exogenous shock to stock liquidity to conduct the natural experiment for how the ownership structure influence the relationship between stock liquidity and dividend payment in Chinese stock market. So we could settle down the problem of endogeneity in the previous literature. Additionally, the reason why we choose Chinese stock market is that the expropriation problem is likely to be detected in countries with highly concentrated ownership structure as well as weak legal system for investor protection (La Porta et al., 2000; Brockman & Unlu, 2009;). Therefore, Chinese stock market, which not only satisfies both two criteria above but acts as an accelerating vital part in global capital market, should be an ideal target for our research.

The rest of this paper is organized as follows. Section 2 describes the development of our hypotheses. Section 3 describes empirical analysis including the data, main empirical results, cross-sectional analysis and robustness tests. Section 4 concludes.

2. Hypothesis development

We consider that the ownership structures have influence on the relationship between liquidity increase and dividend policy and list three channels through which the reform affects dividend policy: one negative, wealth expropriation channel and two positive, agency problem channel and internal fund channel.

These three channels would exert opposite influence on the dividend policy. In this section, we would make hypothesis on which channel is more realistic in Chinese market? And under different ownership structures of firms, which channel is more plausible?

Firstly, for the **wealth expropriation channel**, we suggest that the liquidity increase

in the reform would lower the propensity as well as the level of dividend distribution. Specifically, we hypothesize that before the reform, large non-tradable shareholders could take advantage of its monopolizing voting power to control the dividend distribution process and thus obtain private benefits at the expense of minority shareholders' interest by offering much higher level of dividend. However, when reform completed, the non-tradable shares became tradable at the secondary market, which may lead large shareholders to take more consideration of the influence of dividend policy on stock price. So, in the tradeoff of shareholders between benefits to expropriate corporate resources in the form of dividend and costs of stock price decrease by offering too much dividend and thus violating minority shareholders' interest, dividend may be lower relative to the pre-reform level.

Secondly, for the **agency problem channel**, we suggest that the liquidity increase in the reform would enhance the propensity as well as the level of dividend distribution. Specifically, we hypothesize that since the dividend policy should be negotiated among shareholders, which was costly and difficult to reach an agreement, the dividend policy was somewhat set by managers because of the strong incentive of the minority shareholders to be free-rider due to their unobtrusive preference for dividend. Due to incentives of managers to preserve money in order to enhance their control right and the non-tradability characteristic reducing the weight of stock price in evaluating managers' performance, firms were possible to keep a lower level of dividend and preserve quite a lot money. However, when the firm completed the reform, the fact that their non-tradable shares became tradable at the secondary market may induce them to care more about capital gain in manager evaluation. Since a suitable and relatively competitive dividend policy would have a positive effect on stock price, in the tradeoff of managers between benefits of much controlling right by preserving money and costs of lower performance-based compensation due to lower evaluation from the shareholder, the propensity and level of dividend may be higher relative to pre-reform level.

Thirdly, for the **internal fund channel**, we suggest that the liquidity increase in the reform would enhance the propensity as well as the level of dividend distribution. Specifically, we hypothesize that since the dividend policy should be negotiated among shareholders, the largest one is difficult to control this process by himself and thus could

not easily expropriate corporate resources at the expense of minority shareholders' interest before the reform. So if the firms had better performance as well as higher growth opportunities, the non-tradable shareholders were highly possible to keep a lower level of dividend and preserve the money as internal fund for firm's future development. However, when firms completed reform, the fact that their non-tradable shares became tradable at the secondary market may induce them to care more about the effect of capital gain by offering relatively more competitive dividend policy. So, in the tradeoff of shareholders between benefits of capital gain due to higher level dividend and costs of less future development opportunity by not preserving much internal fund, the propensity and level of dividend may be higher relative to the pre-reform period level.

We first make hypothesis about the average effect of the Split Share Structure Reform on dividend policy. Since most of the A-share listed firms in Chinese stock market are firms with multi relative controlling shareholders for which the internal fund channel dominates, we make the following hypothesis:

Hypothesis 1: The propensity and the level of dividend would increase after the liquidity increase due to the reform.

Then we make hypotheses about the cross-sectional variation in the effect of the reform on dividend policy. Firstly, We hypothesize that for the firms with absolutely controlling shareholder, the wealth expropriation channel would dominates since in this situation the controlling shareholder could take advantage of its monopolizing voting power to control the dividend distribution process and thus obtain private benefits at the expense of minority shareholders' interest by offering much higher level of dividend before the reform and this phenomenon would mitigate after the reform based on the wealth expropriation channel we mentioned in the beginning of this section . So, we make the following hypothesis:

Hypothesis 2: The propensity and the level of dividend would decrease for firms with absolutely controlling shareholders after the liquidity increase due to the reform.

Secondly, we hypothesize that for the firms with multi relative controlling shareholder, the internal fund channel would dominates since in this situation the non-tradable shareholders were highly possible to keep a lower level of dividend and preserve the money as internal fund for firm's future development and this phenomenon would mitigate after

the reform based on the internal fund channel we mentioned in the beginning of this section . So, we make the following hypothesis:

Hypothesis 3: The propensity and the level of dividend would increase for firms with multi relative controlling shareholders after the liquidity increase due to the reform.

Thirdly, we hypothesize that for the firms with only minority shareholder, the agency problem channel would dominates since in this situation, the dividend policy was somewhat set by managers because of the strong incentive of the minority shareholders to be free-rider due to their un conspicuous preference for dividend. Due to incentives of managers to preserve money in order to enhance their control right and the non-tradability characteristic reducing the weight of stock price in evaluating managers' performance, firms were possible to keep a lower level of dividend and preserve quite a lot money and this phenomenon would mitigate after the reform based on the agency problem channel we mentioned in the beginning of this section . So, we make the following hypothesis:

Hypothesis 4: The propensity and the level of dividend would increase for firms with only minority shareholders after the liquidity increase due to the reform.

3. Empirical Analysis

3.1 Data and sample formation

Our data on dividend policy, ownership structure and other financial indicators of listed A-share firms are obtained from WIND and CSMAR database, two widely cited professional database in China. To form our dataset, we begin with all firm-year observations of listed firms from the year 2000 to 2010 for the reason that the year of 2000 is the first year that Chinese-listed firms applied a consistent and unified set of accounting standards. Since many of the measures used in our analysis rely on accounting data, we wish to ensure comparability among these variables.

For a certain firm to be included in our sample, it must satisfy the following requirements: (1) The firm had completed the Split Share Structure Reform by December

31, 2007. (2) Data of the firm should be available for most of all variables⁴ in our model. (3) The firm should only have A-share stock issuing since the effect of ownership structure on the influence of stock liquidity increase on dividend policy may be quite different for the firms that issue not only A-share but either B-share or H-share. (4) It should be a non-financial firm because of the incomparability of financial data for financial firms and others. (5) It should not be a ST or *ST firm, since the main target for this class of firms is to turn around, which are quite different from the normal firms. (6) The net income of the firm should be positive for firm-year observation since the requirement for profitability must be met if a firm plans to distribute dividend in that year according to *Corporation Law* in China. Meanwhile, there should be no economic meaning for dividend payment rate based on negative net income.

The requirements above leads to a final sample of 9,401 firm-year observations and 1,123 unique firms which represents about 90% of the A-share listed firms which completed the reform by the end of year 2007. To remove any outlier effects, we winsorize all continuous variables at the 1st and 99th percentiles.

Table 1, Panel A, provides variable definitions, and Panel B tabulates summary statistics for all variables used in the analysis. We have four different proxies for dividend policy including *Total dividend*, *Dividend indicator*, *Dividend yield* and *Dividend payout ratio*. Firstly, the variable of *Total dividend*_{*i,t*} is calculated as firm *i*'s total dividend per share in year *t*. Panel B shows that the mean (median) pooled sample *Total dividend* is 0.086 (0.05). Secondly, the variable of *Dividend indicator*_{*i,t*} equals 1 if firm *i* paid dividend in year *t*. Panel B shows that the mean (median) pooled sample *Dividend indicator* is 0.593 (1). Thirdly, the variable of *Dividend yield*_{*i,t*} is calculated as firm *i*'s total dividend per share divided by price per share in year *t*. Panel B shows that the mean (median) pooled sample *Dividend yield* is 0.911 (0.443). Fourthly, variable of *dividend payout ratio*_{*i,t*} is calculated as firm *i*'s total dividend per share divided by earning per share in year *t*. Panel B shows that the mean (median) pooled sample *dividend payout ratio* is 0.035 (0.06).

⁴ All variables except for *Largest NTS shareholding ratio* should be available.

Additionally, *largest NTS shareholding ratio*, which is calculated as the largest shareholding ratio of the ultimate shareholders of the non-tradable shares before reform is also key variable of interest⁵. Panel B shows that the mean (median) pooled sample *largest NTS shareholding ratio* is 38.27% (36.85%).

Table 1, Panel C presents the correlation matrix for the dependent variable. There is a positive and significant association between the four proxies of dividend policy. Furthermore, the first three measurements *Total dividend*, *Dividend indicator* and *Dividend yield* are mutually highly correlated with correlation coefficient higher than 0.5 while the fourth measurement *Dividend payout ratio* is less correlated with other three measurements.

⁵ The data of non-tradable shares were collected directly from CSMAR. And the ultimate shareholders of the non-tradable shares are manually collected.

Table 1
Variable definitions and summary statistics
Panel A: Variable definitions

Variable	Definition
<i>Total dividend</i>	Total dividend per share.
<i>Dividend indicator</i>	Indicator variable that equals 1 if firm <i>i</i> paid dividends in year <i>t</i> .
<i>Dividend yield</i>	The percentage of total dividend over price.
<i>Dividend payout ratio</i>	The percentage of total dividend over earning per share.
<i>Reform</i>	An indicator variable that equals 1 if firm <i>i</i> had completed the reform by the end of 2007.
<i>Asset</i>	Logarithm of total assets.
<i>Sale</i>	Logarithm of total revenues.
<i>Equity</i>	Logarithm of total equity.
<i>ROA</i>	Ratio of after-tax operating income to non-cash assets.
<i>ROE</i>	Ratio of after-tax operating income to equity.
<i>ROS</i>	Ratio of after-tax operating income to revenues.
Book leverage	(Assets - book equity - deferred taxes) / assets.
Market leverage	(Assets - book equity - deferred taxes) / (assets - book equity + market equity).
<i>EPS</i>	Earnings per share.
<i>Price</i>	Stock price.
<i>Largest NTS shareholding ratio</i>	Largest NTS shareholding ratio of the ultimate controller of firm <i>i</i> before reform.
<i>Before2</i>	An indicator variable that equals 1 if firm finish reform in year <i>t</i> +2.
<i>Before1</i>	An indicator variable that equals 1 if firm finish reform in year <i>t</i> +1.
<i>Before0</i>	An indicator variable that equals 1 if firm finish reform in year <i>t</i> .
<i>After1</i>	An indicator variable that equals 1 if firm finish reform in year <i>t</i> -1.
<i>After2</i>	An indicator variable that equals 1 if firm finish reform in year <i>t</i> -2.
<i>Total dividend lag1</i>	<i>Total dividend</i> of year <i>t</i> -1.
<i>Total dividend lag2</i>	<i>Total dividend</i> of year <i>t</i> -2.
<i>Dividend indicator lag1</i>	<i>Dividend indicator</i> of year <i>t</i> -1.
<i>Dividend indicator lag2</i>	<i>Dividend indicator</i> of year <i>t</i> -2.
<i>Dividend yield lag1</i>	<i>Dividend yield</i> of year <i>t</i> -1.
<i>Dividend yield lag2</i>	<i>Dividend yield</i> of year <i>t</i> -2.
<i>Dividend payout ratio lag1</i>	<i>Dividend payout ratio</i> of year <i>t</i> -1.
<i>Dividend payout ratio lag2</i>	<i>Dividend payout ratio</i> of year <i>t</i> -2.
<i>Control_80</i>	An indicator variable that equals 1 if <i>Largest NTS shareholding ratio</i> >80%.
<i>Control_50</i>	An indicator variable that equals 1 if <i>Largest NTS shareholding ratio</i> >50%.
<i>Control_20</i>	An indicator variable that equals 1 if <i>Largest NTS shareholding ratio</i> >20%.
<i>Reform · Control_80</i>	Interaction of <i>Reform</i> and <i>Control_80</i> .
<i>Reform · Control_50</i>	Interaction of <i>Reform</i> and <i>Control_50</i> .
<i>Reform · Control_20</i>	Interaction of <i>Reform</i> and <i>Control_20</i> .
<i>Treatment</i>	An indicator variable that equals 1 if firm <i>i</i> had experienced the reform in year 2006.
<i>Post</i>	An indicator variable that equals 1 if the observation is in year 2006.
<i>Treatment · Post</i>	Interaction of <i>Treatment</i> and <i>Post</i>

Panel B: Summary statistics

Variable	N	Mean	Std Dev	Median	Min	Max
<i>Total dividend</i>	9401	0.0860	0.131	0.0500	0	3
<i>Dividend indicator</i>	9401	0.593	0.491	1	0	1
<i>Dividend yield</i>	9401	0.911	1.259	0.443	0	6.289
<i>Dividend payout ratio</i>	9401	0.0350	0.0600	0.0160	0	0.420
<i>Asset Sale</i>	9401	21.40	1	21.29	17.89	26.82
<i>Equity</i>	9401	20.76	1.288	20.70	12.55	26.47
<i>ROA</i>	9401	14.85	0.955	14.74	12.66	19.54
<i>ROE</i>	9401	0.0450	0.0380	0.0370	0	0.400
<i>ROE</i>	9401	0.0870	0.0930	0.0720	-0.621	6.212
<i>ROS</i>	9401	0.111	0.760	0.0650	0	55.20
<i>Book leverage</i>	9401	0.467	0.189	0.474	0.00800	7.152
<i>Market leverage</i>	9401	0.994	0.0120	0.997	0.627	1
<i>EPS</i>	9401	322.8	366.0	226.7	0.0580	6428
<i>Price</i>	9401	11.36	9.879	8.870	1.700	249.7
<i>Largest NTS shareholding</i>	6876	38.27	19.34	36.85	0.196	79.59

Panel C: Correlation matrix of different dividend measurements

	<i>Total dividend</i>	<i>Dividend indicator</i>	<i>Dividend yield</i>	<i>Dividend payout ratio</i>
<i>Total dividend</i>	1.000			
<i>Dividend indicator</i>	0.544*** (0.000)	1.000		
<i>Dividend yield</i>	0.705*** (0.000)	0.599*** (0.000)	1.000	
<i>Dividend payout ratio</i>	0.386*** (0.000)	0.475*** (0.000)	0.517*** (0.000)	1.000

The sample consists of 9,401 firm-year observations from 1,123 unique firms listed on Chinese domestic exchanges from the year 2000 to 2010. All variables except for *Largest NTS shareholding ratio* are calculated for each firm-year observation, while *Largest NTS shareholding ratio* is calculated at the firm level.

