Bond Offerings in China:
The Role of Ownership[1]

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Abstract

This study appraises the value created by a bond offering in China, where high levels of state-ownership and insider-ownership raise concerns in the use of the proceeds. To estimate the impact of a bond issue on the firm's value, we apply an event-study methodology on a sample of 481 issues of 347 Chinese companies over the period 2009–2013. It turns out that state-ownership has a positive impact on the value of a bond offering for shareholders, which is consistent with an implicit guarantee of the issue by the state. For privately-owned companies, insider-ownership exerts a non-linear impact on the firm's value, supporting an aligning effect in the use of the proceeds. Overall, the study confirms the key role of ownership structure in Chinese firms.

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1. Introduction

In 2014, China's corporate bond market became the first in the world in term of issuance volume as a percentage of GDP.[2] In the meantime, Chinese governance standards remain radically different than those in Western economies (Morck and Yeung, 2014)The objective of this paper is to estimate the impact of Chinese firms' specific ownership features on the value added by a bond offering. This question is of prime interest in appraising China's rapidly expanding bond market. It is also of key interest for the development of corporate bond market in emerging economies in general, as governance and ownership patterns present in China are shared with the majority of emerging countries (Young et al. (2008)).

One of the most salient features of Chinese companies is state ownership with the state (central, or local government) being often the main shareholder in Chinese firms. Such ownership can exert an impact on the way the proceedings of the bonds are used by the management. On the one hand, it can result in inefficient, politically driven investment projects (Chen et al., 2011b). In that case, the bond issue may not enhance shareholders' value. On the other hand, debt issued by a state-owned firm is implicitly guaranteed by the state. This assumption is supported by recent statements from the Chinese planning agency (Reuters, 2015). Furthermore, state-owned enterprises (SOEs) have access to a special type of bonds, enterprise bonds. These bonds are used to fund national projects and are strongly backed by the government. Privileged access to investment projects and a state guarantee may therefore yield positive value for shareholders. Thus, the ultimate impact of a bond issue of a state-owned firm on the firm value remains uncertain.

Chinese listed firms are further characterized by strong ownership concentration and management shareholding (Gul, Kim and Qiu, 2010), both defined as insider ownership. These features may effectively reduce agency conflicts between insiders and shareholders by aligning their interests. However, it may also threaten minority shareholders with expropriation (La Porta et al., 2002). The majority shareholder or the management may expropriate proceeds from the bond issue and "tunnel" the funds out of the firm (Friedman, Johnson, and Mitton, 2003). Nevertheless this effect depends on the level of insider shareholding. At a low level of ownership, insiders may not be able to expropriate outsiders, whereas at high level of ownership, they may not be willing to decrease the firm value. Again, the ultimate impact of insider ownership on the valuation of a bond offering by outsider shareholders is uncertain.

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[2] Source: Global Financial Development Database 2016. The ranking excludes small countries with population less than 1 million.

We investigate the valuation effect of a bond issue with an event-study methodology. Using data on 481 bond issues of 347 issuers from 2009 to 2013, we measure the change in shareholders' value following a bond offering. We then examine if this change is due to state ownership, ownership concentration or management ownership.

We therefore provide a twofold contribution to the literature. First, we contribute to the burgeoning literature on Chinese corporate bond market by documenting the impact of a bond offering on the firm value. Pessarossi and Weill (2013) have examined the determinants of the choice between corporate bonds and syndicated loans, while Lin and Milhaupt (2016) use a network perspective to explore this market. Liu et al. (2016) have analyzed the stock market reaction following seasoned offerings including convertible bonds. Our work helps understanding the valuation effects of bond issues in China.

Second, we add an investigation to the wide literature on the influence of ownership structure of firms in China. A large bunch of studies have shown the influence of ownership on financing and investment decisions in China (e.g., Chen et al., 2006; Chen et al., 2011b; Fan, Huang and Zhu, 2013). We extend this literature by analyzing how ownership can affect the value created by a bond offering. We show how state-ownership exerts an impact on the firm value and distinguish among a positive effect generated by a state-guarantee of the bond and a negative effect due to politically-driven investments. We also demonstrate that the value created by a bond offering depend on the alignment of insiders and outsiders' interests. These results are of prime interest for the development of bond market in China and emerging economies in general.[3]

The remainder of the paper is organized as follows. Section 2 provides the background of the research question. Section 3 presents our hypotheses. Section 4 documents data and methodology. The results are reported in section 5. Section 6 concludes.

2. Background

The following brief overview describes the main characteristics of Chinese bond markets and Chinese firm's ownership characteristics.

2.1 Bond markets in China

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[3] See Eckbo, Masulis and Norli (2007) for a review.

Chinese bond markets emerged in the 1980s. The 1990s saw an expansion in bond issues, but bond defaults were common due to poor financial reporting and governance mechanisms. After the government bailed out a number of large state companies, it implemented stricter rules on bond market access through the National Development Reform Commission (NDRC). The government required that any corporate bond issue first needed NDRC clearance and set annual quotas on bond issues. It mandated that every issue be guaranteed in full and limited the use of money from a bond issue to fixed asset investment. The tough rules chilled China's bond market. Those left issuing bonds were largely state-owned enterprises (SOEs) – the very firms most likely to get bailed out or otherwise benefit from state favoritism.

The 2004 document "Some Opinions of the State Council on Promoting the Reform, Opening and Steady Growth of Capital Markets" stressed the need to better develop the bond market in order to provide companies with access to large-scale debt financing. In 2007, the issuance approbation process was divided between the NDRC and the China Securities Regulatory Commission (CSRC). The CSRC lifted several impediments to bond market development: annual quotas were eliminated, the People's Bank of China (PBoC) relinquished control of coupons, bank guarantees were no longer compulsory, and proceeds raised could be used for any reasonable purpose.

More recently, the PBoC has been preparing for the rollout of a market-based interest-rate scheme in anticipation of liberalized market-based interest-rate formation and the introduction of benchmark interest rates for policy guidance (PBoC, 2013). KPMG expects bond market growth to accelerate and increase its influence in the financial sector in coming years (KPMG, 2014).

These recent government measures have clearly helped boost the size of the corporate bond market, which reached a valuation of nearly $150 billion in 2013. Chinese companies today are the largest issuers of private bonds through private placement (Çelik, Demirtaş and Isaksson, 2015). The share of SOEs among issuers, despite NDRC favoritism, decreased from 70% in 2007 to 48% in 2009 (Chen, Mazumdar and Surana, 2011).

2.2. Ownership of Chinese Firms

Chinese firms are characterized by high levels of state-ownership, management ownership and ownership concentration.

State-ownership is widespread in China. According to Tian and Estrin (2008), in the

early 2000s, the state was the largest shareholder in 43.9% of Chinese companies. In 31.4% of the Chinese firms, the state detains more than 50% of the shares. These figures only account for direct ownership and Peng, Wei and Yang (2011) note that 80% of listed companies are SOEs and 70% of shares are held directly or indirectly by the state. State-ownership can be divided between central and local state-ownership. While central SOEs are directly owned by the central state and encompass among the biggest companies in the country, local SOEs are either hold by a region or a city.

Classification in terms of ownership can be related to firm performance. Chen, Firth, and Xu (2009) show that efficiency varies between privately-owned firms, central SOEs and local SOEs with central SOEs performing the best and privately controlled firms performing the worst. A quite recent development in state-ownership was the 2005 non-tradable shares reform which render public SOEs capital freely negotiable (see for instance Liu and Tian (2012). The trend toward privatization remains however progressive in China (Liao, Liu, and Wang, 2014).

A second common characteristic of Chinese firms is a highly concentrated shareholding. Allen, Qian and Qian (2005) highlight the fact that the state, business conglomerates or funding families hold most of the shares in listed firms. Indeed, not only do most listed firms possess a pyramidal structure, but Xiao and Zhao (2014) point out that 90% of all privately owned firms have pyramidal ownership structures.

Last, Chinese firms are characterized by high levels of management ownership (Chen et al., 2011a). As in other emerging countries, concentrated ownership usually leads to concentrated management ownership, the main owner being the CEO or an influential board member. Family companies also often appoint family members to the board, resulting in high management shareholdings

3. Hypotheses

In this section, we present some hypotheses on the value added by a bond offering for shareholders of Chinese firms. We start with hypotheses on the overall stock market reaction. We then focus on three characteristics of ownership in China: state ownership, concentration of ownership in the hands of the first shareholder, and management ownership.

3.1 Stock market reaction

Two competing hypotheses explain the reaction of stock market investors following the issue of a corporate bond.

In the first hypothesis, a bond issue generates a positive stock market reaction for two reasons. First, it provides a positive signal that helps solve adverse selection from information asymmetry between firm insiders and outsiders. High quality firms use debt issues, including bonds, to demonstrate their creditworthiness and low probability of default. Second, it reduces moral hazard behavior of managers, thereby helping lower agency costs from conflicts of interest between shareholders and managers. Debt financing puts pressure on managers to perform by restricting the amount of free cash flows at their disposal (Jensen, 1986). Greater debt means higher interest payment obligations and a greater probability of default if these obligations are not satisfied, so there is incentive for managers perform well and avoid bankruptcy.

