BOFIT Discussion Papers
33 • 2015

Paul-Olivier Klein and Laurent Weill

Is it worth issuing bonds in China? Evidence from stock market reactions

Bank of Finland, BOFIT
Institute for Economies in Transition

BOFIT Discussion Papers
Editor-in-Chief Laura Solanko

BOFIT Discussion Papers 33/2015
15.12.2015

Paul-Olivier Klein and Laurent Weill: Is it worth issuing bonds in China? Evidence from stock market reactions

ISBN 978-952-323-083-5
ISSN 1456-5889 (online)

Suomen Pankki
Helsinki 2015

Contents

Paul-Olivier Klein and Laurent Weill

Is it worth issuing bonds in China? Evidence from stock market reactions

Abstract

There has been a considerable expansion of corporate bond markets in China in the recent years. The objective of this study is to examine the stock market reaction following bond issuance by Chinese companies. In addition to analyzing for positive or negative reactions to bond issues, we consider the influences of ownership and management characteristics on the stock market reaction. Applying an event-study methodology to a sample of 481 bond issues of 347 Chinese companies over the period 2009–2013, the univariate results show that Chinese bond issues typically generate a positive stock market reaction. The reaction is only significantly positive, however, in the case of central state-owned companies (as opposed to those owned by local or provincial governments). The multivariate results indicate that insider ownership influences stock market reaction to a bond issue, while management characteristics have no discernable impact.

JEL Codes: G14, P34.
Keywords: China, emerging markets, corporate bonds, event study.

Paul-Olivier Klein, orcid.org/0000-0003-2403-5980, University of Strasbourg.
Email: paul-olivier.klein@unistra.fr.

Laurent Weill, orcid.org/0000-0002-8630-1351, EM Strasbourg Business School, University of Strasbourg.
Email: laurent.weill@unistra.fr.

We thank Laura Solanko, Karlo Kauko, Yehning Chen, Esa Jokivuolle, Maria Semenova, Jouko Vilmunen and the participants at the seminar of Bank of Finland (October 2015) for their valuable comments and suggestions.

1 Introduction

The impressive growth in corporate bond issues suggests rapid evolution of China's financial system. The volume of bond issues rose from $3 billion in 2008 to nearly $150 billion in 2013 (Çelik, Demirtaş and Isaksson, 2015). Even so, the bond market provides only a tiny fraction of the external financing needs of Chinese companies. Outstanding domestic debt securities issued by non-financial corporate issuers corresponded to only 8.09% of GDP in 2013, while domestic credit extended to the private sector by banks was equivalent to 133.66% of GDP and market capitalization 44.93% (Eichengreen, 2015).

Here, we consider stock market reactions to bond issues of Chinese companies, information that should be useful in appraising China's rapidly expanding bond markets. Our starting assumption is that a positive stock market reaction to a bond issue encourages other firms to tap bond markets and thereby enhances overall access to funding. Correspondingly, when a firm encounters a negative stock market reaction, it could signal obstacles that might prevent other companies from making wider use of the bond markets.

The literature describes somewhat contradictory expectations on stock market reactions to a bond issue. In one view, stock market investors will react positively to a bond issue when it is perceived as putting pressure on the issuing firm to improve its governance. More specifically, issuing new debt helps align the interests of managers and shareholders (Jensen and Meckling, 1976), while the requirement of regular coupon payments limits the opportunities of managers for retention of free cash flows which can be misused by managers (Jensen, 1986).

Under the competing view, new debt increases the company's debt burden and its likelihood of bankruptcy. An excessive debt burden, in turn, may lead to underinvestment at the expense of shareholders (Myers, 1977). In this view, a bond issue should provoke a negative stock market reaction.

Empirical literature does not provide a clear consensus with some papers concluding to a positive reaction (Miller and Puthenpurackal, 2005; Fungacova, Godlewski and Weill, 2015) while others show a negative reaction (Chang et al., 2006, Cai and Lee, 2013) or no significant reaction (Mikkelson and Partch, 1986; Eckbo, 1986).

In any case, these papers deal with Western countries. As the question has never been broached for China, an analysis should be valuable in the general discussion, especially in light of the specific ownership features of Chinese firms and their governance mechanisms.