3.2 Main result

3.2.1 The average effect of the Split Share Structure Reform on dividend policy

In this section, the Split Share Structure Reform implemented in batches is treated as an exogenous shock for quasi-experiment. Thus, it is reasonable to employ a diff-in-diff method (Bertrand, Duflo, and Mullainathan 2004) to explore the influence of liquidity increase on dividend policy of the firm using the fact that firms which had not accomplished the reform until a certain Point-In-Time were subject to a sharp liquidity increase of the previous non-tradable share in the following year but firms that had already completed the reform were not. Specifically, since our sample firms completed the conversion of non-tradable shares to tradable ones at different calendar times, we could identify the change in dividend incurred by liquidity increase⁶ from the reform separately from time-specific changes. In a certain year, some sample firms had completed the reform (the treatment group) and other sample firms had not (the control group). Both groups experience the same time-specific changes. Thus, the differences in their dividend provide an estimate of the effect of the liquidity increase triggered by the reform on dividend policy.

Equation (1) is estimated to test the treatment effect mentioned above, where $Reform_{i,t}$ is an indicator variable that equals 1 if firm i had completed the reform in year t . Based on the hypothesis 1 in section 2, we expect β_1 to be positive. In this section, the time of dividend issuance is defined as the declaration date, we would change the definition to the announcement date for the robustness test in the Section 3.3.1.

$$Y_{i,t} = \alpha + \beta_1 Reform_{i,t} + \beta_2 X_{i,t} + \varepsilon_{i,t} \quad (\text{Equation 1})$$

Dividend policy of the firm is treated as dependent variable Y in our model. Four proxies are adopted in this paper to quantify dividend policy. The first one is the *Total dividend*, which is calculated as firm's total dividend per share at the end of the year. It is a basic proxy for dividend policy without much artificial adjustment. The second measure is an indicator variable *Dividend indicator* on whether the firm offers

⁶ The liquidity increase of the Split Share Structure Reform is caused by the ownership structure transformation from previous non-tradable share to the tradable share since the tradable share could be traded at the secondary market while non-tradable share could not.

dividend in a certain year. By adopting this variable, we could analyze the influence of reform on the propensity of dividend offering. The third one is *Dividend yield*, which equals the dividend per share divided by the stock price at the end of the year (Eckbo & Verman, 1994; Gul, 1999). The benefit for using this yield term is to avoid the potential distortions caused by extremely large payout ratios observed for firms whose net income is close to zero (Gul, 1999; Schooley & Barney, 1994). The fourth measure is *Dividend payout ratio*, which equals to the dividend per share divided by the current earnings per share (Benartzi, Michaely, & Thaler, 1997; Brittain, 1964; Fama & Babiak, 1968; Lintner, 1956).

X is the set of control variables that determines the normal level of dividend. All standard errors are clustered at the firm level to control for an arbitrary firm-level correlation structure. We introduce four classes of control variables to our model. Firstly, we adopt measures to quantify the dividend policy lag one and two years since managers preferred paying a stable dividend (Lintner, 1956). Specifically, the lag term of dependent variables are adopted in the corresponding regression.⁷ Secondly, a series of financial data reflecting the performance and financial situation of the firm are introduced in our model including *ROA*, *ROS*, *ROE*, *Asset*, *Sale*, *Equity*, *Book leverage*, *Market leverage*, *EPS* and *Price*. The definition of the variables mentioned above are reported in the Table 1, Panel A. Thirdly, a series dummies including *Before2*, *Before1*, *Before 0*, *After 1* and *After 2* that capture the timing of the reform are introduced to our model. For example, *Before2* is an indicator variable that equals 1 if firm finish the reform in 2 years later. More detail could be attached to Table 1, Panel A. Finally, industry fixed effect and year fixed effect are also considered. Specifically, the year dummies control for calendar-year-specific effects and the industry dummies control for time-invariant unobservable industry-specific characteristics.

Table 2 tabulates results from estimating equation (1). Panel A is the regression for *Total dividend* as dependent variable. Column 1 shows the main result for which we only control the financial variables. The coefficient for the *Reform* indicator variable is -

⁷ For example, when the dependent variable is *Total Dividend*, the control variable of *Total dividend lag1* and *Total dividend lag2* are introduced to the regression.

0.0162 (t-statistic= -7.09, significant at 1% level, two-tailed). This result is not consistent with the hypothesis 1 that the increase liquidity due to the reform results in larger dividend, after controlling for a series of financial variables. The reason for the inconsistency may be attributed to the improper regression model. In column 2, year and industry fixed effect are controlled. And the coefficient for the *Reform* indicator variable turns to be positive and significant. In column 3 and column 4, timing factors and lagged dividend policy are introduced to the model separately. The coefficient for the *Reform* indicator variable remains to be positive. In column 5, both timing factors and lagged dividend are introduced. The coefficient for the *Reform* indicator variable turns to be negative but not significant. The results above indicate that the reform increases the dividend of the firm in general and the variation in the coefficient of the *Reform* indicator may be due to the cross-sectional variation of the effect on the firms, which we would offer more discussion in section 3.2.2 .

Panel B is the regression for *Dividend indicator* as dependent variable. Column 1 shows the main result for which we only control the financial variables. The coefficient for the *Reform* indicator variable is -0.0578 (t-statistic= -5.73, significant at 1% level, two-tailed). This result is not consistent with the hypothesis 1 that the increase liquidity due to the reform results in the increase propensity of dividend, after controlling for a series of financial variables. The reason for the inconsistency may be attributed to the improper regression model. In column 2, year and industry fixed effect are controlled. And the coefficient for the *Reform* indicator variable turns to be positive and significant at the 1% level. In column 3 and column 4, timing factors and lagged dividend policy are introduced to the model separately. The coefficient for the *Reform* indicator variable remains to be positive and significant at 1% level. In column 5, both timing factors and lagged dividend policy are introduced. The coefficient for the *Reform* indicator variable is also positive and significant. The results above indicate that the reform increases the propensity of dividend of the firms in general.

Table 2
The average effect of the Split Share Structure Reform on dividend
Panel A: Total Dividend

	(1)	(2)	(3)	(4)	(5)
<i>Reform</i>	-0.0162*** (-7.09)	0.0413*** (4.50)	0.0320 (1.61)	0.0186* (1.97)	-0.0425 (-1.96)
<i>Asset</i>	0.0331*** (9.31)	0.0264*** (5.87)	0.0262*** (5.82)	0.0115* (2.06)	0.0118* (2.10)
<i>Sale</i>	0.00871*** (3.50)	0.00912*** (3.37)	0.00914*** (3.38)	0.00257 (0.83)	0.00247 (0.80)
<i>Equity</i>	-0.0105*** (-3.91)	0.00490 (1.20)	0.00501 (1.22)	0.00235 (0.51)	0.00249 (0.54)
<i>ROA</i>	1.208*** (5.53)	1.164*** (5.17)	1.164*** (5.19)	0.695* (2.20)	0.705* (2.25)
<i>ROE</i>	0.124 (1.10)	0.0834 (0.74)	0.0850 (0.75)	0.176 (1.11)	0.175 (1.10)
<i>ROS</i>	-0.0489 (-1.80)	-0.0500 (-1.72)	-0.0490 (-1.68)	-0.0523 (-1.47)	-0.0520 (-1.47)
<i>Book leverage</i>	-0.0835*** (-5.41)	-0.0492*** (-3.30)	-0.0493*** (-3.31)	-0.00729 (-0.38)	-0.00715 (-0.37)
<i>Market leverage</i>	0.0678 (0.22)	-0.408 (-1.22)	-0.392 (-1.17)	-0.631 (-1.52)	-0.596 (-1.44)
<i>Before2</i>			0.00411 (0.52)		0.00112 (0.14)
<i>Before1</i>			-0.0120 (-1.13)		-0.0151 (-1.30)
<i>Before0</i>			-0.00187 (-0.13)		0.0465** (3.02)
<i>After1</i>			-0.00835 (-0.73)		0.0170 (1.40)
<i>After2</i>			-0.00263 (-0.31)		0.00434 (0.50)
<i>Total dividend lag1</i>				0.410*** (11.32)	0.413*** (11.37)
<i>Total dividend lag2</i>				0.143*** (3.48)	0.143*** (3.45)
<i>Intercept</i>	-0.728* (-2.44)	-0.381 (-1.20)	-0.394 (-1.24)	0.304 (0.77)	0.262 (0.67)
<i>Year and Industry FE</i>	No	Yes	Yes	Yes	Yes
<i>Number of observations</i>	9401	9401	9401	6090	6090
<i>Adjusted R-squared</i>	0.209	0.242	0.242	0.436	0.437

Panel B: Dividend indicator

	(1)	(2)	(3)	(4)	(5)
<i>Reform</i>	-0.0578*** (-5.73)	0.170*** (6.12)	0.511*** (6.78)	0.137*** (4.60)	0.257** (3.16)
<i>Asset</i>	0.131*** (8.75)	0.120*** (6.96)	0.116*** (6.71)	0.00949 (0.48)	0.00906 (0.46)
<i>Sale</i>	0.0490*** (4.54)	0.0564*** (4.82)	0.0566*** (4.86)	0.0430** (3.29)	0.0432*** (3.31)
<i>Equity</i>	-0.0486*** (-4.87)	-0.0240 (-1.75)	-0.0236 (-1.73)	0.00588 (0.40)	0.00552 (0.37)
<i>ROA</i>	2.756*** (6.09)	2.923*** (6.47)	2.838*** (6.29)	1.244* (2.48)	1.217* (2.42)
<i>ROE</i>	0.203 (0.90)	0.0720 (0.32)	0.102 (0.45)	0.346 (1.36)	0.350 (1.37)
<i>ROS</i>	-0.0727 (-0.81)	-0.182 (-1.92)	-0.173 (-1.83)	-0.0808 (-0.69)	-0.0808 (-0.69)
<i>Book leverage</i>	-0.527*** (-10.24)	-0.416*** (-8.09)	-0.408*** (-7.95)	-0.159** (-2.68)	-0.159** (-2.69)
<i>Market leverage</i>	4.742*** (4.59)	3.180** (3.02)	3.008** (2.85)	1.413 (1.10)	1.338 (1.03)
<i>Before2</i>			-0.0243 (-0.68)		-0.000570 (-0.02)
<i>Before1</i>			-0.0528 (-1.12)		0.0132 (0.26)
<i>Before0</i>			-0.392*** (-7.70)		-0.107 (-1.94)
<i>After1</i>			-0.236*** (-5.68)		-0.0224 (-0.50)
<i>After2</i>			-0.0995** (-3.24)		-0.00878 (-0.28)
<i>Dividend indicator lag1</i>				0.296*** (20.37)	0.293*** (20.08)
<i>Dividend indicator lag2</i>				0.191*** (14.40)	0.192*** (14.46)
<i>Intercept</i>	-7.086*** (-7.12)	-5.994*** (-5.90)	-5.746*** (-5.64)	-2.116 (-1.68)	-2.027 (-1.60)
Year and Industry FE	No	Yes	Yes	Yes	Yes
Number of observations	9401	9401	9401	6090	6090
Adjusted R-squared	0.143	0.198	0.203	0.298	0.298