Under the second hypothesis, in contrast, a decision to issue a bond leads to a negative stock market reaction for three reasons, which are all linked to higher debt loading. First, issuing a bond implies higher agency costs between shareholders and debtholders (Jensen and Meckling, 1976; Myers, 1977). Hence, it increases the cost of the debt for shareholders. Second, the issuance of new debt increases the firm's exposure to bankruptcy costs, which reduces the stock valuation of the company. Finally, issuance of a bond provides management with a large amount of cash that can be inefficiently invested if robust governance mechanisms are not in place (Myers, 2000).

Empirically, shareholder reactions to a bond issue show no distinct pattern and seem to depend on which effect dominates. Dann and Mikkelson (1984), Mikkelson and Partch (1986), and Eckbo (1986) find a negative but insignificant reaction, Chang et al. (2006) and Cai and Lee (2013) found a negative and significant reaction, while Miller and Puthenpurackal (2005), Chang et al. (2006) and Fungacova, Godlewski and Weill (2015) provide evidence of a positive valuation effect. We conclude from the empirical literature that no consensual finding has emerged for the stock market reaction following a bond issue. The reaction is governed by characteristics of the firm and the country where the issuance occurs.

No study we are aware of has investigated stock market reactions following Chinese bond issues, so we can offer no similar former studies to draw upon when tackling this particular question. We expect that stock market reactions should be positive in China because of the pronounced signaling role of bond issues. Here, four aspects of this signaling deserve mention.

First, constraints in the banking industry and the scarcity of bond financing means that most Chinese firms suffer from a lack of access to loan funding (Cousin, 2011). Firms that are able to tap into the bond market are demonstrating access to large-scale funding.

Second, bond financing sends a positive signal of regulatory approval. To secure a bond issue, the regulator requires the firm to submit to a strict administrative vetting, including a proof of three consecutive years of profitability prior to the bond issue. Thus, a bond issue is a regulatory acknowledgement that the issuer enjoys a degree of financial health.

Finally, bond market access tells something about the political relationships of firm managers. Liu and Tian (2010) demonstrate that political relationships play an important role in debt funding in China. Chen et al. (2011a) further observe that these relationships enable firms to extract rents and promote their investments. Hence, issuing a bond is a positive signal that the firm enjoys beneficial political relationships.

3.2 The influence of state ownership

The role of state ownership on the value created by a bond issue is uncertain. On the negative side, the fact of state ownership in itself may be sufficient to provoke a negative stock market reaction. Shirley and Walsh (2001), for example, have shown the lack of managerial incentives and harmful effects of political interference in state-owned firms. Wang and Judge (2010) also note that political objectives in China may prevent management from pursuing profit maximization strategies. Overall, state ownership seems to decrease firm efficiency and depress the value of Chinese companies (e.g. Tian and Estrin, 2008; Chen et al., 2011b).

On the positive side, SOEs enjoy preferential access to a specific type of bonds, enterprise bonds. Enterprise bonds are used to fund nation-wide investment projects, supported by the government. They are larger, more liquid and guaranteed by the state. Consequently, they provide large amounts of funds at low cost to shareholders. The National Development and Reform Commission (NDRC) has recently confirmed that the state will not let any bond issued by a SOE default (Reuters, 2015).[4] This feature should reduce the cost of funding for the firm and favor a positive stock market reaction.

We consider separately firms owned by the central government and those owned by local or provincial governments. Even if both types of firms are majority-owned by the state, differences could stem factors such as proximity to financial hubs or political connections.

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[4] There is no default for a bond issued by a SOE during the period of our study (2009-2013) in our sample.

The state may have greater incentives to protect central SOEs, because they can have an impact on the whole country and because the management has tighter relationship with the central power.

However empirical evidence has found that, even if state ownership may initially hurts a firm's valuation, the relation between state shareholding and firm value tends to be nonlinear, following a U-curve (Tian and Estrin, 2008). Under this view, a small government stake is off-putting to shareholders as it is seen as encouraging inefficient investment and wealth expropriation. A large government stake, in contrast, is seen as assuring safe investment opportunities, political subsidies, and easy access to funding (Pessarossi and Weill, 2013).

To investigate the impact of state as main shareholder, we use a dummy for SOEs. A value of one is assigned if the firm is owned by the state and a value of zero otherwise (*SOE*). We also use two dummy variables for central SOEs and local SOE. *Central SOE* gets a value of one if the firm is owned by the central state. *Local SOE* takes a value of one if a local government or province owns the firm. We follow the method of Pessarossi and Weill (2013) and use CSI thematic indexes to distinguish among SOEs (Central SOE or Local SOE).[5]

To investigate the impact of state shareholding, we use the percentage of shares owned by the state (*Government Stake*) and its quadratic term.

3.3 The role of ownership concentration

High ownership concentration of Chinese listed companies can influence the value created by a bond offering. Greater ownership concentration could favor firm value by fostering shareholder monitoring of firm managers. This also diminishes any free-riding problems that could impair shareholder control of managers.

However, La Porta et al. (2000) note that the influence of ownership concentration tends to evolve along with investor protections. In countries with weak investor protection, ownership concentration is likely to pose a threat to minority shareholders of abuse or expropriation (Shleifer and Vishny, 1997). Allen, Qian, and Qian (2005) find that corporate governance in China is significantly lower than most of the countries in La Porta et al. (1998) sample. Hence, there is an important risk of expropriation of bonds' proceeds by insiders in China. Specifically, when a main shareholder gains access to a large amount of cash (as when raised by a bond issue), minority shareholders are likely to suffer if the main shareholder

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[5] www.csindex.com.cn

"tunnels" the proceeds out of the firm (Johnson et al., 2000; Faccio, Lang and Young, 2009; Fong and Lam, 2014).

We expect an N-shaped relation between the shares hold by the main shareholder and stock market reaction after the bond issuance. With a small stake in the firm, it is difficult for the main shareholder to divert and appropriate company assets. Thus, the main shareholder must also aim at increasing firm value, thereby fully aligning his interests with other shareholders. With an increasing stake, the main shareholder's incentive to tunnel out the proceeds of the bond issue for private gains at the expense of minority shareholders increase only to a certain threshold. Above this threshold of ownership, the majority shareholder's interests again align with those of the minority shareholders. Indeed, a top shareholder's incentive for diverting firm value for private gain becomes counterproductive as it results in personal loss. At this point, Friedman, Johnson and Mitton (2003) show that the bond issue signals an implicit commitment from top shareholder to prop up the firm and not to tunnel out the proceeds.

To investigate the effect of main shareholding, we use the percentage of shares owned by the top shareholder (*Top Shareholder*) and also include the quadratic and cubic terms. We only compute *Top Shareholder* for private firms, since it corresponds to *Government Share* for SOEs.

We also consider ownership concentration with the Herfindahl index from the first to twentieth shareholder of the firm (*Herfindahl Ownership*). Other influential shareholders can mitigate the power of the top shareholder. Following Bai et al. (2004), they can prevent tunneling, closely monitor the management and facilitate takeovers in the case of poor performance. Thus, we expect that dispersed shareholding contributes to a positive stock market reaction to a bond issue because it mitigates the hampering behavior of a controlling shareholder.

3.4 The influence of management ownership

We consider the potential impact of management ownership on the value created by a bond issue. Management ownership is an effective way to resolve principal-agent conflicts by aligning management and shareholders incentives (Jensen and Meckling, 1976), but it still suffers from the same drawbacks as concentrated ownership. Management shareholders, who by their position are authorized to make financial decisions, can also tunnel resources out of the firm.

Thus, following the seminal work of Morck, Shleifer and Vishny (1988) and its extension by Davies, Hillier and McColgan (2005) and Ruan, Tian and Ma (2011), we assume a non-linear N-relationship between management ownership and the stock market's reaction to a bond issue.

As a general observation, a stake in the firm should provide a manager with an incentive to maximize value. Hence we expect an initially positive shareholder reaction to management shareholding. However, a high stake of management in the firm contributes to managerial entrenchment. Entrenched managers are better positioned than others for tunneling resources out of the firm for their private benefit. They can misuse the proceeds of a bond issue for their own sake and destroy shareholder value. As a consequence, we expect a negative relation between shareholder reaction and management shareholding above a low threshold. Above a higher threshold, the interests of managers realign with shareholder interests. Private gains they would benefit from tunneling or misusing resources become inferior to the benefits they obtain by maximizing firm value. The relation between shareholders' reaction and management shareholders is thus expected to be positive for high degree of management ownership.

To investigate this non-linear relation, we use the percentage of shares hold by managers (*Management Stake*) and its quadratic and cubic terms. We use the Bloomberg data on shares held by the management.

4. Data and methodology

The following discussion presents the data and describes the methodology used to compute abnormal returns.

4.1 Data

Our data on bond issues and issuers are taken from the Bloomberg Professional Server. We select issues during the period 2009–2013 to avoid the 2007 non-trading shares reform and the harshest impacts of the global financial crisis. We also exclude financial sector bond issues, and further restrict the sample to issues with original maturities over a year. The limitations allow us to focus on whether the issue significantly impacts shareholder perception of the firm's financial prospects. We focus on straight bonds, excluding convertible bond issues. For stock markets, we consider only A-shares listed on the Shanghai or Shenzhen stock exchanges.

The resulting sample encompasses 481 issues of 347 issuers. We distinguish between SOEs and privately owned enterprises (POEs). As explained above, we used the CSI thematic index composition to classify a firm as state or privately owned. We adopt this classification since the ultimate owner of a firm can be impossible to identify in China, due to pyramidal ownership. However few firms cannot be classified and are dropped from the sample. Table 1 displays the distribution of issues by year, industry, and type of firm. We observe an increase in bond issues over the period. SOEs represent the majority of issuers, even if issues by private firms increase over time.