The state (central, provincial, or local government) is often the main shareholder in Chinese firms. State ownership can result in inefficient, politically driven investment projects (Chen et al., 2011b). Thus, a bond issue of a state-owned firm may not enhance firm value and generate a positive stock market reaction. Chinese listed firms are further characterized by strong ownership concentration (Gul, Kim and Qiu, 2010). This feature may effectively reduce agency conflicts between managers and shareholders, while threatening minority shareholders with expropriation (La Porta et al., 2002). As a consequence, the majority shareholder may expropriate proceeds from the bond issue and "tunnel" assets out of the firm (Friedman, Johnson, and Mitton, 2003).

To investigate the reactions of stock markets to corporate bond issues, we apply an event-study methodology to measure cumulative abnormal returns after bond issues. Using data on 481 bond issues of 347 issuers from 2009 to 2013, we determine the sign of the reaction of stock market investors. We then examine if the stock market reaction is influenced by state ownership, ownership concentration, and management characteristics.

The rest of the paper is organized as follows. Section 2 describes the Chinese financial markets in China. Section 3 presents our hypotheses. Section 4 documents data and methodology. The results are reported in section 5. Section 6 concludes.

2 Chinese financial markets

The following brief overview describes the main characteristics of Chinese bond markets and stock markets to provide the background for our research question.

2.1 Bond markets in China

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 Stock markets in China

When they were launched in 1991, the original role of Chinese stock markets was to assist in privatization of large SOEs. They subsequently assumed other roles and grew rapidly, however, with the market capitalization of Chinese stock markets hitting $10 trillion in mid-2015 (Bloomberg, 2015).

Regardless of whether a firm seeks listing on the Shanghai or Shenzhen stock exchange, four characteristics of the Chinese system inevitably come into play.

First, state capitalism dominates Chinese stock markets, with SOEs controlling large market shares in many branches of the economy. 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.

Second, Chinese firms are characterized by 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.

Third, the CSRC is responsible for the regulatory framework and its enforcement in Chinese stock markets. Any listing must be first approved with the CSRC. Peng, Wei and Yang (2011) point out that SOEs, quite understandably, tend to be favored in this process. They enjoy tight political connections and exploit the fact that the original purpose of Chinese stock markets was privatization of state companies.

Fourth, Chinese stock markets are marked by tight controls over profitability and bounded stock variations for listed companies. This regulatory framework, ostensibly aimed at stabilizing and strengthening Chinese stock markets, tends to favor profitable SOEs.

3 Hypotheses

In this section, we present some hypotheses on how Chinese stock markets might perceive a bond issue. We start with hypotheses on the overall stock market reaction and then focus on the influence of ownership and management characteristics on the stock market reaction.

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) investigate this issue on the US stock and bond market. They find a negative, but insignificant, reaction of shareholders to bond issues that is consistent with both the perceived benefits and drawbacks for shareholder value.

Chang et al. (2006) scrutinize stock market reaction around secured debt offerings and find a significant negative shareholder reaction. Cai and Lee (2013) confirm this result for the US stock market, performing a comprehensive study of the US bonds issues from 1970 to 2010. While they conclude in favor of a negative stock market reaction, their finding is only significant for speculative grade companies.

A handful of studies provide evidence of a positive reaction of shareholders. Miller and Puthenpurackal (2005) find a positive stock market reaction for US global bonds. Chang et al. (2006) show that shareholder reaction to a bond issue is likely to be positive for all bond grades during an economic downturn. Finally, Fungacova, Godlewski and Weill (2015) provide evidence of positive shareholder reactions in the European bond market.

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 in China 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, corruption and bank ownership characterize relations between Chinese banks and companies (Luo, Zhang and Zhu, 2011). This not only leads to inefficient bank lending (Bailey, Huang and Yang, 2012) but also poor monitoring of firm performance and the threat of minority shareholder abuse and expropriation. Overall, it generates a negative market reaction around the time of the bank loan announcement (Huang, Schwienbacher and Zhao, 2012). In this context, bondholders may provide a more effective monitoring than banks as they are less subject to bribery and conflicts of interest. This would favor a positive reaction of shareholders to a bond issue.

Third, 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 ownership

Ownership characteristics of the issuing firm can also influence the stock market reaction to a bond issue in China. This has both negative and positive implications.