Panel C: Dividend yield

	(1)	(2)	(3)	(4)	(5)
<i>Reform</i>	-0.238*** (-9.24)	0.894*** (7.34)	1.280*** (5.73)	0.739*** (5.41)	0.580* (2.23)
<i>Asset</i>	0.659*** (18.40)	0.403*** (10.42)	0.401*** (10.33)	0.275*** (5.82)	0.275*** (5.83)
<i>Sale</i>	0.238*** (9.29)	0.233*** (8.61)	0.233*** (8.60)	0.190*** (5.67)	0.190*** (5.66)
<i>Equity</i>	-0.726*** (-26.82)	-0.363*** (-11.64)	-0.364*** (-11.66)	-0.349*** (-9.48)	-0.349*** (-9.49)
<i>ROA</i>	7.522*** (6.50)	6.300*** (5.53)	6.210*** (5.43)	5.312*** (3.72)	5.322*** (3.72)
<i>ROE</i>	0.535 (0.96)	0.173 (0.32)	0.207 (0.38)	0.121 (0.17)	0.126 (0.18)
<i>ROS</i>	0.795*** (3.55)	0.269 (1.22)	0.270 (1.22)	0.313 (1.07)	0.311 (1.07)
<i>Book leverage</i>	-1.915*** (-15.67)	-1.462*** (-12.08)	-1.454*** (-12.03)	-1.084*** (-7.12)	-1.077*** (-7.07)
<i>Market leverage</i>	6.591* (2.47)	4.591 (1.72)	4.301 (1.61)	3.211 (0.91)	3.037 (0.86)
<i>Before2</i>			0.096 (1.06)		0.066 (0.65)
<i>Before1</i>			0.089 (0.67)		0.135 (0.86)
<i>Before0</i>			-0.294* (-2.26)		0.291 (1.95)
<i>After1</i>			-0.167 (-1.62)		0.152 (1.34)
<i>After2</i>			-0.130 (-1.52)		-0.078 (-0.81)
<i>Dividend yield lag1</i>				0.254*** (15.18)	0.256*** (15.05)
<i>Dividend yield lag2</i>				0.174*** (11.47)	0.176*** (11.49)
<i>Intercept</i>	-13.34*** (-5.25)	-11.46*** (-4.49)	-11.11*** (-4.34)	-6.818* (-1.99)	-6.641 (-1.94)
<i>Year and Industry FE</i>	No	Yes	Yes	Yes	Yes
<i>Number of observations</i>	9401	9401	9401	6090	6090
<i>Adjusted R-squared</i>	0.230	0.293	0.294	0.396	0.397

Panel D: Dividend payout ratio

	(1)	(2)	(3)	(4)	(5)
<i>Reform</i>	-0.009*** (-7.11)	0.015*** (3.35)	0.038*** (3.87)	0.009 (1.86)	0.035** (2.98)
<i>Asset</i>	0.010*** (3.80)	0.003 (0.88)	0.003 (0.84)	-0.001 (-0.19)	-0.001 (-0.21)
<i>Sale</i>	0.000 (0.27)	0.002 (1.00)	0.002 (1.00)	0.003 (0.93)	0.003 (0.93)
<i>Equity</i>	-0.003* (-2.31)	0.006** (3.15)	0.005** (3.12)	0.006** (2.80)	0.006** (2.76)
<i>ROA</i>	-0.069 (-1.03)	-0.083 (-1.21)	-0.088 (-1.28)	-0.097 (-1.04)	-0.101 (-1.08)
<i>ROE</i>	-0.098** (-3.04)	-0.123*** (-3.82)	-0.122*** (-3.78)	-0.139** (-3.09)	-0.139** (-3.09)
<i>ROS</i>	-0.046** (-3.02)	-0.056*** (-3.36)	-0.056*** (-3.36)	-0.061** (-2.96)	-0.062** (-2.98)
<i>Book leverage</i>	-0.052*** (-5.83)	-0.036*** (-3.93)	-0.035*** (-3.88)	-0.025* (-2.05)	-0.026* (-2.05)
<i>Market leverage</i>	-0.301 (-1.79)	-0.443* (-2.54)	-0.459** (-2.64)	-0.793** (-3.14)	-0.806** (-3.19)
<i>Before2</i>			0.003 (0.78)		0.004 (0.87)
<i>Before1</i>			0.003 (0.67)		0.007 (1.12)
<i>Before0</i>			-0.020** (-2.89)		-0.019* (-2.31)
<i>After1</i>			-0.007 (-1.17)		-0.006 (-0.99)
<i>After2</i>			0.000 (0.02)		0.001 (0.13)
<i>Dividend payout ratio lag1</i>				0.077*** (4.13)	0.075*** (4.08)
<i>Dividend payout ratio lag2</i>				0.099*** (5.13)	0.100*** (5.17)
<i>Intercept</i>	0.204 (1.26)	0.323 (1.93)	0.343* (2.05)	0.733** (2.98)	0.750** (3.05)
Year and Industry FE	No	Yes	Yes	Yes	Yes
Number of observations	9401	9401	9401	6090	6090
Adjusted R-squared	0.053	0.086	0.087	0.108	0.109

Four different proxies of dividend policy are treated as dependent variables for Panel A-D. Specifically, $Total\ Dividend_{i,t}$ is defined as the total dividend per share for firm i in year t . $Dividend\ indicator_{i,t}$ is defined as an indicator variable that equals 1 if firm i paid dividends in year t . $Dividend\ yield_{i,t}$ is defined as the total dividend per share divided by the price per share for firm i in year t . And $Dividend\ payout\ ratio_{i,t}$ is defined as the total dividend per share divided by earning per share for firm i in year t . The time of dividend issuance is defined as the declaration date. $Reform_{i,t}$ is a dummy variable that equals 1 if firm i has completed the reform by the end of year t . $Before\ j_{i,t}$ ($After\ j_{i,t}$) is a dummy variable for the j th year prior to (after) the year firm i finished the reform. See Table 1, Panel A for definitions of all other variables. In all regressions, standard errors are adjusted for heteroscedasticity and within-cluster correlation among all observations belonging to the same firm. Column 2-5 introduce the year- and industry-fixed effects. Values of t -statistics are shown in brackets. ***, **, and * indicate significance at equal to or less than the 1%, 5%, and 10% levels, respectively.

Panel C is the regression for *Dividend yield* as dependent variable. Column 1 shows the main result for which we only control the financial variables. The coefficient for the *Reform* indicator variable is -0.238 (t-statistic= -9.24, significant at 1% level, two-tailed). This result is not consistent with the hypothesis 1 that the increase liquidity due to the reform results in the increase of dividend yield, after controlling for a series of financial variables. The reason for the inconsistency may be attributed to the improper regression model. In column 2, year and industry fixed effect are controlled. And the coefficient for the *Reform* indicator variable turns to be positive and significant at the 1% level. In column 3 and column 4, timing factors and lagged dividend policy are introduced to the model separately. The coefficient for the *Reform* indicator variable remains to be positive and significant at 1% level. In column 5, both timing factors and lagged dividend policy are introduced. The coefficient for the *Reform* indicator variable is also positive and significant. The results above indicate that the reform increases the dividend yield in general.

Panel D is the regression for *Dividend payout ratio* as dependent variable. Column 1 shows the main result for which we only control the financial variables. The coefficient for the *Reform* indicator variable is -0.009 (t-statistic= -7.11, significant at 1% level, two-tailed). This result is not consistent with the hypothesis 1 that the increase liquidity due to the reform results in the increase of dividend payout ratio, after controlling for a series of financial variables. The reason for the inconsistency may be attributed to the improper regression model. In column 2, year and industry fixed effect are controlled. And the coefficient for the *Reform* indicator variable turns to be positive and significant at the 1% level. In column 3 and column 4, timing factors and lagged dividend policy are introduced to the model separately. The coefficient for the *Reform* indicator variable remains to be positive but not always significant. In column 5, both timing factors and lagged dividend policy are introduced. The coefficient for the *Reform* indicator variable is also positive and significant. The results above indicate that the reform increases the dividend payout ratio in general.

In general, the liquidity increase due to Split Share Structure Reform enhances the propensity of firms to distribute dividends as well as the level of dividend distribution based on all four proxies for the dividend policy, which seems to support the hypothesis 1. The reason for this mechanism is what we mentioned in the hypotheses development in

section 2 that most of the A-share listed firms in Chinese stock market are firms with multi relative controlling shareholders for which the internal fund channel dominates. However, this result may only be a mix of different channels for firms with different ownership structure, which we need to do more discussion in the cross-section analysis in section 3.2.2.

There are still two considerations that we need to mention in order to make our result robust. The first one is that in our main regression in this section, the time of dividend issuance is defined as the declaration date. We consider that the announcement date could reflect the effect of the reform on dividend policy in a larger degree than declaration date since there is some time between firms making decision and the real dividend distribution. We would change the definition for the time of dividend issuance to the announcement date for robustness test in section 3.3.1 and show there is no significant differences between these two different dividend date measurements.

The second consideration is that since the pre-reform period and the post-reform period are different for different firms, there may exist some doubts that whether the result about the influence of liquidity increase due to the reform on dividend policy shown in our main regression in section 3.2.1 are robust. That is to say, whether the firm-specific time variant factors would have influence on our result and whether our result of dividend increase is not driven by liquidity increase due to the reform but omitted factors. In order to rule out this possibility, in section 3.3.2, we adopt another diff-in-diff method in which the pre-reform period and post-reform period are the same for all firms in the sample for robustness test and show that our result of average dividend increase is robust to different diff-in-diff specification.

Based on the tests we mentioned above, we could answer our first question that the internal fund channel which indicate a dividend increase after the reform are more realistic in Chinese market in general. Then we will adopt a cross-sectional analysis in next section to answer the second question that under different ownership structures of firms, which channel is more plausible?

3.2.2 Cross-sectional variation in the effect of the reform on dividend policy

In section 2, we make hypotheses about the cross-sectional variation in the effect of the reform on dividend policy. In this section, we adopt the data from China's The Split Share Structure Reform to test the hypotheses 2-4 separately.

Firms with absolutely controlling shareholders are defined as the firms with *Largest NTS shareholding ratio* higher than 50% and we would test the *Hypothesis 2: The propensity and the level of dividend would decrease for firms with absolutely controlling shareholders after the liquidity increase due to the reform.*

Firms with multi relative controlling shareholders are defined as the firms with *Largest NTS shareholding ratio* from 20% to 50% and we would test the *Hypothesis 3: The propensity and the level of dividend would increase for firms with multi relative controlling shareholders after the liquidity increase due to the reform.*

Firms with only minority shareholders are defined as the firms with *Largest NTS shareholding ratio* less than 20% and we would test the *Hypothesis 4: The propensity and the level of dividend would increase for firms with only minority shareholders after the liquidity increase due to the reform.*

In order to test our hypotheses and explore the influence of ownership structure, we first separate the full sample into four subsamples based on the *largest NTS shareholding ratio* defined as the largest non-tradable shareholding ratio of the ultimate controller of firms before the reform. Specifically, four subsamples consist of firms with *Largest NTS shareholding ratio* higher than 80%, from 50% to 80%, from 20% to 50% and less than 20% respectively. The first two subsamples could be regarded as the firms with absolutely controlling shareholder, the third subsample could be regarded as the firms with several relatively controlling shareholders while the last subsample could be regarded as the firms with only minority shareholders. Then, do the main regression for four subsamples with different level of ownership concentration. The result of the regression for these four subsamples are represented in Table 3, Panel A-D respectively.

Table 3 tabulates results from estimating equation (1) based on four subsamples. The

dependent variables and the control variables are the same as those in the full-sample regression in section 3.2.1. The results indicates that for higher ownership concentration firms, the increase liquidity due to the reform results in decrease in both propensity and level of dividend after controlling for a series of financial variables which is consistent with the wealth expropriation channel. While for the middle range ownership concentration firms, the increase liquidity due to the reform results in increase in both propensity and level of dividend, after controlling for a series of financial variables, which is consistent with the internal fund channel. And for the lower ownership concentration firms, the increase liquidity due to the reform results in increase in both propensity and level of dividend, after controlling for a series of financial variables which is consistent with the agency problem channel.

Specifically, Panel A is the regression for subsample with *Largest NTS shareholding ratio* higher than 80%. Column 1-4 show the result of basic regression for four proxies of dividend policy. In column 1, the dependent variable is *Total dividend*, and the coefficient for the *Reform* indicator variable is 0.0224 but not significant. In column 2, the dependent variable is *Dividend indicator*, and the coefficient for the *Reform* indicator variable is 0.138 and significant at 10% level. In column 3, the dependent variable is *Dividend yield*, and the coefficient for the *Reform* indicator variable is 0.512 and significant at 10% level. In column 4, the dependent variable is *Dividend payout ratio*, and the coefficient for the *Reform* indicator variable is 0.00222 but not significant. In column 5-8, year and industry fixed effect are introduced to the model. In column 5, the dependent variable is *Total dividend*, and the coefficient for the *Reform* indicator variable is -0.0018 but not significant. In column 6, the dependent variable is *Dividend indicator*, and the coefficient for the *Reform* indicator variable is 0.292 but not significant. In column 7, the dependent variable is *Dividend yield*, and the coefficient for the *Reform* indicator variable is 0.0148 but not significant. In column 8, the dependent variable is *Dividend payout ratio*, and the coefficient for the *Reform* indicator variable is -0.0011 but not significant. Some of the signs of coefficients of *Reform* turn negative even if not significant. Loosely speaking, the above results are consistent with the hypothesis 2 which indicates that for the

higher ownership concentration firm⁸, the increase liquidity due to the reform results in decrease in both propensity and level of dividend after controlling for a series of financial variables. The reason for the insignificance of the result may be attributed to limited sample size.