Table 2 presents the main statistics for the issue variables. For the full sample, the average maturity is around 5 years, spanning from 2 to 13 years. Notably, some part of over 69% of the sample issues went to debt payment. The share of proceeds used to finance investment projects was relatively small; 77% of issues were dedicated to working capital funding. Overall, issues seem mostly to provide a large pot of cash for management rather than going to finance specific capital expenditures.

We explore the role of state ownership in China by comparing the issues made by SOEs and private firms. Most bonds' features are different between both groups. The bonds issued by SOEs are more than twice larger, with a longer maturity. They also pay a lower coupon, while they have the same (mandatory) issue price. Last, SOE bonds are less used to fund working capital and have fewer restrictive covenants. Overall, bonds issued by SOEs seem to be more trusted by investors and less costly for shareholders.

Table 3 displays the main statistics for the issuer variables. We observe a high profitability of firms with a mean EBITDA to assets greater than 7%. Again, we divide the sample between private and state-owned firms. We observe significant differences between both groups of firms. SOEs are larger, either in term of assets or sales. They have a better access to the debt, with a higher debt ratio, whereas their current ratio is lower. However, SOEs do not have higher profitability than private firms, which can be explained by the fact that all firms should be profitable to be allowed to access the bond market. Concerning ownership, private firms have higher management shareholding and more concentrated ownership with a higher Herfindahl Index. Last, private firms display high level of top shareholding, with a mean above 20% and a maximum reaching 73%.

4.2 Methodology

We use a standard event-study methodology to measure the stock market reaction to

bond issues[6]. We compute the abnormal return (AR) around the announcement date.[7] We use a market model for the expected return with the return of the stock defined as:

$$R_{i,t} = \alpha_i + \beta_i.R_{m,t} + \varepsilon_{i,t}, \tag{1}$$

where $R_{i,t}$ is the daily return of the share price of company i on day t. Returns are computed as $R_{i,t} = \frac{P_{i,t}-P_{i,t-1}}{P_{i,t-1}}$ with $P_{i,t}$ the closing price of the share i on day t. $R_{m,t}$ is the market return.

We use the CSI A300 index, which is based on the A-shares of the 300 largest companies listed on the Shanghai and Shenzhen stock markets. This index provides a broad view of market return on Chinese A-shares. It is also consistent with our sample; i.e. firms that issue bonds tend to be large firms. $\alpha_{i,t}$ and $\beta_{i,t}$ are parameters to be estimated through the OLS regression. We use an estimation period of 110 working days from 130 days to 21 days before the issue.[8] Ultimately, $\varepsilon_{i,t}$ consists in the abnormal return over the estimation period, with $E[\varepsilon_{i,t}] = 0$ and $Var[\varepsilon_{i,t}] = \sigma_i^2$.

Thereafter, we compute the abnormal return around the event date:

$$AR_{i,t} = R_{i,t} - E[R_{i,t}] = R_{i,t} - (\hat{\alpha}_\iota + \hat{\beta}_\iota.R_{m,t}). \tag{2}$$

We then compute the Cumulative Abnormal Return (CAR) over several windows from two days before the event to two days after. We use three symmetric windows ([0,0], [-1,-1], and [-2,-2]) and two asymmetric windows ([-2,1] and [-1,2]). We also use a wider window from five days before the announcement to five days after ([-5,5]). We compute the CAR for each window:

$$CAR_i(\tau_1,\tau_2) = \sum_{\tau=\tau_1}^{\tau_2} AR_{i,\tau}, \tag{3}$$

where τ_1 is the first day of the window and τ_2 the last day. We then compute the average CAR across companies:

$$\overline{CAR}(\tau_1,\tau_2) = \frac{1}{N}\sum_{i=1}^{N} CAR_i(\tau_1,\tau_2). \tag{4}$$

To test the significance of abnormal returns, we follow two complementary approaches to control for event-induced variance. First, we compute a cross-sectional statistic considering only the variance within the event. This involves dividing the average CAR by its cross-

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[6] See e.g. MacKinlay (1997) for a review.
[7] We use the announcement date to study the corporate bond issuance in line with former literature (e.g., Liu et al., 2016). Eckbo (1986) has shown that the announcement date is the most appropriate date for such studies since it is the definitive date.
[8] We only keep companies with 80% of trading days over the estimation period so that we have only companies with liquid stocks in the sample. To test liquidity, we have only performed estimations including a liquidity measure, the proportion of zero return days over the year before the bond issuance following Bekaert, Harvey and Lundblad (2007). We observe that the main findings remain unchanged.

sectional standard deviation over the observation period:

$$\theta_{(\tau_1,\tau_2)}^{CS} = \frac{\overline{CAR}(\tau_1,\tau_2)}{\sqrt{[\frac{1}{N-1}\sum_{i=1}^{N}(\overline{CAR_i}(\tau_1,\tau_2)-\overline{CAR}(\tau_1,\tau_2))]^2}} \quad . \tag{5}$$

We next compute Boehmer, Masumeci, and Poulsen's standardized cross-sectional statistic (Boehmer, Masumeci and Poulsen, 1991) which combines variance over the estimation period and within the event period. We first obtain the variance of abnormal returns over the estimation period:

$$\sigma_i^2(\tau_1,\tau_2) = (\tau_2 - \tau_1 + 1).\sigma_{i,AR^e}^2 \ . \tag{6}$$

With AR^e the abnormal return over the estimation period, the CAR of each company is standardized by the standard deviation of abnormal returns over the estimation period. This provides the standardized cumulated abnormal return (SCAR):

$$SCAR_i(\tau_1,\tau_2) = \frac{CAR_i(\tau_1,\tau_2)}{\sqrt{(\tau_2-\tau_1+1).\sigma_{i,AR^e}^2}} \ . \tag{7}$$

The standardized cross-sectional statistic is then obtained by dividing the cross-sectional average SCAR over its cross-sectional standard deviation during the event period:

$$\theta_{(\tau_1,\tau_2)}^{BMP} = \frac{\frac{1}{N}\sum_{i=1}^{N} SCAR_i(\tau_1,\tau_2)}{\sqrt{[\frac{1}{N-1}\sum_{i=1}^{N}(SCAR_i(\tau_1,\tau_2)-\frac{1}{N}\sum_{i=1}^{N} SCAR_i(\tau_1,\tau_2))]^2}} \quad . \tag{8}$$

Finally, we perform a sign test on the median to test if the results are not led by a skewed distribution.

Having computed our CARs, the second part of the analysis considers CAR determinants. Here, we perform OLS regressions with clustered standard errors at the issuer level. Our dependent variable is the CAR computed on a [-1,1] event window.

In addition to tested determinants on ownership, we include control variables to take into account characteristics of issuance and issuer. We consider three issuance characteristics: the logarithm of *Amount Issued*, the logarithm of *Maturity* and the *Coupon*. We also take into account five issuer characteristics: size (log of *Sales*), market valuation (*Market-to-Book*), leverage (*Debt-to-Assets*), financial health (*Current Ratio*), and profitability (*Ebitda-to-Assets*). We therefore control notably for profitability and risk of the issuing firm. We include dummy variables for years and sectors.[9] All variables are described in the Appendix A.1 while Appendix A.2 reports the correlations between all variables used in the analysis.

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[9] We also tested the inclusion of monthly dummies and of quarterly dummies in the estimations. Results remain unchanged.

5. Results

We begin this section with the univariate results of the event study for the stock market reaction to the announcement of a bond issue. We then provide our multivariate estimations. The section ends with a discussion of our robustness checks.

5.1 Univariate results

Table 4 displays summary statistics for cumulative abnormal returns around bond announcements for a variety of event windows. Looking at the full sample, it is clear that CARs are positive and significant for all event windows with the exception of [0,0]. Hence, the results support a positive stock market reaction to bond announcements in China. This conclusion accords with the view that debt is perceived as a positive signal for stock market investors. The issue may signal that the firm has access to valuable investment projects and is able to secure large-scale funding. In the case of China, a bond issue is especially good news because the bonds are implicitly guaranteed by the state, providing the firm with a low cost of funding. Moreover, the issue signals that the firm has the political relays necessary to issue a bond and to conduct investments using these relations.

Second, this positive reaction may stem from the positive effect of a bond issue on agency costs. As Chinese firms are characterized by a concentrated ownership, a bond issue may align the interests of insiders and outsiders and lower the risks of expropriation.

Our conclusion of a positive stock market reaction can be related to the finding of Liu et al. (2016) in their analysis of the impact of seasoned offering issues on market valuation: they find a positive stock market reaction following convertible bond offerings.

To estimate the role of state ownership, we next analyze to see if this finding stands for all ownership types or whether form of ownership influences stock market reaction. If the role of the state, through an implicit guarantee of the bond or political relations, explains the positive stock reaction, we should especially observe it for SEOs. Examine CARs for SOEs (both central and local) and POE, we find that the CARs are only significantly positive for SOEs (and not significant for POE). However, the difference between SOEs and Private firms is not significant. We then break down our SOE result by considering separately central SOEs and local SOEs. Here, we observe that the stock market reaction is only significantly positive for central SOEs (again, the differences between categories are not significant either in mean or median).