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 exclusive access to enterprise bonds. Since enterprise bonds are larger, more liquid and guaranteed by the state, it also provides large amounts of funds at low cost to shareholders. This should produce 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.

We expect both central and local state ownership to have a negative impact on the stock market reaction following a bond issue as the proceeds can be used to achieve political targets rather than the maximization of firm value. In addition, as the monitoring of managers of state-owned firms may be driven by political motives, private shareholders may not see a debt issue as an effective way to align their interests with management interests.

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, 2001).

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).[1]

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

Second, ownership in the hands of top shareholders may influence stock market reactions. Chinese listed companies are characterized by high ownership concentration. Greater ownership concentration could favor firm value by fostering shareholder monitoring

[1] www.csindex.com.cn

of firm managers. This also diminishes any free-riding problems that could impair shareholder control of managers.

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).

Furthermore, 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 "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 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.

Third, we consider insider ownership. In emerging countries, concentrated ownership usually leads to concentrated insider ownership, the main owner being the CEO or an influential board member. Family companies often appoint family members to the board, resulting in high insider shareholdings (Chen et al., 2011a). Insider 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. Insider 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 insider 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 insider 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 insider 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 insider shareholders is thus expected to be positive for high degree of insider ownership.

To investigate this non-linear relation, we use the percentage of shares hold by insiders (*Insiders' Shares*) and its quadratic and cubic terms. We use the Bloomberg data on shares of manager insiders.

Fourth, we consider the influence of business groups. Such groups are common in the shareholding of Chinese firms (Xiao and Zhao, 2014), and more generally in emerging markets (Khanna and Yafeh, 2005; Young et al., 2008). Business groups create pyramidal ownership which facilitates expropriation of minority shareholders (Faccio, Lang and Young, 2001), notably through related party transactions within the group (Johnson et al., 2000). We expect pyramidal ownership to negatively affect the reaction of shareholders to a

bond issuance. To measure business groups' effects, we generate a dummy variable *Parent* equal to one if the firm has at least one parent and zero otherwise.

3.3 The influence of management

Management may seek to influence stock market reaction after a bond issue, because it places a large amount of cash at the disposal of managers. We examine several features of management.

First, we take into account entrenchment of the board. Insider ownership can be seen as a part of the larger issue of entrenched management. Entrenched management may diminish firm value through earnings management, diverting wealth, or supporting nonperforming investment projects (Chang and Zhang, 2013). Entrenchment may also lead to misuse of bond issue proceeds in ways that are detrimental to shareholder value.

We use two variables to measure entrenchment of the board. The first variable is *CEO Duality*, i.e. the conflict of interest that arises when a CEO is also the board chairman. In this case, the CEO's entrenchment is secured by the fact that he encounters little or no board opposition to his choices. Thus, he can easily divert bond's proceeds and we expect a negative reaction of shareholders. We expect stock market reaction further to a bond issuance to be worse for firms with CEO duality. To measure CEO duality, we use a dummy taking one if the firm has the same person appointed as chairman of the board and CEO and zero otherwise (*CEO Duality*).

Our other variable is the proportion of independent board members (*Independent Directors*). In 2001, the CSRC imposed guidelines that required independent directors to be included on the boards of listed companies. Independent directors were required to meet strict qualifications and demonstrate independence (e.g. not hold another position in the company, have no relative that is a board member or shareholder, not be among the ten top shareholders). Jaggi, Leung and Gul (2009) find that a negative relation between the number of independent directors and earnings management in Hong Kong stock market has a negative effect on board entrenchment and leads to better monitoring. Conyon and He (2014) find that privately owned firms with more independent directors are more likely to replace their CEO after an episode of poor performance. Since a well-monitored board reduces the risk of misappropriation of bond proceeds, we expect a positive relationship between the share of independent directors on board and the shareholder reaction to a bond issue. We

further expect stock market reaction to a bond issue to be positively influenced by a higher proportion of independent directors on the board (*Independent Directors*).

The second feature we consider is board compensation; specifically, performance-related compensation designed to align board interests with shareholder interests. For instance, Fortin et al. (2014) find a positive effect of performance-focused compensation implemented by the SEC on shareholder stock returns. In China, Conyon and He (2014) and Chen, Li and Liang (2009) find a positive relationship between executive compensation and China's publicly traded firms, consistent with an alignment effect. Thus, we expect a positive link between board compensation and stock market reaction to a bond issue. The measure here is total board compensation in a given year in thousands of yuan (*Board Compensation*).