Panel B is the regression for subsample with *Largest NTS shareholding ratio* from 50%~80%. Column 1-4 show the result of basic regression for four proxies of dividend policy. In column 5-8, year and industry fixed effect are introduced to the model. In column 5, the dependent variable is *Total dividend*, and the coefficient for the *Reform* indicator variable is -0.0533 but not significant. In column 6, the dependent variable is *Dividend indicator*, and the coefficient for the *Reform* indicator variable is 0.164 but not significant. In column 7, the dependent variable is *Dividend yield*, and the coefficient for the *Reform* indicator variable is 0.786 but not significant. In column 8, the dependent variable is *Dividend payout ratio*, and the coefficient for the *Reform* indicator variable is -0.0319 but not significant. Comparing with the coefficients of *Reform* in Panel A, we could find that the coefficients in Panel B become much larger even if they are not significant. Since the ownership concentration in this subsample is between absolute controlling characteristics and the relative controlling characteristics, the reason for the insignificance of the result may be attributed to the mixed effect of the increase in dividend due to relative controlling characteristic as well as the decrease in dividend due to absolute controlling characteristic. Loosely speaking, the above results are consistent with the hypothesis 2 which indicates that for the higher ownership concentration firm⁹, the increase liquidity due to the reform results in decrease in both propensity and level of dividend after controlling for a series of financial variables and the hypothesis 3 which indicates that for the middle range ownership concentration firm¹⁰, the increase liquidity due to the reform results in increase in both propensity and level of dividend, after controlling for a series of financial variables.

Panel C is the regression for subsample with *Largest NTS shareholding ratio* from 20%~50%. Column 1-4 show the result of basic regression for four proxies of dividend policy. In column 5-8, year and industry fixed effect are introduced to the model. In column

⁸ Higher ownership concentration firm refers to firms with higher *Largest NTS shareholding ratio*.

⁹ Higher ownership concentration firm refers to firms with higher *Largest NTS shareholding ratio*.

¹⁰ Middle ownership concentration firm refers to firms with middle *Largest NTS shareholding ratio*.

5, the dependent variable is *Total dividend*, and the coefficient for the *Reform* indicator variable is -0.0218 but not significant. In column 6, the dependent variable is *Dividend indicator*, and the coefficient for the *Reform* indicator variable is 0.308 and significant at 10% level. In column 7, the dependent variable is *Dividend yield*, and the coefficient for the *Reform* indicator variable is 1.120 and significant at 5% level. In column 8, the dependent variable is *Dividend payout ratio*, and the coefficient for the *Reform* indicator variable is 0.0545 and significant at 5% level.

Panel D is the regression for subsample with *Largest NTS shareholding ratio* less than 20%. Column 1-4 show the result of basic regression for four proxies of dividend policy. In column 5-8, year and industry fixed effect are introduced to the model. The corresponding coefficients are much larger than that in the Panel C. Comparing with the coefficients of *Reform* in Panel A and B, we could find that the coefficients in Panel C and D becomes much larger and significant. The above results are consistent with the hypothesis 4 which indicates that for the lower ownership concentration firm¹¹, the increase liquidity due to the reform results in increase in both propensity and level of dividend after controlling for a series of financial variables.

¹¹ Lower ownership concentration firm refers to firms with lower *Largest NTS shareholding ratio*.

Table 3
The influence of ownership concentration on dividend policy
Panel A: Subsample with Largest NTS shareholding ratio higher than 80%

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>Total dividend</i>	<i>Dividend indicator</i>	<i>Dividend yield</i>	<i>Dividend payout ratio</i>	<i>Total dividend</i>	<i>Dividend indicator</i>	<i>Dividend yield</i>	<i>Dividend payout ratio</i>
<i>Reform</i>	0.0224 (1.62)	0.138* (2.54)	0.512* (2.31)	0.00222 (0.33)	-0.00180 (-0.05)	0.0894 (0.55)	0.292 (0.57)	-0.00110 (-0.06)
<i>Asset</i>	0.0225** (2.72)	0.176*** (5.08)	0.523*** (6.36)	0.00741 (1.02)	-0.00124 (-0.12)	0.0274 (0.71)	0.362*** (3.49)	0.000446 (0.04)
<i>Sale</i>	0.00673 (1.36)	0.0156 (0.67)	0.168** (3.04)	-0.00226 (-0.39)	0.00875 (1.36)	0.0356 (1.32)	0.162* (2.26)	-0.00207 (-0.25)
<i>Equity</i>	0.00169 (0.24)	-0.0624* (-2.30)	-0.420*** (-6.58)	0.00287 (0.84)	0.00380 (0.49)	-0.0127 (-0.43)	-0.393*** (-5.01)	0.00829 (1.81)
<i>ROA</i>	1.663*** (5.24)	3.929*** (4.43)	7.291** (3.05)	-0.108 (-0.71)	1.666*** (4.85)	1.794 (1.73)	7.790** (2.64)	0.0188 (0.09)
<i>ROE</i>	-0.203 (-1.66)	-0.0734 (-0.17)	0.0471 (0.05)	-0.0973 (-1.55)	-0.327* (-2.13)	0.261 (0.48)	-0.744 (-0.56)	-0.199* (-2.34)
<i>ROS</i>	0.0585 (0.94)	-0.324 (-1.74)	0.187 (0.37)	-0.0460 (-1.27)	0.0604 (0.74)	-0.187 (-0.93)	0.179 (0.28)	-0.0555 (-1.06)
<i>Book leverage</i>	-0.0342 (-1.15)	-0.495*** (-4.55)	-1.689*** (-6.48)	-0.0366 (-1.93)	0.0536 (1.42)	-0.238 (-1.83)	-1.159*** (-3.45)	-0.0125 (-0.48)
<i>Market leverage</i>	0.404 (0.66)	2.420 (1.09)	3.579 (0.56)	-0.962* (-2.21)	0.0361 (0.06)	1.608 (0.67)	5.753 (0.75)	-0.870 (-1.49)
<i>Before2</i>					0.0210 (1.77)	0.0351 (0.56)	0.192 (1.26)	0.00767 (1.07)
<i>Before1</i>					-0.00535 (-0.29)	-0.0713 (-0.78)	-0.109 (-0.41)	-0.00124 (-0.12)
<i>Before0</i>					0.00414 (0.14)	-0.0824 (-0.74)	-0.113 (-0.35)	-0.00600 (-0.44)
<i>After1</i>					-0.00253 (-0.10)	0.0294 (0.33)	-0.0189 (-0.08)	0.00519 (0.47)
<i>After2</i>					-0.0172 (-0.82)	-0.0111 (-0.18)	-0.207 (-1.07)	0.00718 (0.72)
<i>Total dividend lag1</i>					0.316*** (4.86)			

Panel A (Continue)								
<i>Total dividend lag2</i>					0.206*** (4.37)			
<i>Dividend indicator lag1</i>						0.249*** (8.97)		
<i>Dividend indicator lag2</i>						0.211*** (8.28)		
<i>Dividend yield lag1</i>							0.212*** (6.70)	
<i>Dividend yield lag2</i>							0.175*** (5.78)	
<i>Dividend payout ratio lag1</i>								0.0668 (1.41)
<i>Dividend payout ratio lag2</i>								0.112* (2.56)
<i>Intercept</i>	-1.022 (-1.74)	-4.824* (-2.26)	-10.92 (-1.80)	0.863* (2.06)	-0.263 (-0.42)	-2.172 (-0.92)	-10.02 (-1.34)	0.839 (1.48)
Year and Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2525	2525	2525	2525	1655	1655	1655	1655
Adjusted R-squared	0.266	0.206	0.307	0.070	0.455	0.302	0.397	0.098

Panel B: Subsample with Largest NTS shareholding ratio from 50% to 80%

	(1) <i>Total dividend</i>	(2) <i>Dividend indicator</i>	(3) <i>Dividend yield</i>	(4) <i>Dividend payout ratio</i>	(5) <i>Total dividend</i>	(6) <i>Dividend indicator</i>	(7) <i>Dividend yield</i>	(8) <i>Dividend payout ratio</i>
<i>Reform</i>	0.0630** (2.95)	0.136* (2.49)	1.214*** (4.70)	0.0164 (1.87)	-0.0533 (-1.02)	0.164 (1.04)	0.786 (1.31)	0.0319 (1.12)
<i>Asset</i>	0.0573*** (4.00)	0.0851* (2.17)	0.821*** (7.89)	0.0111 (1.71)	0.0390* (2.31)	-0.0298 (-0.68)	0.670*** (5.25)	0.00690 (0.80)
<i>Sale</i>	0.00762 (0.88)	0.0271 (0.95)	0.129 (1.81)	-0.00767 (-1.39)	0.00268 (0.32)	0.0271 (0.83)	0.102 (1.20)	-0.00433 (-0.63)
<i>Equity</i>	-0.0175 (-1.58)	0.0198 (0.69)	-0.644*** (-7.89)	0.00766 (1.80)	-0.0156 (-1.35)	0.0617* (2.16)	-0.618*** (-6.67)	0.00810 (1.63)
<i>ROA</i>	0.916 (1.79)	3.096*** (3.90)	8.455*** (3.57)	0.132 (1.11)	0.715 (0.93)	1.361 (1.56)	6.749* (2.16)	0.0767 (0.43)
<i>ROE</i>	0.387 (1.52)	-0.289 (-0.73)	0.00465 (0.00)	-0.250*** (-4.16)	0.341 (0.89)	0.155 (0.37)	0.00857 (0.01)	-0.270** (-3.01)
<i>ROS</i>	-0.0532 (-0.66)	-0.0294 (-0.14)	-0.106 (-0.20)	-0.108** (-2.96)	-0.0690 (-0.90)	0.0148 (0.05)	0.271 (0.42)	-0.110* (-2.26)
<i>Book leverage</i>	-0.0140 (-0.37)	-0.186 (-1.77)	-1.302*** (-4.43)	0.00263 (0.14)	0.00888 (0.16)	-0.0269 (-0.22)	-1.150** (-3.03)	0.0160 (0.65)
<i>Market leverage</i>	-3.048*** (-3.60)	5.483** (2.82)	-7.632 (-1.28)	-0.548 (-1.81)	-2.811* (-2.29)	4.007 (1.86)	-8.030 (-1.05)	-1.427*** (-3.76)
<i>Before2</i>					-0.0141 (-0.74)	-0.0435 (-0.65)	-0.0751 (-0.31)	0.00843 (0.66)
<i>Before1</i>					-0.0424 (-1.46)	-0.0156 (-0.17)	-0.0139 (-0.04)	0.0195 (1.14)
<i>Before0</i>					0.0605 (1.77)	-0.0982 (-0.94)	0.168 (0.48)	-0.00106 (-0.06)
<i>After1</i>					0.412*** (5.98)			
<i>After2</i>					0.0651 (0.79)			
<i>Total dividend lag1</i>					0.0239 (0.81)	-0.0442 (-0.52)	0.115 (0.42)	-0.00247 (-0.18)
<i>Total dividend lag2</i>					0.00607 (0.32)	0.0327 (0.57)	-0.122 (-0.55)	0.00824 (0.76)

Panel B (Continue)

<i>Dividend indicator lag1</i>						0.277***		
						(8.39)		
<i>Dividend indicator lag2</i>						0.148***		
						(5.39)		
<i>Dividend yield lag1</i>							0.210***	
							(6.14)	
<i>Dividend yield lag2</i>							0.191***	
							(6.53)	
<i>Dividend payout ratio lag1</i>								-0.00150
								(-0.05)
<i>Dividend payout ratio lag2</i>								0.0432
								(1.26)
<i>Intercept</i>	1.955*	-7.712***	-1.399	0.443	2.133	-4.404*	1.965	1.328***
	(2.42)	(-4.11)	(-0.24)	(1.53)	(1.82)	(-2.09)	(0.26)	(3.63)
Year and Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2134	2134	2134	2134	1435	1435	1435	1435
Adjusted R-squared	0.283	0.190	0.347	0.123	0.461	0.259	0.444	0.140