The finding of a positive stock market reaction only for SOEs can be interpreted with three explanations. First, bonds issued by SOEs are of better quality for the valuation of companies. The observed differences in the characteristics of bonds issued by SOEs and by private firms support the interpretation of the finding. Bonds issued by SOEs are less costly, less used for working capital purposes and entail less restrictive covenants for shareholders. A second explanation is the use of the proceeds. Because the bonds issued by SOEs benefit from a political support and are used for state investments, they are more likely to be profitable for shareholders. Last, SOEs shareholders are not exposed to the default of the bond. Because there is an explicit guarantee of SOEs bonds by the state, the probability of default is quasi null. Hence, a bond issue is a risk-free funding for a SOE and its shareholders.

The result that local SOEs do not exhibit such a positive reaction can be explained through the comparison of the characteristics of central and local SOEs issues and issuers. In this aim, Table 5 provides the comparison of statistics for both groups of SOEs. We observe major differences between both groups. First, issues made by central SOEs are larger, of longer maturity, and less costly with a significant lower coupon. Therefore these differences in terms of issue quality help explaining the difference in stock market reaction. However, unlike private firms, the proceeds of both local and central SOEs are used for similar purposes and they do not have different level of restrictive covenants.

Second, when considering issuers' features, central SOEs are larger than local SOEs. Central SOEs also have a larger government share than local SOEs, which implies that the state is more concerned by the former firms. Hence, central SOEs may have access to better investment projects and benefit from a stronger state guarantee on their debt. Thus, the positive reaction for central SOEs can overall be attributed to issues of better quality as well as a higher government stake in the firm, which may provide better investment projects and a stronger state guarantee.

We now turn to the multivariate analysis to isolate the role of issue's and issuer's features from ownership characteristics.

5.2 Multivariate results

In our regressions of cumulative abnormal returns, the dependent variable is the cumulative abnormal return over the [-1,1] event window. We do this for two reasons. First, we want to check if the finding for positive stock market reaction for central SOEs is still observed when issue and issuer variables are included. Second, we want to see how ownership

and management characteristics influence the stock market reaction following a bond issue.

To test the hypotheses on state ownership, top shareholding, and management ownership, we perform three sets of regressions, which are reported in Tables 6 through 8. In each table, the same control variables for issue and issuer characteristics are included. Table 6 displays estimations on the role of state ownership. Table 7 provides estimations on top shareholding and shareholding concentration. Table 8 presents regressions on management ownership.

Table 6 presents five estimations to investigate the role of state ownership. The first and second column displays the results alternatively with *SOE* and *Central SOE* as the key variable so that we can refine our univariate results. We find that SOEs do not exhibit a higher stock reaction. However, the stock reaction for central SOEs is significantly different than for private firms and local SOEs. This result appears when controlling for issuance and issuer features, since we perform a multivariate approach. Hence, it is not the higher quality of issues which explains a better stock reaction, but the fact that the issuer is a central SOE. This finding supports both the hypotheses of a state guarantee of the bond and an access to more valuable investments because of stronger political links.

We explore further the role of state ownership by using the government stake in the firm instead of a dummy variable.[10] We test for a linear and a quadratic relationship with stock reaction. These estimations are displayed in the third and fourth column of Table 6. We find no evidence of a linear relation between the government share in the firm and the stock reaction: the variable *Government Stake* is negative but not significant. However, when testing the quadratic relation, we find that *Government Stake²* turns to be negative and significant, whereas *Government Stake* remains mute. Hence, there is a negative effect of state ownership onlywhen the state detains a large stake of the issuers' capital.

This concave relation is in opposition with our hypothesis of a U-shaped relation between government share and the stock reaction. However, there are some reasons to believe that this relation is not the same for SOEs and private firms. Whereas private firms may benefit from high share of state ownership thanks to the opportunities it provides, state-owned firms may be harmed by excessive state ownership, because of political and bureaucratic interferences. We therefore allow for a different relation between *Government Stake* and the stock reaction between private firms and *SOEs* by adding an interaction term to our model in the fifth

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[10] We have also investigated whether *Government Stake* influences the probability for a company to issue a bond with a logit estimation. We do not observe any relationship, suggesting that the percentage of shares held by the State does not exert an impact on the probability to issue a bond.

column of Table 6. *Private×Government Stake* and *Private×Government Stake²* are the interaction terms between *Private* (a dummy variable equal to one if the firm is a POE) and *Government Stake*. Both interaction terms inform on the relation between government stake and abnormal returns for private firms. Consequently, *Government Stake* and *Government Stake²* inform on this relation for SOEs, that is when the state is the main shareholder. The findings for this latter specification support our hypothesis of a different relation between government share and abnormal returns for SOEs and for private firms. Private firms do not exhibit a U-shaped relation and the coefficients are not significant. State-ownership does not have an effect on the reaction to a bond issue for privately owned firms.

The absence of significance for control variables support a lack of heterogeneity in issuance and financial characteristics, a finding consistent with highly regulated bond markets. Because the CRSC only allows profitable firms to tap the bond market and strictly controls issuance characteristics, issuance and issuer characteristics do not appear to play a role in shareholder reactions. Instead, it is the proximity to the state which gives value to the offering.

Table 7 presents the estimations for the role of top shareholding on stock reaction of private firms. The sample only includes private firms, since the last specification of Table 6 already tests the role of top shareholding when the state is the main shareholder. The first column of Table 7 displays the results with *Top Shareholder*. We then add *Top Shareholder²* in the second column and also *Top Shareholder³* in the third column so that we consider a nonlinear relation. To take into account ownership concentration, we also include the Herfindahl index of shareholding concentration.

With the linear specification, we do not observe a significant effect of *Top Shareholder*. This conclusion does not change when we account for a non-linear specification. When we test for a quadratic relation, both *Top Shareholder* and *Top Shareholder²* are not significant. Last, when we test for a cubic relation, only *Top Shareholder²* is significantly negative.

Overall, there is no evidence of an impact of top shareholding on the stock reaction to a bond issue. The only significant coefficient is *Top Shareholder²* in the cubic relation. However, it falls short providing a sufficient piece of evidence.[11] Hence, we conclude that ownership concentration in general does not exert an impact on the reaction to a bond issue. A specific case of ownership concentration, which is widespread in China, is management shareholding. We now turn to this specific issue of Chinese firms.

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[11] When we define *Top Shareholder* as the share of the three top shareholders and redo the estimations, the results are similar and the coefficients are not significant.

Table 8 provides the estimations for management ownership with *Management Stake* as the key variable. We subsequently test a linear, quadratic and cubic relation with shareholders' reaction to the bond issue in the three specifications by considering first only *Management Stake* and then by adding incrementally the squared term and the cubic term.

We find that *Management Stake* is not significant in the first specification, while neither *Management Stake* nor *Management Stake²* are not significant in the second specification. However we obtain results confirming our hypothesis with the cubic specification: we observe significant coefficients that are positive for *Management Stake* and *Management Stake³*, and negative for *Management Stake²*. These results imply the existence of an N-curve for the relation between management ownership and stock market reaction in line with our hypothesis on tunneling and management ownership. They show that the relation between shareholder value and management ownership follows a non-linear relationship as reported by Morck, Shleifer and Vishny (1988) for firm value. The results also support the view that bond issues are not necessarily associated with fear of tunneling or propping. Shareholder expectations depend on the size of management holdings in the firm.

Figure 1 draws the marginal effect of *Management Stake* on the stock reaction. The N-shaped relationship is observed with 12.07% and 41.84% as turning points (first partial derivatives of CAR[-1;1] with respect to *Management Stake* equals zero). It appears that interests of management and shareholders in a bond issue are initially aligned (up to 12% of management ownership). Shareholders expect management to use the proceeds of the issue in a manner consistent with their own interests. However, as the size of the stake held by management expands and cross 12% of the shares, shareholders expect a divergence from their own interests. Since bond issues provide large cash flows to management, they fear the proceeds may be misused and diverted to non-productive investments or tunneled out the firm. Finally, when stake held by management reaches a certain size (exceeds 41%), the interests of shareholders and management appear to realign. Above this threshold, an increase in the management stake improves the stock reaction.

The predicted stock reaction in respect with the level of *Management Stake* becomes negative when the management holds between 29.48% and 51.38% of the shares. When looking at the sample of firms, we point out that only 5.38% of firms have a management stake ranging from 29.48% and 51.38% %. Hence the effect of management shareholding is positive for the vast majority of firms.

To assess the robustness of the cubic specification and the estimated turning points, we

follow Morck, Shleifer and Vishny (1988) and Davies, Hillier and McColgan (2005) and perform a spline regression. To that end, we construct the three following variables based on the estimated turning points:

$$Low\ Insider\ = \begin{cases} Management\ Stake\ \text{if}\ Management\ Stake < 12.07 \\ 12.07\ \text{if}\ Management\ Stake > 12.07 \end{cases}$$

$$Medium\ Insider = \begin{cases} 0\ \text{if}\ Management\ Stake < 12.07 \\ Management\ Stake - 12.07\ \text{if}\ Management\ Stake > 12.07 \\ 41.84 - 12.07\ \text{if}\ Management\ Stake > 41.84 \end{cases}$$

$$High\ Insider\ = \begin{cases} 0\ \text{if}\ Management\ Stake < 41.84 \\ Management\ Stake - 41.84\ \text{if}\ Management\ Stake > 41.84 \end{cases}$$

Table 9 reports the results. The coefficients of the spline regression are all significant and their signs are consistent with the previous results. *Low Insider* and *High Insider* are positive and significant, which indicates that low and high-level of insider ownership increases the stock-market reaction. *Medium Insider* is negative and significant, consistent with the view that a level of management shareholding between 12.07% and 41.84% provokes a negative reaction.