Finally, we expect the impact of management variables to be related to the top shareholder's share and the shareholdings of insiders. If top shareholder or insiders concentrate ownership in their hands, decisions are directly taken by shareholders and do not depend on board characteristics. In this case, management variables are mute. In contrast, when there is no top shareholder or if insider shareholding is low, we expect management characteristics to affect shareholder reactions. To investigate this relation between management characteristics and shareholding, we generate two dummy variables. *Low Top1*, equal to 1 if the main shareholder's share is below the median of the sample and 0 otherwise, and *Low Insider*, equal to 1 if insider shares are below the median of the sample and 0 otherwise. We then interact these dummy variables with management characteristics.

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 next distinguish between SOEs and privately owned enterprises (POEs). Firms that cannot be classified 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 1 Distribution of sample issues

	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

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.

Table 2 presents the main statistics for the issue variables. The average maturity is around 5 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.

Table 2 Descriptive statistics: Issues

	N	Mean	Median	Std. dev.	Minimum	Maximum
Amount issued (M)	481	1574.636	800	2348.489	50	20000
Issue price	481	99.90	100	2.280	50	100
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
Big4	481	0.14	0	0.344	0	1

This table presents relevant issue data. Amounts are in millions of yuan, issue price and 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. *Big4* is a dummy variable that takes a value of one if the lead manager of the bond issue is one of China's "Big Four" state-controlled banks.

Table 3 displays the main statistics for the issuer variables. We observe a high profitability of firms with a mean EBITDA greater than 7%. In terms of ownership, the first shareholder owns on average 30% of shares. CEO duality is fairly uncommon; only 21% of firms have CEOs also serving as the chairman. Independent directors, on the other hand, account for 37.5% of the board members of issuing firms.

Table 3 Descriptive statistics: Issuers

	N	Mean	Median	Std. dev.	Minimum	Maximum
Sales	432	52680.41	6621.47	239639	254.26	2786045.00
Total assets	432	60911.41	11772.41	204654	485.26	2342110.00
Market-to-book	429	2.10	1.69	1.449	0.37	11.85
Total-debt-to-total-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
Top shareholder (%)	320	29.89	29.79	13.913	0.21	87.89
Insiders' shares (%)	320	5.87	0.02	13.406	0.00	69.31
Government stake (%)	432	5.19	0.00	12.579	0.00	66.05
Herfindahl ownership	432	926.54	695.68	960.048	0.00	7724.78
Parent	432	0.34	0.00	0.476	0.00	1.00
CEO duality	210	0.21	0.00	0.411	0.00	1.00
Independent directors (%)	211	37.50	36.36	6.042	27.27	62.50
Board size	211	9.61	9.00	2.084	6.00	18.00
Board compensation (T)	181	156.11	54.22	943.136	7.74	12717.12
Highest board compensation (T)	201	890.36	124.19	10170.880	14.26	144349.70

The table below presents statistics of issuers. *Sales* and *Total Assets* are in millions of yuan (M), while *Board Compensation* is given in thousands of yuan (T). *Parent* is a dummy variable that gets a value of one if the firm has at least one parent. *CEO Duality* takes a value of 1 if the CEO is also the chairman of the company and 0 otherwise. *Independent Directors* is the percentage of independent directors on the company board. *Board Size* is the number of board members.

4.2 Methodology

We use a standard event-study methodology to measure the stock market reaction to bond issues[2]. We compute the abnormal return (AR) around the announcement date. We use a market model for the expected return with the return of the stock defined as:

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

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.

with $P_{i,t}$ the closing price of the share i on day t. $R_{m,t}$ is the market return.

[2] See e.g. MacKinlay (1997) for a review.

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. 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:

$$AR_{i,t} = R_{i,t} - E\left[R_{i,t}\right] = R_{i,t} - (\widehat{\alpha_i} + \widehat{\beta_i}.R_{m,t}) . \quad (2)$$

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:

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

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

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

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-sectional standard deviation over the observation period:

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

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:

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

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):

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

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:

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

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

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 and management, we include control variables to take into account characteristics of issuance and issuer.