Panel C: Subsample with Largest NTS shareholding ratio from 20% to 50%

	(1) <i>Total dividend</i>	(2) <i>Dividend indicator</i>	(3) <i>Dividend yield</i>	(4) <i>Dividend payout ratio</i>	(5) <i>Total dividend</i>	(6) <i>Dividend indicator</i>	(7) <i>Dividend yield</i>	(8) <i>Dividend payout ratio</i>
<i>Reform</i>	0.0551*** (3.64)	0.197*** (4.57)	1.038*** (5.52)	0.0192** (2.66)	-0.0218 (-0.56)	0.308* (2.10)	1.120** (2.63)	0.0545** (2.65)
<i>Asset</i>	0.00995 (1.82)	0.0675* (2.30)	0.183** (3.03)	-0.000199 (-0.04)	-0.000189 (-0.03)	-0.00112 (-0.03)	0.0834 (1.10)	-0.00349 (-0.54)
<i>Sale</i>	0.0138*** (3.33)	0.0946*** (4.59)	0.330*** (6.90)	0.00609 (1.54)	0.00726 (1.46)	0.0713** (3.03)	0.317*** (4.85)	0.00729 (1.48)
<i>Equity</i>	0.0174** (2.66)	0.00627 (0.26)	-0.274*** (-5.65)	0.00624 (1.94)	0.0152* (2.01)	0.000420 (0.02)	-0.273*** (-4.58)	0.00605 (1.52)
<i>ROA</i>	1.260** (2.85)	3.003*** (3.42)	8.806*** (4.72)	-0.0693 (-0.52)	0.494 (0.79)	1.889 (1.95)	7.215** (3.03)	-0.0667 (-0.39)
<i>ROE</i>	-0.0660 (-0.29)	-0.0261 (-0.06)	-1.778* (-2.01)	-0.141* (-2.12)	0.193 (0.61)	-0.0404 (-0.08)	-1.733 (-1.54)	-0.178* (-1.99)
<i>ROS</i>	-0.126** (-3.24)	-0.196 (-1.15)	0.168 (0.49)	-0.0511 (-1.57)	-0.0839 (-1.63)	0.00886 (0.04)	0.593 (1.15)	-0.0516 (-1.46)
<i>Book leverage</i>	-0.0544* (-2.20)	-0.332*** (-3.63)	-1.231*** (-6.46)	-0.0377* (-2.26)	-0.0267 (-0.89)	-0.00634 (-0.06)	-0.817** (-3.23)	-0.0314 (-1.35)
<i>Market leverage</i>	0.527 (1.33)	3.734* (1.97)	9.717** (2.63)	-0.172 (-0.56)	-0.102 (-0.20)	-0.953 (-0.36)	0.655 (0.11)	-0.420 (-0.77)
<i>Before2</i>					-0.00394 (-0.29)	-0.0567 (-0.82)	0.0318 (0.18)	-0.00395 (-0.63)
<i>Before1</i>					0.00962 (0.47)	0.00292 (0.03)	0.471 (1.75)	0.00400 (0.38)
<i>Before0</i>					0.0528 (1.95)	-0.0848 (-0.88)	0.412 (1.76)	-0.0308* (-2.07)
<i>After1</i>					0.0183 (1.11)	-0.0538 (-0.70)	0.106 (0.61)	-0.0162 (-1.35)
<i>After2</i>					0.0203 (1.87)	0.0162 (0.28)	0.0552 (0.38)	-0.00100 (-0.09)
<i>Total dividend lag1</i>					0.382*** (6.67)			
<i>Total dividend lag2</i>					0.128** (2.99)			

Panel C (Continue)								
<i>Dividend indicator lag1</i>						0.291***		
						(11.48)		
<i>Dividend indicator lag2</i>						0.147***		
						(6.40)		
<i>Dividend yield lag1</i>							0.259***	
							(8.95)	
<i>Dividend yield lag2</i>							0.0898***	
							(3.60)	
<i>Dividend payout ratio lag1</i>								0.0404
								(1.41)
<i>Dividend payout ratio lag2</i>								0.0475
								(1.63)
<i>Intercept</i>	-1.248**	-6.927***	-15.58***	0.000801	-0.228	-0.195	-3.957	0.331
	(-3.28)	(-3.78)	(-4.40)	(0.00)	(-0.46)	(-0.07)	(-0.69)	(0.62)
Year and Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	3328	3328	3328	3328	2123	2123	2123	2123
Adjusted R-squared	0.233	0.213	0.287	0.093	0.349	0.298	0.368	0.096

Panel D: Subsample with Largest NTS shareholding ratio less than 20%

	(1) <i>Total dividend</i>	(2) <i>Dividend indicator</i>	(3) <i>Dividend yield</i>	(4) <i>Dividend payout ratio</i>	(5) <i>Total dividend</i>	(6) <i>Dividend indicator</i>	(7) <i>Dividend yield</i>	(8) <i>Dividend payout ratio</i>
<i>Reform</i>	0.0131 (0.53)	0.186 (1.84)	0.536 (1.42)	0.0292 (1.48)	-0.0480 (-0.86)	0.741** (2.80)	0.0429 (0.06)	0.121* (2.37)
<i>Asset</i>	0.00635 (0.73)	0.137** (3.00)	0.108 (1.36)	-0.00455 (-0.90)	0.00533 (0.49)	0.0524 (0.86)	0.100 (0.94)	-0.00536 (-0.95)
<i>Sale</i>	0.00337 (0.62)	0.0541 (1.72)	0.162** (3.01)	0.00107 (0.23)	-0.00321 (-0.52)	0.0129 (0.33)	0.110 (1.61)	-0.00282 (-0.55)
<i>Equity</i>	0.0154 (1.84)	-0.0285 (-0.74)	-0.0796 (-1.11)	0.0104** (2.94)	0.00243 (0.26)	0.00954 (0.21)	-0.126 (-1.43)	0.0132** (2.90)
<i>ROA</i>	0.615 (1.87)	0.785 (0.56)	0.437 (0.16)	-0.325* (-2.02)	0.497 (1.38)	-0.264 (-0.14)	0.559 (0.15)	-0.642** (-2.71)
<i>ROE</i>	0.359* (2.04)	1.068 (1.54)	2.644* (2.03)	0.0657 (0.87)	0.367* (2.24)	1.396 (1.61)	3.461* (2.09)	0.229* (2.04)
<i>ROS</i>	-0.136* (-2.15)	-0.125 (-0.48)	0.399 (0.89)	-0.0640* (-1.99)	-0.156* (-2.10)	-0.350 (-1.02)	0.126 (0.19)	-0.102* (-2.46)
<i>Book leverage</i>	-0.105*** (-3.94)	-0.463** (-3.29)	-1.471*** (-5.54)	-0.0607** (-2.87)	-0.0486 (-1.79)	-0.292 (-1.72)	-1.421*** (-4.52)	-0.0759* (-2.53)
<i>Market leverage</i>	1.806** (2.98)	-0.555 (-0.19)	20.75*** (4.02)	0.104 (0.37)	1.468 (1.67)	-0.798 (-0.19)	24.95** (3.08)	-0.495 (-1.08)
<i>Before2</i>					0.0240 (0.88)	0.125 (1.21)	0.171 (0.62)	0.0122 (1.55)
<i>Before1</i>					0.00476 (0.14)	0.337* (2.35)	-0.00438 (-0.01)	0.0244 (1.88)
<i>Before0</i>					0.0398 (1.27)	-0.289 (-1.50)	0.125 (0.35)	-0.0791* (-2.14)
<i>After1</i>					0.0177 (0.79)	-0.0261 (-0.18)	0.131 (0.53)	-0.0273 (-1.11)
<i>After2</i>					-0.00109 (-0.07)	-0.137 (-1.50)	-0.0979 (-0.53)	-0.0265 (-1.26)
<i>Total dividend lag1</i>					0.440*** (5.99)			
<i>Total dividend lag2</i>					0.162** (2.59)			

Panel D (Continue)								
<i>Dividend indicator lag1</i>						0.205***		
						(5.29)		
<i>Dividend indicator lag2</i>						0.198***		
						(5.37)		
<i>Dividend yield lag1</i>							0.193***	
							(3.40)	
<i>Dividend yield lag2</i>							0.139**	
							(2.94)	
<i>Dividend payout ratio lag1</i>								0.0137
								(0.21)
<i>Dividend payout ratio lag2</i>								0.0920
								(1.45)
<i>Intercept</i>	-2.231***	-2.975	-24.79***	-0.158	-1.536	-0.511	-26.88***	0.519
	(-3.78)	(-1.05)	(-4.85)	(-0.57)	(-1.78)	(-0.12)	(-3.31)	(1.14)
Year and Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	1414	1414	1414	1414	877	877	877	877
Adjusted R-squared	0.280	0.232	0.273	0.113	0.520	0.304	0.353	0.180

Panel A-D represents the main regression for four subsamples respectively. In each Panel, four different proxies of dividend policy are treated as dependent variable. Specifically, $Total\ Dividend_{i,t}$ is total dividend per share for firm i in year t . $Dividend\ indicator_{i,t}$ is an indicator variable that equals 1 if firm i paid dividends in year t . $Dividend\ yield_{i,t}$ is total dividend per share divided by the price per share for firm i in year t . And $Dividend\ payout\ ratio_{i,t}$ is total dividend per share divided by earning per share for firm i in year t . The time of dividend issuance is defined as the announcement date. $Reform_{i,t}$ is a dummy variable that equals 1 if firm i has completed the share reform in t . See Table 1, Panel A for definitions of all other variables. In all regressions, standard errors are adjusted for heteroscedasticity and within-cluster correlation among all observations belonging to the same firm. Column 5-8 in each panel introduce the year- and industry-fixed effects. Values of t -statistics are shown in brackets. ***, **, and * indicate significance at equal to or less than the 1%, 5%, and 10% levels, respectively

To further explore these effects and to test our hypothesis 2-4, we modify Equation (1) to introduce a series of dummy variables that capture ownership structure and the interaction between reform dummy and ownership structure dummy into the main regression.

$$Y_{i,t} = \alpha + \beta_1 \text{Reform}_{i,t} + \beta_2 \text{Reform}_{i,t} \cdot \text{Control}_{80}_i + \beta_3 \text{Reform}_{i,t} \cdot \text{Control}_{50}_i + \beta_4 \text{Reform}_{i,t} \cdot \text{Control}_{20}_i + \beta_5 X_{i,t} + \varepsilon_{i,t} \quad (\text{Equation 2})$$

Equation (2) is estimated to test the influence of ownership concentration on the influence of the reform on dividend policy mentioned above, where $\text{Reform}_{i,t}$ is an indicator variable that equals 1 if firm i had completed the reform in year t . Control_{20} , Control_{50} and Control_{80} are indicator variables that equal 1 if *Largest NTS shareholding ratio* >20%, 50% and 80% respectively. $\text{Reform} \cdot \text{Control}_{20}$, $\text{Reform} \cdot \text{Control}_{50}$ and $\text{Reform} \cdot \text{Control}_{80}$ represent the interaction of Control_{20} , Control_{50} and Control_{80} and Reform respectively. Based on the hypothesis 2-4, we expect β_2 to be negative, β_3 and β_4 to be positive. In this section, the time of dividend issuance is defined as the declaration date, the result of regression would not change if we turn to the announcement date just as the robustness test for the main regression in section 3.2.1. In order to save space, we would not present the detail of the robustness test for this section.

The result of the regression supports our hypotheses for the influence of ownership structure on the reflection of dividend on stock liquidity increase. Table 3 tabulates results from estimating equation (2). Column 1-4 show the result of regression for four proxies of dividend policy. In column 1, the dependent variable is *Total dividend*. The coefficient for the $\text{Reform} \cdot \text{Control}_{20}$ indicator variable is 0.0128, which is positive and significant at 10% level. The coefficient for the $\text{Reform} \cdot \text{Control}_{50}$ indicator variable is 0.0221, which is positive and significant at 1% level. And the coefficient for the $\text{Reform} \cdot \text{Control}_{80}$ indicator variable is -0.0195, which is negative and significant at 5% level. The result of column 1 is consistent with the hypothesis 2-4. In column 2, the dependent variable is *Dividend indicator*. The coefficient for the $\text{Reform} \cdot \text{Control}_{20}$ indicator variable is 0.04, which is positive but not significant. The coefficient for the $\text{Reform} \cdot \text{Control}_{50}$ indicator variable is 0.0685, which is positive and significant at 1% level. The coefficient for the

Reform · Control_80 indicator variable is -0.0495, which is negative and significant at 5% level. The result of column 2 is consistent with the hypothesis 2-4 even if some of the coefficients are not significant. In column 3, the dependent variable is *Dividend yield*. The coefficient for the *Reform · Control_20* indicator variable is 0.141, which is positive and significant at the 5% level. The coefficient for the *Reform · Control_50* indicator variable is 0.0869, which is positive and significant at 10% level. The coefficient for the *Reform · Control_80* indicator variable is -0.0912, which is negative but not significant. The result of column 3 is consistent with the hypothesis 2-4 even if some of the coefficients are not significant. In column 4, the dependent variable is *Dividend payout ratio*. The coefficient for the *Reform · Control_20* indicator variable is 0.00678, which is positive and significant at the 5% level. The coefficient for the *Reform · Control_50* indicator variable is 0.00327, which is positive but not significant. The coefficient for the *Reform · Control_80* indicator variable is -0.00329, which is negative but not significant. The result of column 4 is consistent with the hypothesis 2-4 even if some of the coefficients are not significant.

Generally speaking, the result of the regression for equation (2) tabulated in table 4 are consistent with our expectation that β_2 to be negative, β_3 and β_4 to be positive. So we could verify that comparing with the firm with *Largest NTS shareholding ratio* less than 20%, the increase of ownership concentration would enhance the increase in the propensity and level of dividend due to the liquidity increase of the Split Share Structure Reform when the *Largest NTS shareholding ratio* is not very high (ie. less than 80%) and then turn to the opposite effect when the *Largest NTS shareholding ratio* is quite high (ie. more than 80%).