5.3 Robustness checks

We check the robustness of our results by calculating abnormal returns with alternative indexes to compute expected returns. Our finding can be driven by the use of the stock market index. Specifically, we compute abnormal returns using CSI sector indexes in the expected return calculation. To accomplish this, we perform regressions of the return of each company on its sector index, relying on Morgan Stanley's Global Industry Classification Standard (GICS) classification.

Table 10 provides CARs with the new computations. We again observe a positive stock market reaction to bond announcements by SOEs, and more specifically, central SOEs. These results corroborate our main findings observed in the main univariate results.

Table 11 displays regressions with the new CARs. We use the CAR obtained with the [-1,1] event window as the dependent variable. We test the three main specifications of our explanatory variables. We obtain similar results for the role of central state ownership, government stake, and management stake. More precisely, we observe a positive effect of *Central SOE* and a quadratic relation between government share and the abnormal returns. We also find evidence of an N-shaped relation between management shareholding and stock market reaction.

However, we do not observe significant coefficients for the cubic specification of *Top Shareholder*, even if the sign of the estimates are similar. Hence, we qualify our results on the role of top shareholding.

In addition, we have performed the multivariate estimations for the subsamples of companies: state-owned companies, central state-owned companies, local state-owned companies, and private firms. The idea is to check if our main findings stand for these subsamples. Estimations are not presented here for space reasons.

We observe that the positive and significant coefficient of Central SOE is observed when estimations are only performed for the subsample of SOE, which confirms the robustness of our finding of a positive impact of central state ownership. We also find that the N-shape relation between shareholders' reaction and management ownership is observed when estimations are performed for subsamples of SOE and of private firms. Hence this finding supports the fact that the N-shape relation between stock market reaction and management ownership is not limited to one type of companies (private or state-owned).

6. Conclusion

This study examined the impact of bond offerings on Chinese firms' value. The expansion of corporate bond markets in the recent years has given rise to questions regarding the use and the impact of bonds as a means for large-scale corporate financing. Using an event-study methodology, we investigated how shareholders react to corporate bond issues and how much they value a bond offering. Our main findings are summarized below.

Bond issuance in China favors a positive stock market reaction. This key result supports the view that issuing a bond gives a positive signal to Chinese stock markets in line with the hypotheses on the signaling role of the bond.

Ownership structure of the firm is a key determinant of the value created by a bond issuance. First, our univariate results suggest that the positive stock market reaction only applies to central state-owned companies. Our multivariate analysis shows that central state-ownership increases the value of the firm when they access the bond market. We reject a negative effect of politically-driven investments and attribute this finding to the explicit state guarantee of the bonds issued by central SOEs, and the privileged access to investment projects.

We also find evidence of the role of manager ownership with a N-shaped relation

between shareholders' reaction and management ownership. Management ownership contributes to an increase in stock value following bond issuance when the management ownership is either less than 12% or more than 42% of the company. This result confirms the prime role of the alignment of interests between insiders and outsiders in China and the risk of expropriation outsiders are potentially facing.

These findings provide important insights on the role of ownership structure in China. Of particular relevance is the finding that investors attach value to state and management ownership. It underlines that China specific governance issues, stemming from its political organization and economic institutions exert an impact on the corporate bond market. We therefore open avenues for further research. Future projects could consider the identity of bondholders. Lastly, it would be important to identify political connections at the firm level to better understand the reaction.

Table 1

Distribution of sample issues

This table gives the composition of bond issues in the sample by year and sector (GICS classification). Private firms and state-owned enterprises are sorted according to CSI thematic indexes.

	Total	Private Firms	State-Owned Enterprises
Year			
2009	7	2	5
2010	26	4	22
2011	92	25	67
2012	198	77	121
2013	158	54	104
Industry			
Consumer discretionary	68	35	33
Consumer staples	18	12	6
Energy	25	8	17
Health	24	18	6
Industrials	150	34	116
Info tech	16	12	4
Materials	139	38	101
Telecoms	1	1	0
Utilities	40	4	36
Total	481	162	319

Table 2

Descriptive statistics: Issues

This table presents statistics for issues. *Amount Issued* are in millions of yuan, *Coupon* in percent, and maturity in years. *Debt Payment* and *Working Capital Funding* are dummy variables. *Debt Payment* equals one if the proceeds are used to repay debt and zero otherwise. *Working Capital Funding* gets a value of one if the proceeds are used to finance working capital and zero otherwise. *Restrictive Covenant* is a dummy variable that has a value of one if the issue includes covenants that impair shareholder flexibility. We test the mean and median differences between state-owned firms and private firms with a Student t-test and a non-parametric equality-of-median test respectively. ***, **, and * report the 1%, 5%, and 10% thresholds of significance.

	N	Mean	Median	Std. dev.	Minimum	Maximum
Full Sample						
Amount issued (M)	481	1574.636	800	2348.489	50	20000
Coupon	481	5.87	5.71	0.981	0	9.6
Maturity (years)	481	5.20	5.00	1.663	2.00	12.92
Debt Payment	481	0.69	1	0.465	0	1
Working Capital Funding	481	0.77	1	0.419	0	1
Restrictive Covenant	432	0.81	1	0.389	0	1
SOEs						
Amount issued (M)	319	1944.3***	1000***	2748.208	90	20000
Coupon	319	5.58***	5.55***	0.851	0	7.99
Maturity (years)	319	5.34***	5***	1.843	1.998631	12.91764
Debt Payment	319	0.67	1	0.472	0	1
Working Capital Funding	319	0.73***	1	0.443	0	1
Restrictive Covenant	277	0.78**	1	0.415	0	1
Private firms						
Amount issued (M)	162	846.73***	600***	849.638	50	6000
Coupon	162	6.42***	6.2***	0.982	4.2	9.6
Maturity (years)	162	4.93***	5***	1.192	2.997947	8
Debt Payment	162	0.72	1	0.449	0	1
Working Capital Funding	162	0.85***	1	0.356	0	1
Restrictive Covenant	155	0.88**	1	0.329	0	1

Table 3

Descriptive statistics: Issuers

The table presents statistics of issuers. *Sales* and *Total Assets* are in millions of yuan. *Top Shareholder* is the percentage owned by the first shareholder of a private firm. We test the mean and median differences between state-owned firms and private firms with a Student t-test and a non-parametric equality-of-median test respectively. ***, **, and * report the 1%, 5%, and 10% thresholds of significance.

	N	Mean	Median	Std. dev.	Minimum	Maximum
Full Sample						
Sales	432	52,680.41	6,621.47	239,639	254.26	2,786,045
Total Assets	432	60,911.41	11,772.41	204,654	485.26	2,342,110
Market-to-Book	429	2.10	1.69	1.449	0.37	11.85
Debt to Assets (%)	432	37.50	36.73	14.261	5.37	75.86
Current Ratio	432	1.50	1.25	1.098	0.21	8.45
Ebitda-to-Total-Assets (%)	431	7.38	6.87	4.248	-6.00	22.33
Management Stake (%)	320	5.87	0.02	13.406	0.00	69.31
Government Stake (%)	298	18.09	5.25	19.566	0.00	87.89
Herfindahl Ownership	432	926.54	695.68	960.048	0.00	7,724.78
SOEs						
Sales	276	77,873.44***	9,254.19***	296833.300	256.98	2,786,045
Total assets	276	89,064.53***	19,380.69***	251,576.000	1,319.70	2,342,110
Market-to-Book	275	1.74***	1.41***	1.140	0.37	10.16
Debt to Assets	276	39.34***	39.95***	14.643	5.37	75.63
Current Ratio	276	1.17***	1.11***	0.656	0.21	4.68
Ebitda to Assets (%)	275	7.43	6.89	4.305	-6.00	22.33
Management Stake (%)	175	0.51***	0***	2.522	0.00	25.83
Government Share (%)	142	36.68***	36.63***	11.737	15.66	87.89
Herfindahl Ownership	276	836.45***	463.45***	1,011.515	0.00	7724.78
Private firms						
Sales	156	8,108.13***	3,456.25***	15,160.570	254.26	104,962.30
Total assets	156	11,102.04***	6,243.09***	16,279.410	485.26	109,911.50
Market-to-Book	154	2.73***	2.33***	1.707	0.69	11.85
Debt to Assets	156	34.23***	31.96***	12.975	9.90	75.86
Current Ratio	156	2.07***	1.64***	1.439	0.40	8.45
Ebitda to Assets (%)	156	7.28	6.77	4.158	-3.82	21.83
Management Stake (%)	145	12.33***	1.15***	17.705	0.00	69.31
Government Share (%)	156	1.17***	0***	1.870	0.00	9.78
Herfindahl Ownership	156	1,085.94***	920.36***	841.182	0.00	5,386.91
Top Shareholder (%)	145	28.86	27.22	12.517	4.14	73.38

Table 4

Cumulative Abnormal Returns

This table presents cumulative abnormal returns (CARs) over six windows around the issue announcement date (t=0). We give CAR values for the entire sample and then break them down into subdivisions. Significance is investigated with a Student t-test with the cross sectional t-statistic (θ^{CS}) and Boehmer, Masumeci, and Poulsen's (BMP) statistic (θ^{BMP}). We use a sign test to test the significance of median and report its p-value. The last panel calculates the difference between SOEs and Private firms CARs. We use a t-test to assess the difference between mean CARs ($\theta^{D.CAR}$) and mean SCARs ($\theta^{D.SCAR}$) and use a nonparametric equality-of-medians test for the median. ***, **, and * report the 1%, 5%, and 10% thresholds of significance.