We consider six issuance characteristics: the logarithm of *Amount Issued*, *Maturity* and four dummy variables. Our dummy variables concern use of the proceeds (to repay debt, *Debt Payment*, or to finance working capital, *Working Capital Funding*), the lead manager of the issuance (*Big4* if the lead manager is a Big Four bank) and the issuance covenants (the variable *Restrictive Covenant* takes a value of 1 if the issue entails covenants that impair shareholder rights).

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*).

Finally, we include dummies for Global Industry Classification Standards (GICS) and year of issue.

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 and confirms our hypothesis that bond issuance plays a signaling role in China. It also supports the hypothesis that shareholders expect bondholders to effectively monitor management actions and use of bond proceeds.

We next analyze to see if this finding stands for all ownership types or whether form of ownership influences stock market reaction. 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). 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 (although the differences between categories are not significant either in mean or median).

Overall, our univariate analysis provides evidence that bond issue generates positive abnormal returns only for central SOEs. No significant reaction is observed for other types of companies. We now turn to the multivariate analysis to see if this finding stands when controlling for other variables and to check the influence of ownership and management variables.

Table 4 Cumulative abnormal returns

	N	$\overline{CAR}$	Negative CAR (%)	θ^{CS}	T>|θ^{CS}|	θ^{BMP}	T>|θ^{BMP}|	P Sign test
Full Sample								
[0,0]	481	0.049	55.30	0.61	0.54	0.9	0.37	0.02**
[–1,1]	481	0.270	47.40	1.89*	0.06	2.52**	0.01	0.27
[–2,2]	481	0.331	50.73	1.8*	0.07	2.08**	0.04	0.78
[–1,2]	481	0.311	51.77	1.94*	0.05	2.31**	0.02	0.47
[–2,1]	481	0.290	48.86	1.72*	0.09	2.2**	0.03	0.65
[–5,5]	481	0.492	49.90	1.79*	0.07	2.36**	0.02	1
SOE								
[0,0]	319	0.084	54.95	0.86	0.39	0.97	0.33	0.09*
[–1,1]	319	0.280	45.45	1.64	0.10	2.09**	0.04	0.12
[–2,2]	319	0.351	50.47	1.56	0.12	1.61	0.11	0.91
[–1,2]	319	0.378	50.16	1.95*	0.05	2.06**	0.04	1
[–2,1]	319	0.252	46.39	1.23	0.22	1.58	0.12	0.22
[–5,5]	319	0.654	47.34	2.13**	0.03	2.45**	0.01	0.37
Central SOE								
[0,0]	108	0.161	50.93	1	0.32	1.6	0.11	0.92
[–1,1]	108	0.608	42.59	1.95*	0.05	2.2**	0.03	0.15
[–2,2]	108	0.641	49.07	1.74*	0.08	1.81*	0.07	0.92
[–1,2]	108	0.743	47.22	2.24**	0.03	2.24**	0.03	0.63
[–2,1]	108	0.507	44.44	1.46	0.15	1.77*	0.08	0.29
[–5,5]	108	1.177	44.44	1.95*	0.05	2.21**	0.03	0.29
Local SOE								
[0,0]	211	0.044	57.07	0.36	0.72	–0.01	0.99	0.05*
[–1,1]	211	0.112	46.92	0.55	0.58	0.77	0.44	0.41
[–2,2]	211	0.202	51.18	0.71	0.48	0.56	0.58	0.78
[–1,2]	211	0.192	51.66	0.8	0.42	0.74	0.46	0.68
[–2,1]	211	0.122	47.39	0.48	0.63	0.54	0.59	0.49
[–5,5]	211	0.386	48.82	1.12	0.27	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	0.24
[–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	0.24

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. ***, **, and * report the 1%, 5%, and 10% thresholds of significance.

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.

We perform four sets of regressions, which are reported in Tables 5 through 8. In Table 5, the set of explanatory variables includes variables for state ownership and control variables for issuance and issuer. We then add ownership variables (Table 6), management variables (Table 7), and both types of variables (Table 8) to the set of explanatory variables. We do not include all variables at the same time because the data for these variables is not always available (management characteristics, in particular). There are only 171 observations where information for all variables is available.