So we could make a conclusion that (1) The propensity and the level of dividend would decrease for firms with absolutely controlling shareholders after the liquidity increase due to the reform. (2) The propensity and the level of dividend would increase for firms with multi relative controlling shareholders after the liquidity increase due to the reform. (3) The propensity and the level of dividend would increase for firms with only minority shareholders after the liquidity increase due to the reform.

Table 4
Cross-sectional variation in the effect of the reform on dividend policy

	(1) <i>Total dividend</i>	(2) <i>Dividend indicator</i>	(3) <i>Dividend yield</i>	(4) <i>Dividend payout ratio</i>
<i>Reform</i>	0.0232* (2.30)	0.110*** (3.33)	0.747*** (5.86)	0.00788 (1.60)
<i>Reform · Control 80</i>	-0.0195** (-3.23)	-0.0495** (-2.76)	-0.0912 (-1.95)	-0.00329 (-1.47)
<i>Reform · Control 50</i>	0.0221*** (4.00)	0.0685*** (3.92)	0.0869* (2.03)	0.00327 (1.50)
<i>Reform · Control 20</i>	0.0128* (2.37)	0.0400 (1.88)	0.141** (3.12)	0.00678** (2.99)
<i>Asset</i>	0.0258*** (5.78)	0.118*** (6.84)	0.400*** (10.36)	0.00252 (0.84)
<i>Sale</i>	0.00878** (3.25)	0.0551*** (4.70)	0.231*** (8.52)	0.00218 (0.95)
<i>Equity</i>	0.00424 (1.03)	-0.0257 (-1.88)	-0.365*** (-11.74)	0.00543** (3.10)
<i>ROA</i>	1.172*** (5.22)	2.956*** (6.56)	6.367*** (5.60)	-0.0793 (-1.16)
<i>ROE</i>	0.0828 (0.74)	0.0676 (0.30)	0.152 (0.28)	-0.124*** (-3.86)
<i>ROS</i>	-0.0498 (-1.71)	-0.182 (-1.92)	0.268 (1.21)	-0.0559*** (-3.36)
<i>Book leverage</i>	-0.0477** (-3.22)	-0.412*** (-8.00)	-1.451*** (-12.00)	-0.0353*** (-3.87)
<i>Market leverage</i>	-0.369 (-1.11)	3.303** (3.13)	4.730 (1.78)	-0.437* (-2.52)
<i>Intercept</i>	-0.393 (-1.25)	-6.033*** (-5.93)	-11.48*** (-4.50)	0.323 (1.93)
Year and Industry FE	Yes	Yes	Yes	Yes
Number of observations	9401	9401	9401	9401
Adjusted R-squared	0.245	0.200	0.295	0.087

Four different proxies of dividend policy are treated as dependent variable. Specifically, $Total\ Dividend_{i,t}$ is defined as the total dividend per share for firm i in year t . $Dividend\ indicator_{i,t}$ is defined as an indicator variable that equals 1 if firm i paid dividends in year t . $Dividend\ yield_{i,t}$ is defined as the total dividend per share divided by the price per share for firm i in year t . And $Dividend\ payout\ ratio_{i,t}$ is defined as the total dividend per share divided by earning per share for firm i in year t . The time of dividend issuance is defined as the announcement date. $Reform_{i,t}$ is a dummy variable that equals 1 if firm i has completed the reform by the end of year t . $Control_{20}$, $Control_{50}$ and $Control_{80}$ are indicator variables that equal 1 if *Largest NTS shareholding ratio* >20%, 50% and 80% respectively. $Reform \cdot Control_{20}$, $Reform \cdot Control_{50}$ and $Reform \cdot Control_{80}$ represent the interaction of $Control_{20}$, $Control_{50}$ and $Control_{80}$ and $Reform$ respectively. See Table 1, Panel A for definitions of all other variables. In all regressions, standard errors are adjusted for heteroscedasticity and within-cluster correlation among all observations belonging to the same firm and the year- and industry-fixed effects are controlled. Values of t -statistics are shown in brackets. ***, **, and * indicate significance at equal to or less than the 1%, 5%, and 10% levels, respectively.

In order to verify whether firms with higher ownership concentration before the reform do offer higher level of dividend and whether this phenomenon would change after the reform. We construct the equation (3) to regress the proxies for dividend on *Largest NTS shareholding ratio* to test the foundation of the wealth expropriation channel, the internal fund channel as well as the agency channel.

In equation (3), the independent variable is *Largest NTS shareholding ratio* defined as the largest NTS shareholding ratio of the ultimate controller of the firm before the reform. Dependent variables and control variables are the same as those in equation (1). In this section, the time of dividend issuance is defined as the declaration date, the result of regression would not change if we turn to the announcement date just as the robustness test for the main regression in section 3.2.1. In order to save space, we would not present the detail of the robustness test for this section.

$$Y_{i,t} = \alpha + \beta_1 \text{Largest NTS shareholding ratio}_i + \beta_2 X_{i,t} + \varepsilon_{i,t} \quad (\text{Equation 3})$$

Table 5, Panel A and Panel B tabulate results from estimating equation (3) in the before-reform period and post-reform period respectively. Results in Table 5 illustrate that firms with higher ownership concentration do provide higher level and propensity of dividend before the reform which is consistent with the foundation of three channels mentioned in section 2. For the after-reform period, the characteristic of larger dividend for firms with higher ownership concentration still exist but is somewhat slighter than before because of the opposite channels that the liquidity increase influence the dividend.

Specifically, Panel A is the regression for before-reform period. Column 1-4 show the result of regression for four proxies of dividend policy. In column 1, the dependent variable is *Total dividend* and the coefficient for *Largest NTS shareholding ratio* is 0.0475 which is positive and significant at 1% level. In column 2, the dependent variable is *Dividend indicator* and the coefficient for *Largest NTS shareholding ratio* is 0.195 which is positive and significant at 1% level. In column 3, the dependent variable is *Dividend yield* and the coefficient for *Largest NTS shareholding ratio* is 0.585 which is positive and significant at 1% level. In column 4, the dependent variable is *Dividend payout ratio* and the coefficient for *Largest NTS shareholding ratio* is 0.0397 which is positive and significant at 1% level.

Panel B is the regression for after-reform period. Column 1-4 show the result of

regression for four proxies of dividend policy. In column 1, the dependent variable is *Total dividend* and the coefficient for *Largest NTS shareholding ratio* is 0.0462 which is positive, significant at 1% level and smaller than that in Panel A. In column 2, the dependent variable is *Dividend indicator* and the coefficient for *Largest NTS shareholding ratio* is 0.158 which is positive, significant at 1% level and smaller than that in Panel A. In column 3, the dependent variable is *Dividend yield* and the coefficient for *Largest NTS shareholding ratio* is 0.414 which is positive, significant at 1% level and smaller than that in Panel A. In column 4, the dependent variable is *Dividend payout ratio* and the coefficient for *Largest NTS shareholding ratio* is 0.0128 which is positive, significant at 1% level and smaller than that in Panel A.

Table 5
The relationship between ownership concentration and dividend
Panel A: Pre-reform period

	(1) <i>Total dividend</i>	(2) <i>Dividend indicator</i>	(3) <i>Dividend yield</i>	(4) <i>Dividend payout ratio</i>
<i>Largest NTS shareholding ratio</i>	0.0475*** (5.15)	0.195*** (4.50)	0.585*** (5.51)	0.0397*** (6.19)
<i>Asset</i>	0.0246*** (4.12)	0.0905** (2.95)	0.412*** (5.84)	0.00371 (-0.69)
<i>Sale</i>	0.0106** (2.61)	0.0794*** (3.89)	0.230*** (4.58)	-0.00200 (-0.51)
<i>Equity</i>	-0.00511 (-0.94)	-0.0594* (-2.22)	-0.375*** (-6.02)	0.00840* (2.31)
<i>ROA</i>	1.328*** (5.61)	1.649 (1.82)	9.329*** (4.13)	-0.114 (-0.82)
<i>ROE</i>	-0.0397 (-0.36)	0.980* (2.03)	0.0719 (0.06)	-0.131* (-2.05)
<i>ROS</i>	-0.0359 (-0.96)	0.0960 (0.56)	0.218 (0.56)	-0.0898* (-2.52)
<i>Book leverage</i>	-0.0363 (-1.84)	-0.400*** (-4.57)	-1.188*** (-5.60)	-0.0375* (-2.36)
<i>Market leverage</i>	-0.119 (-0.24)	2.779 (1.58)	3.473 (0.80)	-0.138 (-0.42)
<i>Intercept</i>	-0.551 (-1.16)	-5.256** (-3.09)	-10.83** (-2.59)	0.0191 (0.06)
Year and Industry FE	Yes	Yes	Yes	Yes
Number of observations	3455	3455	3455	3455
Adjusted R-squared	0.261	0.216	0.259	0.100

Panel B: Post-reform period

	(1) <i>Total dividend</i>	(2) <i>Dividend indicator</i>	(3) <i>Dividend yield</i>	(4) <i>Dividend payout ratio</i>
<i>Largest NTS shareholding ratio</i>	0.0462*** (3.52)	0.158*** (3.49)	0.414*** (3.90)	0.0128* (2.47)
<i>Asset</i>	0.0323*** (3.80)	0.0961*** (3.47)	0.348*** (5.92)	-0.00207 (-0.54)
<i>Sale</i>	0.00936 (1.86)	0.0630** (3.27)	0.217*** (5.12)	0.00707* (2.39)
<i>Equity</i>	0.00272 (0.38)	0.0110 (0.52)	-0.310*** (-6.72)	0.00427 (1.69)
<i>ROA</i>	0.581 (1.34)	2.720*** (3.89)	2.872 (1.74)	0.0000605 (0.00)
<i>ROE</i>	0.408 (1.83)	-0.110 (-0.33)	1.155 (1.38)	-0.159** (-3.25)
<i>ROS</i>	-0.114* (-2.18)	-0.284 (-1.80)	-0.0379 (-0.11)	-0.0327 (-1.65)
<i>Book leverage</i>	-0.0833** (-3.09)	-0.381*** (-4.48)	-1.638*** (-8.60)	-0.0266 (-1.79)
<i>Market leverage</i>	-1.200 (-1.94)	2.677 (1.52)	4.732 (1.25)	-0.307 (-1.91)
<i>Intercept</i>	0.425 (0.72)	-5.338** (-3.11)	-8.923* (-2.44)	0.249 (1.62)
Year and Industry FE	Yes	Yes	Yes	Yes
Number of observations	3421	3421	3421	3421
Adjusted R-squared	0.270	0.209	0.343	0.092

Four different proxies of dividend policy are treated as dependent variable. Specifically, $Total\ Dividend_{i,t}$ is defined as the total dividend per share for firm i in year t . $Dividend\ indicator_{i,t}$ is defined as an indicator variable that equals 1 if firm i paid dividends in year t . $Dividend\ yield_{i,t}$ is defined as the total dividend per share divided by the price per share for firm i in year t . And $Dividend\ payout\ ratio_{i,t}$ is defined as the total dividend per share divided by earning per share for firm i in year t . The time of dividend issuance is defined as the announcement date. *Largest NTS shareholding ratio* is the largest NTS shareholding ratio of the ultimate controller of firm i before the reform. See Table 1, Panel A for definitions of all other variables. In all regressions, standard errors are adjusted for heteroscedasticity and within-cluster correlation among all observations belonging to the same firm and the year- and industry-fixed effects are controlled. Values of t -statistics are shown in brackets. ***, **, and * indicate significance at equal to or less than the 1%, 5%, and 10% levels, respectively.

3.3 Robustness analysis

3.3.1 Sensitivity to alternative measurement of dividend date

In our main regression in section 3.2.1, the time of dividend issuance is defined as the declaration date. In this section, we change the definition of dividend issuance time from the declaration date to the announcement date for the robustness test of the results in section 3.2.1 and show that there is no significant differences between these two different measurements of dividend data.

Table 6, Panel A-D present the results of the regression on equation (1) mentioned in section 3.2.1 for four different proxies of dividend policy respectively. The only difference between table 2 and Table 6 is the measurement of dividend date. In table 2, we treat the declaration date as the time of dividend issuance while in Table 6 we treat the announcement date as the time of dividend issuance. We consider that the announcement date could reflect the effect of The Split Share Structure Reform on dividend policy much more than declaration date since there is some time between the firms making decision and the real dividend distributing. The results in Table 6 are quite similar with those in table 2. Specifically, the liquidity increase due to the reform enhances the propensity of firms to distribute dividends as well as the level of dividend distribution based on all four proxies for the dividend policy, which support the hypothesis1 that the propensity and the level of dividend would increase after the liquidity increase due to the reform in general.