	N	$\overline{CAR}$	Negative CAR (%)	θ^{CS}	T>|θ^{CS}|	θ^{BMP}	T>|θ^{BMP}|	P Sign test
Full Sample								
[0,0]	481	0.045	55.08	0.56	0.58	0.83	0.41	0.03**
[-1,1]	481	0.270	47.40	1.89*	0.06	2.52**	0.01	0.27
[-2,2]	481	0.334	50.73	1.82*	0.07	2.1**	0.04	0.78
[-1,2]	481	0.308	51.77	1.92*	0.06	2.29**	0.02	0.47
[-2,1]	481	0.296	48.86	1.75*	0.08	2.24**	0.03	0.65
[-5,5]	481	0.492	49.90	1.79*	0.07	2.36**	0.02	1
SOE								
[0,0]	319	0.077	54.63	0.79	0.43	0.89	0.38	0.11
[-1,1]	319	0.280	45.45	1.64	0.10	2.09**	0.04	0.12
[-2,2]	319	0.355	50.47	1.58	0.12	1.63	0.10	0.91
[-1,2]	319	0.374	50.16	1.93*	0.05	2.04**	0.04	1
[-2,1]	319	0.261	46.39	1.28	0.20	1.63	0.10	0.22
[-5,5]	319	0.654	47.34	2.13**	0.03	2.45**	0.01	0.37
Central SOE								
[0,0]	108	0.128	50.93	0.82	0.42	1.39	0.17	0.92
[-1,1]	108	0.610	42.59	1.96*	0.05	2.2**	0.03	0.15
[-2,2]	108	0.642	49.07	1.74*	0.08	1.81*	0.07	0.92
[-1,2]	108	0.736	47.22	2.23**	0.03	2.22**	0.03	0.63
[-2,1]	108	0.516	44.44	1.48	0.14	1.79*	0.08	0.29
[-5,5]	108	1.175	44.44	1.95*	0.05	2.2**	0.03	0.29
Local SOE								
[0,0]	211	0.051	56.59	0.41	0.68	0.07	0.95	0.07*
[-1,1]	211	0.111	46.92	0.55	0.58	0.77	0.44	0.41
[-2,2]	211	0.208	51.18	0.73	0.46	0.59	0.56	0.78
[-1,2]	211	0.188	51.66	0.79	0.43	0.72	0.47	0.68
[-2,1]	211	0.131	47.39	0.52	0.61	0.59	0.55	0.49
[-5,5]	211	0.387	48.82	1.12	0.26	1.28	0.20	0.78
Private firms								
[0,0]	162	-0.019	55.97	-0.14	0.89	0.14	0.89	0.15
[-1,1]	162	0.251	51.23	0.96	0.34	1.4	0.16	0.81
[-2,2]	162	0.292	51.23	0.92	0.36	1.35	0.18	0.81
[-1,2]	162	0.179	54.94	0.63	0.53	1.05	0.30	0.29
[-2,1]	162	0.364	53.70	1.21	0.23	1.62	0.11	0.39
[-5,5]	162	0.174	54.94	0.32	0.75	0.69	0.49	0.29

SOE - Private firms	N	Diff. CARs	$\theta^{D.CAR}$	T>|$\theta^{D.CAR}$|	$\theta^{D.SCAR}$	T>|$\theta^{D.SCAR}$|	P Median test
[0,0]	481	0.096	0.56	0.57	0.46	0.65	0.46
[-1,1]	481	0.029	0.09	0.93	0.23	0.82	0.35
[-2,2]	481	0.063	0.16	0.87	0.00	1.00	0.97
[-1,2]	481	0.195	0.56	0.57	0.48	0.63	0.46
[-2,1]	481	-0.103	-0.28	0.78	-0.23	0.82	0.13
[-5,5]	481	0.480	0.77	0.44	0.75	0.45	0.13

Table 5

Local and Central SOEs

The table presents statistics of central and local SOEs issues and issuers. The variables are the same as in tables 2 and 3. We test the mean and median differences between central and local SOEs with a Student t-test and a non-parametric equality-of-median test respectively. ***, **, and * report the 1%, 5%, and 10% thresholds of significance.

	N	Mean	Median	Std. dev.	Minimum	Maximum
Panel A: Issues						
Central SOEs						
Amount issued (M)	108	3,363.98***	2,450***	4,060.316	200	20,000
Coupon	108	5.15***	5.11***	0.885	0	7.99
Maturity (years)	108	5.67**	5	2.108	3.00	12.92
Debt Payment	108	0.68	1	0.470	0	1
Working Capital Funding	108	0.73	1	0.445	0	1
Restrictive Covenant	94	0.74	1	0.438	0	1
Local SOEs						
Amount issued (M)	211	1,217.63***	840***	1,212.301	90	9500
Coupon	211	5.8***	5.7***	0.743	3.6	7.9
Maturity (years)	211	5.17**	5	1.671	2	10
Debt Payment	211	0.66	1	0.474	0	1
Working Capital Funding	211	0.73	1	0.443	0	1
Restrictive Covenant	183	0.8	1	0.403	0	1
Panel B: Issuers						
Central SOEs						
Sales	95	195,400.1***	47,942.92***	485,261.3	554.22	2,786,045
Total assets	95	211,005.1***	62,992.38***	401,011.7	2,823.34	2,342,110
Market-to-Book	94	1.47***	1.24***	0.797	0.51	4.31
Debt to Assets	95	39.04	39.85	16.922	5.37	75.63
Current Ratio	95	1.08*	1.1	0.578	0.21	2.71
Ebitda to Assets (%)	95	7.14	6.59**	4.104	-5.54	18.33
Management Stake (%)	48	0.38	0	1.725	0.00	10.87
Government Share (%)	36	40.79**	40.9	13.706	15.66	87.89
Herfindahl Ownership	48	1,463.19	1,263.89	1,305.874	15.95	7,724.78
Local SOEs						
Sales	181	16,188.19***	7509.73***	22,896.400	256.98	110,138.50
Total assets	181	25,062.56***	13,809.17***	27,353.640	1319.70	166,898.00
Market-to-Book	181	1.88***	1.57***	1.262	0.37	10.16
Debt to Assets	181	39.5	39.97	13.340	7.83	71.85
Current Ratio	181	1.23*	1.13	0.689	0.25	4.68
Ebitda to Assets (%)	180	7.58	7.22**	4.411	-6.00	22.33
Management Stake (%)	127	0.56	0	2.769	0.00	25.83
Government Share (%)	106	35.29**	34.98	10.706	15.73	62.53
Herfindahl Ownership	127	1,264.78	1,180.88	837.614	0.12	3,909.87

Table 6

Regression of cumulative abnormal returns on state ownership

The table presents the regression of CAR [-1,1] on issuance and issuer variables. Sectorial dummies and yearly dummies are included but not reported. Variances are clustered at the issuance level, with the t-statistic is reported in parentheses, and the F-statistic in brackets. ***, **, and * report the 1%, 5%, and 10% thresholds of significance.

	CAR[-1,1]				
SOE	-0.0190				-0.626
	(-0.05)				(-0.79)
Central SOE		0.679*			1.189**
		(1.66)			(2.22)
Government Stake			-0.00660	0.00455	0.0119
			(-0.65)	(0.37)	(0.54)
Government Stake²				-0.000548**	-0.000638***
				(-2.46)	(-2.70)
Private × Government Stake					-0.166
					(-0.55)
Private × Government Stake²					0.0280
					(0.66)
Amount Issued (log)	-0.157	-0.162	-0.0957	-0.0722	-0.0430
	(-0.62)	(-0.64)	(-0.31)	(-0.25)	(-0.15)
Maturity (log)	0.500	0.470	-0.241	-0.334	-0.353
	(0.93)	(0.89)	(-0.35)	(-0.48)	(-0.50)
Coupon (%)	-0.160	-0.108	-0.180	-0.173	-0.176
	(-0.85)	(-0.57)	(-0.82)	(-0.79)	(-0.80)
Sales (log)	-0.0204	-0.0842	-0.157	-0.169	-0.256
	(-0.15)	(-0.59)	(-0.83)	(-0.92)	(-1.33)
Market-to-Book	-0.101	-0.0962	-0.204*	-0.194	-0.182
	(-0.93)	(-0.91)	(-1.65)	(-1.59)	(-1.40)
Ebitda-to-Assets (%)	0.0443	0.0503	0.0943*	0.0764	0.0798
	(1.19)	(1.34)	(1.83)	(1.52)	(1.54)
Debt-to-Assets	-0.0134	-0.0130	-0.00876	-0.0118	-0.00616
	(-1.06)	(-1.04)	(-0.54)	(-0.72)	(-0.37)
Current Ratio	0.0315	0.0343	0.0989	0.110	0.0699
	(0.21)	(0.24)	(0.62)	(0.69)	(0.42)
Constant	8.100**	8.098***	11.28***	11.39***	12.10***
	(2.54)	(2.61)	(2.92)	(2.96)	(3.10)
N	477	477	318	318	318
Number of issuers (clusters)	344	344	246	246	246
R²	0.04	0.04	0.08	0.09	0.10

Table 7

Regression of cumulative abnormal returns on top shareholder

The table presents the regression of CAR [-1,1] on ownership variables. The key variable is *Top Shareholder*. Hence, the sample only includes private firms. Sectorial dummies and yearly dummies are included but not reported. Variances are clustered at the issuance level, with the t-statistic is reported in parentheses, and the F-statistic in brackets. ***, **, and * report the 1%, 5%, and 10% thresholds of significance.