Table 5 Regression of cumulative abnormal returns on issuance and issuer variables

	CAR[–1,1]		
Central SOE	0.512	0.662	0.610
	(1.03)	(1.34)	(1.18)
Local SOE	–0.0170	–0.0721	–0.0613
	(–0.04)	(–0.19)	(–0.15)
Amount issued (log)	–0.0764		–0.0345
	(–0.37)		(–0.13)
Maturity	0.0580		0.0599
	(0.45)		(0.46)
Debt payment	0.0696		0.168
	(0.18)		(0.45)
Working capital funding	–0.294		–0.483
	(–0.63)		(–0.95)
Restrictive covenant	–0.278		–0.304
	(–0.58)		(–0.62)
Big4	0.472		0.494
	(1.07)		(1.05)
Sales (log)		–0.118	–0.0668
		(–1.01)	(–0.42)
Market–to-book		–0.0957	–0.109
		(–0.88)	(–0.94)
Ebitda-to-assets (%)		0.0511	0.0661*
		(1.35)	(1.68)
Debt-to-assets		–0.0143	–0.0230
		(–1.19)	(–1.54)
Current ratio		0.0294	0.0402
		(0.20)	(0.25)
Constant	5.514***	7.366***	3.900
	(2.98)	(3.71)	(1.48)
Central SOE + Local SOE	0.495	0.590	0.549
F	[0.40]	[0.58]	[0.45]
N	432	477	428
Number of issuers (clusters)	332	344	329
R^2	0.044	0.044	0.062

The table presents the regression of CAR [–1,1] on issuance and issuer variables. Dummies for the sectors and years 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.

Table 5 presents three estimations. The first column displays the results considering issuance characteristics. The second column presents the results for issuer characteristics and the third column contains the results with issuance and issuer characteristics. The main result is that issuance and issuer characteristics do not impact significantly the stock market reaction. Only *Ebitda-to-Assets* is positive and significant when both issuance and issuer variables are included. This result confirms that shareholders' reaction is better when firm profitability is higher. Confirming univariate results, SOEs dummies are not significant, which means that shareholders' reaction is not significantly different between private and state-owned firms.

Table 6 Regression of cumulative abnormal returns on ownership variables

	CAR[–1,1]		
Central SOE	0.393	1.077*	0.405
	(0.63)	(1.97)	(0.68)
Local SOE	–0.137	0.255	–0.0338
	(–0.30)	(0.60)	(–0.08)
Top shareholder	0.0805		
	(0.73)		
Top shareholder^2	–0.00383		
	(–0.98)		
Top shareholder^3	0.000038		
	(0.95)		
Government stake		–0.0445	
		(–1.05)	
Government stake^2		0.00017	
		(0.21)	
Insiders' shares			0.217*
			(1.90)
Insiders' shares^2			–0.0129***
			(–2.66)
Insiders' shares^3			0.000167***
			(3.22)
Herfindahl ownership	0.0002	–0.00005	–0.0003
	(0.21)	(–0.18)	(–1.15)
Parent	–0.267	–0.291	–0.0203
	(–0.31)	(–0.56)	(–0.03)
Issuance characteristics	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes
Constant	5.102*	4.458	1.684
	(1.85)	(1.65)	(0.59)
Central SOE + Local SOE	0.256	1.332	0.372
F	[0.08]	[2.28]	[0.18]
N	310	428	310
Number of issuers (clusters)	244	329	244
R^2	0.085	0.08	0.12

The table presents the regression of CAR [–1,1] on ownership variables. Issuance and issuer variables, dummies for the sectors and years 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.

The absence of significance in these estimations may stem from the 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.

Table 6 presents three estimations on different ownership variables. The first column displays the results with *Top Shareholder, Top Shareholder²* and *Top Shareholder³*. The second column contains the results with *Government Stake* and *Government Stake²*, while the third column provides the results with *Insiders' Shares*, *Insiders' Shares²* and *Insiders' Shares³*. Several results deserve mention.

First, we confirm that there is no overall significant difference between private firms and SOEs. The coefficient is only significant for *SOE* in the second specification. We also perform an F-test to test if the sum of the coefficients for both variables *Central SOE* and *Local SOE* is significant, and find that it is not significant in any of the three estimations.

Second, we observe no evidence for the influence of *Top Shareholder* and *Government Stake.* Both variables and their quadratic terms are not significant. Hence, we reject the hypothesis of an N-shaped relation between the top shareholder's share and stock market valuation. We also reject the hypothesis of a quadratic relation between government stake and stock market reaction.