Table 6
Robustness test for different issuance time measurement
Panel A: Total Dividend

	(1)	(2)	(3)	(4)	(5)
<i>Reform</i>	-0.0168*** (-7.44)	0.0412*** (4.49)	0.0349 (1.76)	0.0185 (1.95)	-0.0442* (-2.02)
<i>Asset</i>	0.0330*** (9.22)	0.0266*** (5.88)	0.0263*** (5.83)	0.0122* (2.16)	0.0124* (2.20)
<i>Sale</i>	0.00901*** (3.61)	0.00924*** (3.41)	0.00927*** (3.42)	0.00277 (0.90)	0.00268 (0.86)
<i>Equity</i>	-0.0102*** (-3.81)	0.00495 (1.21)	0.00506 (1.23)	0.00198 (0.43)	0.00213 (0.46)
<i>ROA</i>	1.198*** (5.50)	1.157*** (5.15)	1.157*** (5.16)	0.700* (2.22)	0.711* (2.27)
<i>ROE</i>	0.124 (1.10)	0.0824 (0.73)	0.0842 (0.75)	0.176 (1.10)	0.175 (1.10)
<i>ROS</i>	-0.0483 (-1.78)	-0.0504 (-1.73)	-0.0494 (-1.70)	-0.0522 (-1.47)	-0.0520 (-1.46)
<i>Book leverage</i>	-0.0823*** (-5.34)	-0.0479** (-3.22)	-0.0480** (-3.23)	-0.00715 (-0.37)	-0.00706 (-0.37)
<i>Market leverage</i>	0.0377 (0.12)	-0.446 (-1.33)	-0.433 (-1.30)	-0.674 (-1.62)	-0.638 (-1.54)
<i>Before2</i>			0.00425 (0.53)		0.000921 (0.11)
<i>Before1</i>			-0.0115 (-1.08)		-0.0154 (-1.32)
<i>Before0</i>			-0.00437 (-0.32)		0.0477** (3.09)
<i>After1</i>			-0.00804 (-0.70)		0.0179 (1.47)
<i>After2</i>			-0.00208 (-0.24)		0.00577 (0.65)
<i>Total dividend lag1</i>				0.411*** (11.40)	0.414*** (11.45)
<i>Total dividend lag2</i>				0.135*** (3.30)	0.135** (3.26)
<i>Intercept</i>	-0.705* (-2.37)	-0.348 (-1.09)	-0.358 (-1.13)	0.334 (0.84)	0.290 (0.74)
Year and Industry FE	No	Yes	Yes	Yes	Yes
Number of observations	9401	9401	9401	6090	6090
Adjusted R-squared	0.210	0.243	0.243	0.432	0.433

Panel B: Dividend indicator

	(1)	(2)	(3)	(4)	(5)
<i>Reform</i>	-0.0587*** (-5.82)	0.170*** (6.11)	0.512*** (6.79)	0.137*** (4.58)	0.253** (3.10)
<i>Asset</i>	0.131*** (8.75)	0.120*** (6.99)	0.116*** (6.74)	0.0113 (0.58)	0.0108 (0.55)
<i>Sale</i>	0.0500*** (4.64)	0.0576*** (4.93)	0.0579*** (4.97)	0.0436*** (3.34)	0.0438*** (3.36)
<i>Equity</i>	-0.0488*** (-4.89)	-0.0247 (-1.80)	-0.0244 (-1.78)	0.00478 (0.32)	0.00445 (0.30)
<i>ROA</i>	2.737*** (6.05)	2.891*** (6.40)	2.807*** (6.22)	1.243* (2.47)	1.218* (2.42)
<i>ROE</i>	0.199 (0.88)	0.0751 (0.33)	0.105 (0.47)	0.346 (1.36)	0.350 (1.37)
<i>ROS</i>	-0.0661 (-0.74)	-0.178 (-1.88)	-0.169 (-1.79)	-0.0853 (-0.73)	-0.0852 (-0.73)
<i>Book leverage</i>	-0.525*** (-10.20)	-0.415*** (-8.05)	-0.406*** (-7.91)	-0.157** (-2.65)	-0.157** (-2.66)
<i>Market leverage</i>	4.675*** (4.52)	3.061** (2.91)	2.890** (2.74)	1.279 (0.99)	1.211 (0.94)
<i>Before2</i>			-0.0252 (-0.71)		-0.00291 (-0.08)
<i>Before1</i>			-0.0532 (-1.13)		0.0109 (0.22)
<i>Before0</i>			-0.393*** (-7.72)		-0.106 (-1.91)
<i>After1</i>			-0.236*** (-5.68)		-0.0236 (-0.53)
<i>After2</i>			-0.0984** (-3.20)		-0.00733 (-0.23)
<i>Dividend indicator lag1</i>				0.298*** (20.47)	0.295*** (20.19)
<i>Dividend indicator lag2</i>				0.188*** (14.19)	0.189*** (14.24)
<i>Intercept</i>	-7.035*** (-7.07)	-5.884*** (-5.79)	-5.636*** (-5.53)	-2.019 (-1.60)	-1.937 (-1.53)
Year and Industry FE	No	Yes	Yes	Yes	Yes
Number of observations	9401	9401	9401	6090	6090
Adjusted R-squared	0.143	0.199	0.203	0.299	0.299

Panel C: Dividend yield

	(1)	(2)	(3)	(4)	(5)
<i>Reform</i>	-0.242*** (-9.47)	0.892*** (7.34)	1.302*** (5.85)	0.735*** (5.40)	0.570* (2.20)
<i>Asset</i>	0.656*** (18.37)	0.404*** (10.46)	0.402*** (10.37)	0.278*** (5.88)	0.278*** (5.88)
<i>Sale</i>	0.240*** (9.39)	0.234*** (8.66)	0.233*** (8.65)	0.192*** (5.72)	0.191*** (5.71)
<i>Equity</i>	-0.722*** (-26.77)	-0.362*** (-11.64)	-0.363*** (-11.66)	-0.351*** (-9.54)	-0.351*** (-9.54)
<i>ROA</i>	7.427*** (6.44)	6.224*** (5.48)	6.128*** (5.38)	5.294*** (3.71)	5.308*** (3.72)
<i>ROE</i>	0.540 (0.97)	0.185 (0.34)	0.221 (0.41)	0.135 (0.19)	0.138 (0.20)
<i>ROS</i>	0.793*** (3.55)	0.261 (1.19)	0.261 (1.19)	0.311 (1.07)	0.309 (1.06)
<i>Book leverage</i>	-1.906*** (-15.65)	-1.455*** (-12.06)	-1.447*** (-12.01)	-1.092*** (-7.19)	-1.085*** (-7.14)
<i>Market leverage</i>	6.411* (2.41)	4.337 (1.64)	4.022 (1.51)	3.121 (0.89)	2.956 (0.84)
<i>Before2</i>			0.0969 (1.06)		0.0637 (0.63)
<i>Before1</i>			0.0929 (0.70)		0.134 (0.86)
<i>Before0</i>			-0.316* (-2.43)		0.296* (1.99)
<i>After1</i>			-0.167 (-1.62)		0.155 (1.37)
<i>After2</i>			-0.129 (-1.52)		-0.0695 (-0.73)
<i>Dividend yield lag1</i>				0.255*** (15.27)	0.257*** (15.15)
<i>Dividend yield lag2</i>				0.170*** (11.26)	0.172*** (11.28)
<i>Intercept</i>	-13.19*** (-5.21)	-11.23*** (-4.42)	-10.85*** (-4.26)	-6.795* (-1.99)	-6.631 (-1.94)
Year and Industry FE	No	Yes	Yes	Yes	Yes
Number of observations	9401	9401	9401	6090	6090
Adjusted R-squared	0.231	0.294	0.294	0.396	0.396

Panel D: Dividend payout ratio

	(1)	(2)	(3)	(4)	(5)
<i>Reform</i>	-0.0093*** (-7.22)	0.0148*** (3.34)	0.0386*** (3.93)	0.00930 (1.85)	0.0347** (2.95)
<i>Asset</i>	0.00963*** (3.73)	0.00251 (0.84)	0.00238 (0.80)	-0.000643 (-0.17)	-0.000715 (-0.19)
<i>Sale</i>	0.000714 (0.34)	0.00246 (1.08)	0.00245 (1.07)	0.00276 (0.94)	0.00275 (0.93)
<i>Equity</i>	-0.00308* (-2.24)	0.00554** (3.16)	0.00549** (3.13)	0.00600** (2.77)	0.00593** (2.73)
<i>ROA</i>	-0.0733 (-1.10)	-0.0865 (-1.27)	-0.0915 (-1.34)	-0.0979 (-1.05)	-0.102 (-1.09)
<i>ROE</i>	-0.0973** (-3.04)	-0.123*** (-3.82)	-0.122*** (-3.78)	-0.139** (-3.08)	-0.138** (-3.08)
<i>ROS</i>	-0.0454** (-2.98)	-0.0554*** (-3.33)	-0.0556*** (-3.34)	-0.0614** (-2.97)	-0.0620** (-2.99)
<i>Book leverage</i>	-0.0522*** (-5.83)	-0.0357*** (-3.92)	-0.0352*** (-3.87)	-0.0256* (-2.06)	-0.0257* (-2.07)
<i>Market leverage</i>	-0.303 (-1.80)	-0.448** (-2.58)	-0.465** (-2.68)	-0.796** (-3.15)	-0.809** (-3.20)
<i>Before2</i>			0.00296 (0.78)		0.00386 (0.85)
<i>Before1</i>			0.00345 (0.69)		0.00719 (1.12)
<i>Before0</i>			-0.0204** (-2.96)		-0.0182* (-2.27)
<i>After1</i>			-0.00657 (-1.16)		-0.00620 (-0.96)
<i>After2</i>			0.000163 (0.03)		0.000923 (0.16)
<i>Dividend payout ratio lag1</i>				0.0766*** (4.13)	0.0753*** (4.08)
<i>Dividend payout ratio lag2</i>				0.0982*** (5.08)	0.0990*** (5.12)
<i>Intercept</i>	0.206 (1.27)	0.330* (1.98)	0.351* (2.10)	0.735** (2.99)	0.752** (3.06)
Year and Industry FE	No	Yes	Yes	Yes	Yes
Number of observations	9401	9401	9401	6090	6090
Adjusted R-squared	0.053	0.088	0.088	0.108	0.109

Four different proxies of dividend policy are treated as dependent variable for Panel A-D. Specifically, $Total\ Dividend_{i,t}$ is defined as the total dividend per share for firm i in year t . $Dividend\ indicator_{i,t}$ is defined as an indicator variable that equals 1 if firm i paid dividends in year t . $Dividend\ yield_{i,t}$ is defined as the total dividend per share divided by the price per share for firm i in year t . And $Dividend\ payout\ ratio_{i,t}$ is defined as the total dividend per share divided by earning per share for firm i in year t . The time of dividend issuance is defined as the announcement date. $Reform_{i,t}$ is a dummy variable that equals 1 if firm i had completed the share reform by the end of year t . $Before\ j_{i,t}$ ($After\ j_{i,t}$) is a dummy variable for the j th year prior to (after) the year firm i finished the reform. See Table 1, Panel A for definitions of all other variables. In all regressions, standard errors are adjusted for heteroscedasticity and within-cluster correlation among all observations belonging to the same firm. Column 2-5 introduce the year- and industry-fixed effects. Values of t -statistics are shown in brackets. ***, **, and * indicate significance at equal to or less than the 1%, 5%, and 10% levels, respectively.

3.3.2 Sensitivity to alternative specification

Since the pre-reform periods and the post-reform periods are different for different firms, there may exist some doubts that whether the result about the influence of liquidity increase due to the Split Share Structure Reform on dividend policy shown in our main regression in section 3.2.1 are robust. That is to say, whether the firm-specific time variant factors would have influence on our result and whether our result of dividend increase is not driven by liquidity increase due to the reform but omitted factors. In order to rule out this possibility, we adopt another diff-in-diff method in which the pre-reform period and post-reform period are the same for all the firms in the sample for robustness test and show that our result of average dividend increase is robust to different diff-in-diff specification..

In this diff-in-diff method, all the control variables and dependent variables are the same as those in section 3.2.1 for main regression. Additionally, to identify treatment effect, firms which had completed the reform until the year of 2005 are classified as the treatment group while firms which had not completed the reform until the year of 2006 but completed the reform in the year of 2006 are classified as the control group. The year of 2004 is treated as the pre-reform period while the year of 2006 is treated as the post-reform period. Specifically, firms in control group would not encounter the reform in both pre-reform period and post-reform period while the treatment group would encounter the reform in the post-reform period instead.

Equation (4) is estimated to test the treatment effect mentioned above, where $Treatment_{i,t}$, an indicator variable, equals 1 if firm i belongs to the treatment group while equals 0 if firm i belongs to the control group. $Post_{i,t}$, an indicator variable, equals 1 if year t belongs to the post-reform period while equals 0 if year t belongs to the pre-reform period. And $Treatment \cdot Post_{i,t}$ is an indicator measuring the interaction between $Treatment$ and $Post$.

$$Y_{i,t} = \alpha + \beta_1 Treatment_{i,t} + \beta_2 Post_{i,t} + \beta_3 Treatment \cdot Post_{i,t} + \beta_4 X_{i,t} + \varepsilon_{i,t} \quad \text{Equation (4)}$$

Based on the hypothesis 1, we expect β_3 to be positive. In this section, the time of dividend issuance is defined as the declaration date, the result of regression would not

change if we turn to the announcement date just as the robustness test for the main regression in section 3.2.1. In order to save space, we would not present the detail of the robustness test for this diff-in-diff specification.