	CAR[-1,1]		
Top Shareholder	-0.0813	-0.0520	0.211
	(-1.28)	(-0.75)	(1.10)
Top Shareholder^2		-0.00127	-0.00967*
		(-0.72)	(-1.75)
Top Shareholder^3			0.0000826
			(1.62)
Herfindahl Ownership	0.00103	0.00185	0.00157
	(1.08)	(1.09)	(0.88)
Amount Issued (log)	-0.521	-0.489	-0.523
	(-0.90)	(-0.85)	(-0.92)
Maturity (log)	-0.0268	-0.0513	-0.297
	(-0.02)	(-0.04)	(-0.22)
Coupon (%)	-0.218	-0.217	-0.287
	(-0.58)	(-0.59)	(-0.76)
Sales (log)	0.0751	0.0667	0.0218
	(0.20)	(0.18)	(0.06)
Market-to-Book	-0.0526	-0.0639	-0.0684
	(-0.35)	(-0.42)	(-0.44)
Ebitda-to-Assets (%)	-0.0294	-0.0356	-0.0269
	(-0.35)	(-0.41)	(-0.32)
Debt-to-Assets	-0.0319	-0.0329	-0.0339
	(-1.31)	(-1.35)	(-1.40)
Current Ratio	0.156	0.137	0.124
	(0.86)	(0.77)	(0.69)
Constant	15.05**	15.00**	14.97**
	(2.13)	(2.11)	(2.12)
N	149	149	149
Number of issuers (clusters)	128	128	128
R^2	0.15	0.15	0.16

Table 8

Regression of cumulative abnormal returns on management ownership

The table presents the regression of CAR [-1,1] on management ownership. Sectorial dummies and yearly dummies are included but not reported. Variances are clustered at the issuance level, with the t-statistic is reported in parentheses, and the F-statistic in brackets. ***, ** and, * report the 1%, 5%, and 10% thresholds of significance.

	CAR[-1,1]		
Management Stake	0.0148	-0.0236	0.236**
	(0.75)	(-0.37)	(2.23)
Management Stake^2		0.000811	-0.0126***
		(0.57)	(-2.88)
Management Stake^3			0.000156***
			(3.33)
Amount Issued (log)	-0.166	-0.161	-0.162
	(-0.56)	(-0.55)	(-0.57)
Maturity (log)	-0.301	-0.285	-0.314
	(-0.49)	(-0.47)	(-0.52)
Coupon (%)	-0.228	-0.206	-0.251
	(-1.13)	(-1.01)	(-1.25)
Sales (log)	-0.0605	-0.0619	-0.0625
	(-0.34)	(-0.35)	(-0.37)
Market-to-Book	-0.171	-0.172	-0.188
	(-1.39)	(-1.39)	(-1.52)
Ebitda-to-Assets (%)	0.0642	0.0630	0.0775*
	(1.42)	(1.40)	(1.72)
Debt-to-Assets	-0.00852	-0.00933	-0.00420
	(-0.59)	(-0.64)	(-0.30)
Current Ratio	0.0948	0.100	0.0978
	(0.58)	(0.63)	(0.62)
Constant	5.400	6.012*	5.913*
	(1.51)	(1.76)	(1.73)
N	349	349	349
Number of issuers (clusters)	258	258	258
R²	0.07	0.07	0.10

Table 9

Spline Regression

The table presents the regression of CAR [-1,1] on issuance and issuer variables. We define three variables for the spline regression, based on our parametric estimates. *Low Insider* = 12.07 if *Management Stake* > 12.07; *Low Insider* = *Management Stake* if *Management Stake* < 12.07; *Medium Insider* = 0 if *Management Stake* < 12.07; *Medium Insider* = (*Management Stake* - 12.07) if *Management Stake* > 12.07 & Management Stake < 41.84; *Medium Insider* = (41.84 - 12.07) if *Management Stake* > 41.84; *High Insider* = 0 if *Management Stake* < 41.84; *High Insider* = (*Management Stake* - 41.84) if *Management Stake* > 41.84. T-statistic is reported in parentheses. Sectorial dummies and yearly dummies are included but not reported. ***, **, and * report the 1%, 5%, and 10% thresholds of significance.

	CAR[-1,1]		
Low Insider	0.151**	0.162**	0.128*
	(2.24)	(2.36)	(1.80)
Medium Insider	-0.110**	-0.108**	-0.0948**
	(-2.37)	(-2.34)	(-1.99)
High Insider	0.225***	0.219**	0.214**
	(2.60)	(2.53)	(2.44)
Amount Issued (log)		-0.212	-0.147
		(-0.88)	(-0.48)
Maturity (log)		-0.186	-0.356
		(-0.28)	(-0.52)
Coupon (%)		-0.272	-0.226
		(-1.35)	(-1.05)
Sales (log)			-0.0693
			(-0.37)
Market-to-Book			-0.181
			(-1.28)
Ebitda-to-Assets (%)			0.0752
			(1.55)
Debt-to-Assets			-0.00507
			(-0.32)
Current Ratio			0.0788
			(0.43)
N	353	353	349
Number of issuers	261	261	258
R²	0.08	0.09	0.09

Table 10

Cumulative abnormal returns with sector indexes

The table presents cumulated abnormal returns (CARs) over 6 windows around the announce date (t=0). The market model is calibrated with sector indexes. Each firm stock return is regressed on the corresponding CSI sector index. Sectors are matched with Morgan Stanley's GICS classification. Significance is investigated through Student t-test with the cross sectional t-stat and Boehmer, Masumeci, and Poulsen's (BMP) statistic. We use a sign test to test the significance of median and report its p-value. ***, **, and * report the 1%, 5%, and 10% thresholds of significance.

	N	$\overline{CAR}$	Negative CAR (%)	θ^{CS}	$T>|\theta^{CS}|$	θ^{BMP}	$T>|\theta^{BMP}|$	P Sign test
Full Sample								
[0,0]	481	0.075	53.81	0.97	0.33	1.3	0.20	0.11
[-1,1]	481	0.299	51.56	2.16**	0.03	2.9***	0.00	0.52
[-2,2]	481	0.397	49.48	2.24**	0.03	2.51**	0.01	0.86
[-1,2]	481	0.361	50.31	2.31**	0.02	2.69***	0.01	0.93
[-2,1]	481	0.334	50.73	2.05**	0.04	2.59***	0.01	0.78
[-5,5]	481	0.538	48.02	2.01**	0.05	2.57**	0.01	0.41
SOE								
[0,0]	319	0.139	51.44	1.48	0.14	1.62	0.11	0.65
[-1,1]	319	0.382	48.90	2.43**	0.02	2.76***	0.01	0.74
[-2,2]	319	0.488	47.65	2.29**	0.02	2.2**	0.03	0.43
[-1,2]	319	0.508	47.02	2.79***	0.01	2.67***	0.01	0.31
[-2,1]	319	0.363	49.53	1.9*	0.06	2.17**	0.03	0.91
[-5,5]	319	0.795	46.39	2.68***	0.01	2.9***	0.00	0.22
Central SOE								
[0,0]	108	0.202	48.15	1.4	0.16	1.88*	0.06	0.77
[-1,1]	108	0.729	44.44	2.67***	0.01	2.81***	0.01	0.29
[-2,2]	108	0.814	39.81	2.42**	0.02	2.42**	0.02	0.04**
[-1,2]	108	0.901	43.52	3***	0.00	2.8***	0.01	0.21
[-2,1]	108	0.642	46.30	2.04**	0.04	2.38**	0.02	0.5
[-5,5]	108	1.248	42.59	2.22**	0.03	2.6**	0.01	0.15
Local SOE								
[0,0]	211	0.106	53.17	0.88	0.38	0.63	0.53	0.4
[-1,1]	211	0.205	51.18	1.07	0.29	1.13	0.26	0.78
[-2,2]	211	0.321	51.66	1.18	0.24	0.82	0.41	0.68
[-1,2]	211	0.306	48.82	1.34	0.18	1.08	0.28	0.78
[-2,1]	211	0.220	51.18	0.92	0.36	0.8	0.42	0.78
[-5,5]	211	0.563	48.34	1.63	0.10	1.55	0.12	0.68
Private firms								
[0,0]	162	-0.051	58.49	-0.38	0.71	-0.12	0.90	0.04**
[-1,1]	162	0.134	56.79	0.5	0.62	1.11	0.27	0.1*
[-2,2]	162	0.216	53.09	0.68	0.50	1.23	0.22	0.48
[-1,2]	162	0.072	56.79	0.24	0.81	0.85	0.40	0.1*
[-2,1]	162	0.278	53.09	0.9	0.37	1.42	0.16	0.48
[-5,5]	162	0.033	51.23	0.06	0.95	0.49	0.62	0.81

Table 11

## Regression of cumulative abnormal returns with sector indexes

The table presents the regression of CAR[-1,1] calculated with sector indexes. Sectorial dummies and yearly dummies are included but not reported. Variances are clustered at the issuance level. The t-statistic is reported in parentheses, the F-statistic in brackets.