Third, we find support for the impact of insider ownership, i.e. we observe significant coefficients that are positive for *Insiders' Shares* and *Insiders' Shares³*, and negative for *Insiders' Shares²*. These results imply the existence of an N-curve for the relation between insider ownership and stock market reaction in line with our hypothesis on tunneling and insider ownership. They show that the relation between shareholder value and insider 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 insider holdings in the firm.

The N-shaped relationship is observed with 11% and 41% as turning points. It appears that interests of insiders and shareholders in a bond issue are initially aligned (up to 11% of insider ownership). Shareholders expect insiders to use the proceeds of the issue in a manner consistent with their own interests. However, as the size of the stake held by insiders expands, shareholders expect a divergence from their own interests. Since bond issues

provide large cash flows to insiders, they fear the proceeds may be misused and diverted to non-productive investments or tunneled out the firm. Finally, when stake held by insiders reaches a certain size (exceeds 41%), the interests of shareholders and insiders appear to realign.

Table 7 Regression of cumulative abnormal returns on management variables

	CAR[–1,1]		
Central SOE	–0.0927	–0.188	0.455
	(–0.10)	(–0.21)	(0.46)
Local SOE	–0.0557	–0.0861	0.243
	(–0.09)	(–0.14)	(0.37)
CEO duality	0.0498	0.00526	0.805
	(0.07)	(0.00)	(0.97)
Independent directors	0.0119	0.0150	0.00577
	(0.28)	(0.34)	(0.11)
Board compensation	–0.00246	–0.00791*	–0.00138
	(–1.07)	(–1.81)	(–0.55)
Board size	–0.123	–0.108	–0.256
	(–0.84)	(–0.51)	(–1.58)
Low top1× CEO duality		–0.151	
		(–0.10)	
Low top1× Independent directors		–0.0171	
		(–0.33)	
Low top1× Board compensation		0.00814	
		(1.61)	
Low Top1× Board Size		–0.0914	
		(–0.50)	
Low insider × CEO duality			–1.816
			(–1.30)
Low insider × Independent directors			–0.0433
			(–0.81)
Low insider × Board compensation			–0.00362
			(–0.76)
Low insider × Board size			0.128
			(0.68)
Top shareholder		–0.0285	
		(–0.88)	
Insiders' shares			–0.0393
			(–1.64)
Issuance characteristics	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes
Constant	3.599	4.696	3.897
	(1.04)	(1.27)	(1.06)
Central SOE + Local SOE	–0.148	–0.274	0.698
SOE F	[0.012]	[0.042]	[0.232]
N	171	171	171
Number of issuers (clusters)	123	123	123
R^2	0.146	0.168	0.184

The table presents the regression of CAR [–1,1] on management variables. Issuance and issuer variables, dummies for the sectors and years 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.

Table 7 displays three estimations using alternative sets of management variables. We present them separately due to numerous missing observations on management characteristics. All estimations include *Central SOE* and *Local SOE* for key ownership, *CEO Duality, Independent Directors, Board Compensation,* and *Board Size*. The first column reports the results with this standard set of variables. The second column displays the results by adding interaction terms between management variables and *Low Top1*. The third column adds the interaction of management variables with *Low Insider*. Our motivation for including these interaction terms is that management characteristics primarily matter when ownership is not concentrated in the hands of a few shareholders or insiders.

The key finding is the lack of influence of all management characteristics on the stock market reaction the bond issue. *CEO Duality, Independent Directors,* and *Board Size* are not significant in the three estimations. The only significant coefficient is observed for *Board Compensation* in the second specification with interaction terms when it is negative. It is not significant in both alternative specifications, which limits the relevance of this result. Moreover, the interaction terms for testing whether the influence of management is conditional to shares held by the top shareholders or insiders are not significant.

We thus conclude here that management characteristics do not affect stock market reaction to a bond issue, leading us to reject our hypotheses associated with these features.