Figure 1
Dividend policy before and after the reform

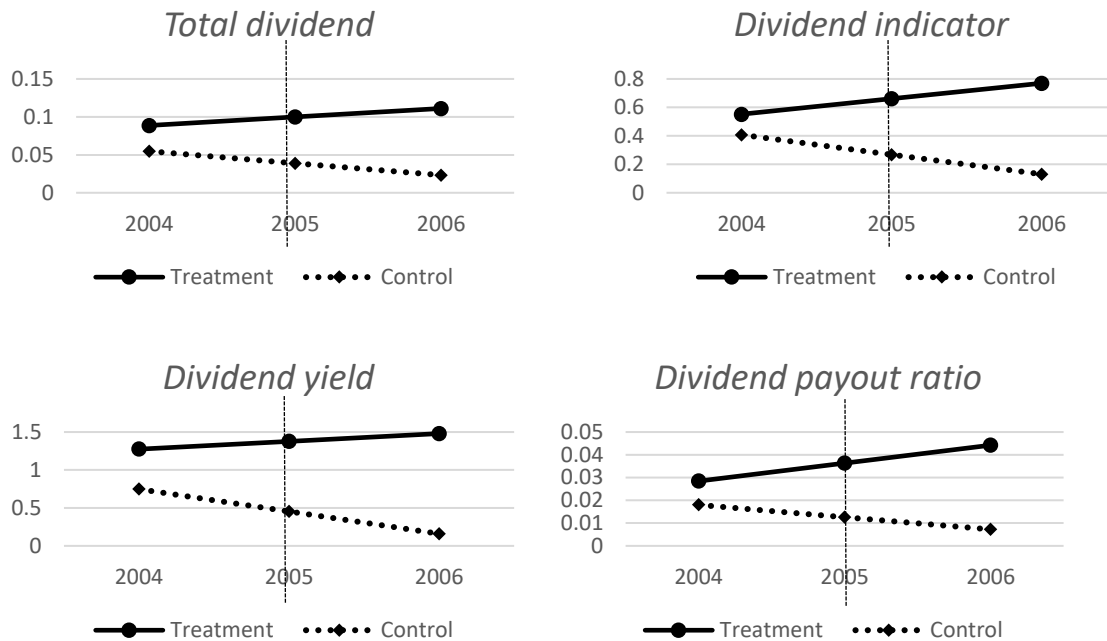


Figure 1 depicts the dividend policy change before and after the reform for firms. The solid line stands for the treatment group (firm that experienced the reform in the year of 2006) and the dotted line stands for the control group (firms that had completed the reform by the end of the year 2005 and thus did not experience the reform in the year of 2006). From figure 1, we could find that for all four proxies of the dividend policy, the firms in the treatment group experience an increase in dividend while firms in the control group experience a decrease in dividend. This evidence supports the hypothesis 1 that the reform do increase the propensity and the level of dividend due to the stock liquidity increase in secondary market. More details could be obtained from the result of regression in Table 7.

Table 7 tabulates results from estimating equation (4). Column 1-4 show the result of basic regression for four proxies of dividend policy. The dependent and control variables

in Table 7 are the same as those in the basic regression model in Table 2.¹² In column 1, the dependent variable is *Total dividend*, and the coefficient for *Treatment · Post* indicator variable is 0.0243 which is positive but not significant. In column 2, the dependent variable is *Dividend indicator*, and the coefficient for *Treatment · Post* indicator variable is 0.416 which is positive and significant at 1% level. In column 3, the dependent variable is *Dividend yield*, and the coefficient for *Treatment · Post* indicator variable is 0.0822 which is positive but not significant. In column 4, the dependent variable is *Dividend payout ratio*, and the coefficient for *Treatment · Post* indicator variable is 0.0242 which is positive and significant at the level of 10%. The above results show that signs of *Treatment · Post* are positive even if not always significant. This is in general consistent with the hypothesis 1 that stock liquidity increase due to the reform results in larger dividend after controlling for a series of financial variables. The reason for the insignificance of the result may be attributed to limited sample size.

In column 5-8, year and industry fixed effect are introduced to the model. And the results are similar with those in column 1-4. Specifically, in column 5, the dependent variable is *Total dividend*, and the coefficient for *Treatment · Post* indicator variable is 0.00578 which is positive but not significant. In column 6, the dependent variable is *Dividend indicator*, and the coefficient for *Treatment · Post* indicator variable is 0.337 which is positive and significant at 1% level. In column 7, the dependent variable is *Dividend yield*, and the coefficient for *Treatment · Post* indicator variable is 0.0148 which is positive but not significant. In column 8, the dependent variable is *Dividend payout ratio*, and the coefficient for *Treatment · Post* indicator variable is 0.0233 which is positive and significant at the level of 10%. The signs of *Treatment · Post* are positive even if not always significant. As the result of column 1-4, the result of column 5-8 is in general consistent with the hypothesis 1 that stock liquidity increase due to the reform results in larger dividend after controlling for a series of financial variables. The reason for the insignificance of the result may be attributed to limited sample size.

The diff-in-diff method adopted in this section shows that the result in section 3.2.1 are robust, which means our result of dividend increase after the Split Share Structure Reform

¹² See the column 1 of Table 2, Panel A-D.

is driven by stock liquidity increase due to the reform rather than other firm-specific time variant factors.

Table 7
Alternative specification

	(1) <i>Total dividend</i>	(2) <i>Dividend indicator</i>	(3) <i>Dividend yield</i>	(4) <i>Dividend payout ratio</i>	(5) <i>Total dividend</i>	(6) <i>Dividend indicator</i>	(7) <i>Dividend yield</i>	(8) <i>Dividend payout ratio</i>
<i>Treatment</i>	0.00535 (0.30)	0.0670 (0.91)	0.192 (0.93)	0.0123* (2.02)	0.0137 (0.76)	0.106 (1.28)	0.323 (1.41)	0.0125 (1.69)
<i>Post</i>	-0.00756 (-0.48)	-0.212* (-2.35)	0.0649 (0.29)	-0.00940 (-1.07)	0.00915 (0.53)	-0.141 (-1.47)	0.116 (0.51)	-0.00990 (-1.12)
<i>Treatment · Post</i>	0.0243 (1.29)	0.416*** (4.16)	0.0822 (0.31)	0.0242* (2.28)	0.00578 (0.28)	0.337** (3.18)	0.0148 (0.06)	0.0233* (2.13)
<i>Asset</i>	0.0289 (1.82)	0.186* (2.26)	0.844*** (4.09)	-0.00604 (-0.72)	0.0272 (1.53)	0.200* (2.08)	0.694** (2.85)	-0.00798 (-0.92)
<i>Sale</i>	0.00563 (0.55)	-0.0681 (-1.23)	0.249 (1.65)	0.00362 (0.49)	-0.000553 (-0.05)	-0.112 (-1.72)	0.117 (0.66)	0.000 (0.00)
<i>Equity</i>	0.00376 (0.29)	-0.00583 (-0.10)	-0.585*** (-3.90)	0.00825 (1.83)	0.0109 (0.75)	0.0271 (0.41)	-0.362* (-2.04)	0.0157** (2.60)
<i>ROA</i>	1.116** (3.18)	4.096** (2.79)	7.366 (1.90)	-0.201 (-1.37)	1.021* (2.20)	5.142* (2.59)	4.051 (0.75)	-0.394 (-1.61)
<i>ROE</i>	-0.0275 (-0.21)	-0.218 (-0.32)	-0.740 (-0.49)	-0.133 (-1.83)	-0.0873 (-0.45)	-0.902 (-0.94)	-0.00171 (-0.00)	-0.0448 (-0.41)
<i>ROS</i>	-0.175 (-1.79)	-0.585 (-1.25)	-0.616 (-0.45)	-0.000523 (-0.01)	-0.149 (-1.26)	-0.830 (-1.46)	-1.100 (-0.71)	-0.0351 (-0.60)
<i>Book leverage</i>	-0.111** (-2.72)	-0.240 (-1.24)	-2.884*** (-5.18)	-0.0511 (-1.72)	-0.0751 (-1.42)	-0.0799 (-0.30)	-2.572*** (-3.49)	-0.0658 (-1.53)
<i>Market leverage</i>	0.533 (0.47)	7.060 (1.70)	21.09 (1.74)	0.793 (1.74)	0.811 (0.68)	7.784 (1.51)	22.40 (1.68)	1.047 (1.80)
<i>Intercept</i>	-1.222 (-1.10)	-9.036* (-2.30)	-33.56** (-2.90)	-0.791 (-1.89)	-1.333 (-1.15)	-9.378 (-1.90)	-31.11* (-2.42)	-0.934 (-1.75)
Year and Industry FE	No	No	No	No	Yes	Yes	Yes	Yes
Number of observations	491	491	491	491	491	491	491	491
Adjusted R-squared	0.239	0.191	0.233	0.088	0.273	0.223	0.255	0.875

Four different proxies of dividend policy are treated as dependent variable. Specifically, $Total\ Dividend_{i,t}$ is total dividend per share for firm i in year t . $Dividend\ indicator_{i,t}$ is an indicator variable that equals 1 if firm i paid dividends in year t . $Dividend\ yield_{i,t}$ is total dividend per share divided by the price per share for firm i in year t . And $Dividend\ payout\ ratio_{i,t}$ is total dividend per share divided by earning per share for firm i in year t . The time of dividend issuance is defined as the announcement date. $Treatment_i$ is a dummy variable that equals 1 if firm i has experienced the share reform in year 2006. $Post_t$ is a dummy variable that equals 1 if observation is in year 2006. $Treatment \cdot Post$ is the interaction of $Treatment$ and $Post$. See Table 1, Panel A for definitions of all other variables. In all regressions, standard errors are adjusted for heteroscedasticity and within-cluster correlation among all observations belonging to the same firm. Column 5-8 introduce the year- and industry-fixed effects. Values of t -statistics are shown in brackets. ***, **, and * indicate significance at equal to or less than the 1%, 5%, and 10% levels, respectively.

4. Conclusion

In this section, we turn to the two questions we aim to answer for this paper. The first question is under different ownership structures of firms, which channel is more plausible? And the second question is which channel is more realistic in Chinese market?

1. The propensity and the level of dividend would decrease for firms with absolutely controlling shareholders after the liquidity increase due to the reform, which supports the wealth expropriation channel.

For the wealth expropriation channel, we hold the idea that the liquidity increase in the reform would lower the propensity as well as the level of dividend distribution. Specifically, we believe that before the reform, large non-tradable shareholders could take advantage of its monopolizing voting power to control the dividend distribution process and thus obtain private benefits at the expense of minority shareholders' interest by offering much higher level of dividend. However, when reform completed, the non-tradable shares became tradable at the secondary market, which may lead large shareholders to take more consideration of the influence of dividend policy on stock price. So, in the tradeoff of shareholders between benefits to expropriate corporate resources in the form of dividend and costs of stock price decrease by offering too much dividend and thus violating minority shareholders' interest, dividend may be lower relative to the pre-reform level.

2. The propensity and the level of dividend would increase for firms with multi relative controlling shareholders after the liquidity increase due to the reform, which supports the internal fund channel.

For the internal fund channel, we hold the idea that the liquidity increase in the reform would enhance the propensity as well as the level of dividend distribution. Specifically, we believe that since the dividend policy should be negotiated among shareholders, the largest one is difficult to control this process by himself and thus could not easily expropriate corporate resources at the expense of minority shareholders' interest before the reform. So if the firms had better performance as well as higher growth opportunities, the non-tradable shareholders were highly possible to keep a lower level of dividend and preserve the money

as internal fund for firm's future development. However, when firms completed reform, the fact that their non-tradable shares became tradable at the secondary market may induce them to care more about the effect of capital gain by offering relatively more competitive dividend policy. So, in the tradeoff of shareholders between benefits of capital gain due to higher level dividend and costs of less future development opportunity by not preserving much internal fund, the propensity and level of dividend may be higher relative to the pre-reform period level.

3. The propensity and the level of dividend would increase for firms with only minority shareholders after the liquidity increase due to the reform, which supports the agency problem channel.

For the agency problem channel, we hold the idea that the liquidity increase in the reform would enhance the propensity as well as the level of dividend distribution. Specifically, we believe that since the dividend policy should be negotiated among shareholders, which was costly and difficult to reach an agreement, the dividend policy was somewhat set by managers because of the strong incentive of the minority shareholders to be free-rider due to their un conspicuous preference for dividend. Due to incentives of managers to preserve money in order to enhance their control right and the non-tradability characteristic reducing the weight of stock price in evaluating managers' performance, firms were possible to keep a lower level of dividend and preserve quite a lot money. However, when the firm completed the reform, the fact that their non-tradable shares became tradable at the secondary market may induce them to care more about capital gain in manager evaluation. Since a suitable and relatively competitive dividend policy would have a positive effect on stock price, in the tradeoff of managers between benefits of much controlling right by preserving money and costs of lower performance-based compensation due to lower evaluation from the shareholder, the propensity and level of dividend may be higher relative to pre-reform level.

4. The propensity and the level of dividend would increase for Chinese market in general after the liquidity increase due to the reform, which supports the internal fund channel.

Since most of the A-share listed firms in Chinese stock market are firms with multi

relative controlling shareholders, we believe that the internal fund channel dominates for the market in general.

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