	CAR[-1,1]		
Central SOE	1.236**		
	(2.19)		
Government Stake	0.00245		
	(0.20)		
Government Stake²	-0.000582**		
	(-2.51)		
Top Shareholder		0.158	
		(0.74)	
Top Shareholder²		-0.00719	
		(-1.18)	
Top Shareholder³		0.0000648	
		(1.17)	
Herfindahl Ownership		0.000934	
		(0.56)	
Management Stake			0.224**
			(2.12)
Management Stake²			-0.0118***
			(-2.65)
Management Stake³			0.000147***
			(3.05)
Amount Issued (log)	-0.164	-0.596	-0.199
	(-0.58)	(-1.10)	(-0.74)
Maturity (log)	-0.247	0.177	-0.217
	(-0.35)	(0.12)	(-0.36)
Coupon (%)	-0.168	-0.252	-0.283
	(-0.74)	(-0.65)	(-1.35)
Sales (log)	-0.166	0.174	-0.0635
	(-0.86)	(0.48)	(-0.39)
Market-to-Book	-0.218*	-0.162	-0.264**
	(-1.77)	(-0.93)	(-2.16)
Ebitda-to-Assets (%)	0.0776	-0.0377	0.0874*
	(1.41)	(-0.40)	(1.78)
Debt-to-Assets	-0.00477	-0.0424*	0.00311
	(-0.28)	(-1.66)	(0.21)
Current Ratio	0.139	0.139	0.122
	(0.66)	(0.55)	(0.59)
Constant	11.49***	13.62*	6.929**
	(3.10)	(1.95)	(1.99)
N	318	149	349
Number of issuers (clusters)	246	128	258
R²	0.09	0.16	0.10

Figure 1

Marginal Effect of Management Stake

The figure below draws the marginal effect of *Management Stake* on the predicted CAR[-1;1], based on results in Table 8. We display the value of the turning points (first derivative equals zero) and the local maximum and minimum (CAR[-1;1] equals 0). The blue area gives the 95% confidence intervals.
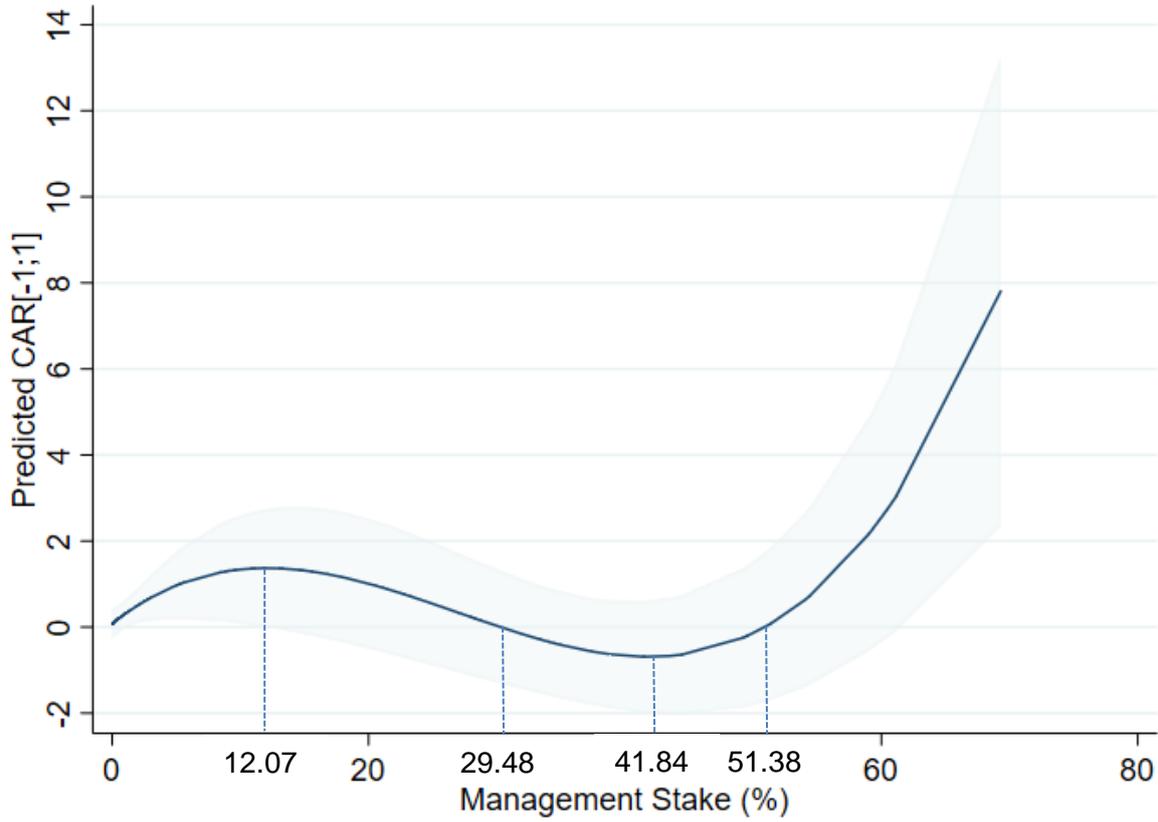
Appendix A.1: Description of the variables

The table below presents the variables. All the variables come from the Bloomberg Terminal, except for *SOE*, *Central SOE*, *Local SOE* and *Private* that are built using the CSI indexes classification.

Variable	Description
Amount issued	Bond amount issued, in million renminbi (RMB).
Coupon	Coupon of the bond, in percentage
Current Ratio	Current assets reported to current liabilities of the company.
Debt Payment	Dummy variable equals to one if the proceeds of the bonds are used for debt payment and zero otherwise.
Debt to Assets	Total (short-term and long-term) debt of the company on its total assets. In percentage.
Ebitda-to-Total-Assets	Earnings before interest, taxes, depreciation and amortization of the company on its total assets. In percentage.
Government Stake	Percentage of shares holds by the state.
Herfindahl Ownership	Sum of the squares of the percentages of shares hold by the 1st to the 20th shareholder of the company (from 0 to 10,000)
Management Stake	Percentage of shares holds by the management of the firm.
Market-to-Book	Stock value of the firm reported to the book value of its assets.
Maturity	Original maturity of the bond, in years.
Restrictive Covenant	Dummy variable equals to one if the issue include a covenant which limits the actions of the shareholders and zero otherwise.
Sales	Total value of the sales of the company, in million RMB.
Top Shareholder	Percentage of shares holds by the first shareholder of the firm.
Total Assets	Total value of the assets of the company, in million RMB.
Working Capital Funding	Dummy variable equals to one if the proceeds of the bonds are used to fund working capital and zero otherwise.
SOE	Dummy variable equals to one if the firm is classified as a state-owned enterprise in the *CSI SOEs* index; equals to zero otherwise.
Central SOE	Dummy variable equals to one if the firm is classified as a central state-owned enterprise in the *CSI State-Owned* index; equals to zero otherwise.
Local SOE	Dummy variable equals to one if the firm is classified as a local state-owned enterprise in the *CSI L SOEs* index; equals to zero otherwise.
Private	Dummy variable equals to one if the firm is classified as a privately-owned enterprise in the *CSI POEs* index; equals to zero otherwise.
Low Insider	*Low Insider* = 12.07 if *Management Stake* > 12.07; *Low Insider* = *Management Stake* if *Management Stake* < 12.07.
Medium Insider	*Medium Insider* = 0 if *Management Stake* < 12.07; *Medium Insider* = (*Management Stake* - 12.07) if *Management Stake* > 12.07 & Management Stake < 41.84; *Medium Insider* = (41.84 - 12.07) if *Management Stake* > 41.84
High Insider	*High Insider* = 0 if *Management Stake* < 41.84; *High Insider* = (*Management Stake* - 41.84) if *Management Stake* > 41.84

Appendix A.2: Correlations

The table below presents the correlation across the variables employed in the analysis.

	Government Stake	Top Shareholder	Herfindahl Ownership	Management Stake	Sales	Market-to-Book	Ebitda-to-Total-Assets	Debt to Assets	Current Ratio	Amount issued	Maturity
Government Stake	1										
Top Shareholder	0.02	1									
Herfindahl Ownership	-0.03	0.95	1								
Management Stake	-0.10	-0.01	0.03	1							
Sales	0.07	0.09	0.14	-0.09	1						
Market-to-Book	0.21	0.06	0.05	0.18	-0.17	1					
Ebitda-to-Total-Assets	0.07	0.09	0.08	0.12	0.11	0.36	1				
Debt to Assets	-0.19	0.16	0.15	-0.19	0.21	-0.20	-0.15	1			
Current Ratio	0.01	-0.07	-0.08	0.11	-0.41	0.08	0.04	-0.44	1		
Amount issued	0.03	0.14	0.15	-0.12	0.64	-0.19	-0.05	0.26	-0.22	1	
Maturity	-0.01	0.20	0.19	-0.11	0.03	-0.05	-0.01	0.12	0.06	0.27	1
Coupon	-0.19	-0.12	-0.15	0.02	-0.42	-0.06	-0.13	0.16	0.05	-0.34	0.07

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