Table 8 presents the last set of regressions that includes both ownership and management variables. Our main results are confirmed. First, state ownership does not impact the reaction of shareholders significantly. *Top Shareholding* and *Government Stake* also prove to be mute. On the other hand, even when the management variables are included, insider ownership affects shareholder reactions. This suggests that outside shareholders focus on the size of stake of insiders in the firm as it can determine how proceeds of the bond issue are used. At the same time, the management variables remain mute. This further supports the view that management characteristics do not matter to shareholders. The key determinant is the size of the stake insiders hold in the firm.

Table 8 Regression of cumulative abnormal returns on ownership and management variables

	CAR(–1,1)		
Central SOE	–0.198	0.0850	0.241
	(–0.21)	(0.09)	(0.26)
Local SOE	–0.00846	0.155	0.414
	(–0.01)	(0.22)	(0.59)
Top shareholder	–0.0142		
	(–0.12)		
Top shareholder ²	–0.000274		
	(–0.06)		
Top shareholder^3	0.000005		
	(0.10)		
Government stake		–0.0091	
		(–0.14)	
Government stake^2		–0.00023	
		(–0.19)	
Insiders' shares			0.425**
			(1.98)
Insiders' shares^2			–0.0186*
			(–1.78)
Insiders' shares^3			0.000189
			(1.49)
Herfindahl ownership	0.0001	0.0001	–0.00001
	(0.11)	(0.24)	(–0.03)
Parent	0.490	0.597	0.848
	(0.43)	(0.63)	(0.88)
CEO duality	–0.0124	–0.169	–0.324
	(–0.02)	(–0.21)	(–0.40)
Independent directors	0.0173	0.0149	0.0156
	(0.36)	(0.35)	(0.38)
Board compensation	–0.00245	–0.00227	–0.00250
	(–1.04)	(–0.97)	(–1.19)
Board size	–0.136	–0.113	–0.135
	(–0.84)	(–0.72)	(–0.90)
Issuance characteristics	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes
Constant	3.656	4.443	1.244
	(0.92)	(1.20)	(0.31)
Central SOE + Local SOE	–0.206	0.240	0.655
F	[0.02]	[0.03]	[0.22]
N	171	171	171
Number of issuers (clusters)	123	123	123
R^2	0.151	0.155	0.192

The table presents the regression of CAR [–1,1] on ownership and management variables. Issuance and issuer variables, dummies for the sectors and years are included. Variances are clustered at the issuance level, 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.

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 GICS classification.

Table 9 Cumulative abnormal returns with sector indexes

	N	$\overline{CAR}$	Negative CAR (%)	θ^{CS}	T>|θ^{CS}|	θ^{BMP}	T>|θ^{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

The table below 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.

Table 9 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 10 Regression of cumulative abnormal returns with sector indexes

	CAR[–1,1]				
Central SOE	0.690	1.114**	0.801	–0.0933	0.214
	(1.11)	(2.20)	(1.36)	(–0.11)	(0.23)
Local SOE	–0.125	0.290	0.0657	–0.186	0.159
	(–0.28)	(0.73)	(0.15)	(–0.31)	(0.23)
Top shareholder	0.00177				
	(0.02)				
Top shareholder ²	–0.00133				
	(–0.31)				
Top shareholder^3	0.000015				
	(0.34)				
Government stake		–0.042			
		(–0.89)			
Government stake²		0.00018			
		(0.19)			
Insiders' shares			0.222**		0.469**
			(1.98)		(2.32)
Insiders' shares²			–0.0130***		–0.0215**
			(–2.68)		(–2.19)
Insiders' shares^3			0.000168***		0.000221*
			(3.19)		(1.87)
Herfindahl ownership	0.0002	–0.0001	–0.0003		0.0001
	(0.22)	(–0.39)	(–1.32)		(0.21)
Parent	–0.355	–0.396	–0.0859		0.701
	(–0.43)	(–0.83)	(–0.12)		(0.76)
CEO duality				0.212	–0.121
				(0.34)	(–0.17)
Independent directors				0.00251	0.00252
				(0.06)	(0.06)
Board compensation				–0.00260	–0.00259
				(–1.17)	(–1.40)
Board size				–0.111	–0.112
				(–0.74)	(–0.74)
Issuance characteristics	Yes	Yes	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes	Yes	Yes
Constant	6.695**	4.043	2.228	3.957	1.466
	(2.48)	(1.64)	(0.77)	(1.11)	(0.38)
Central SOE + Local SOE	0.566	1.404*	0.866	–0.280	0.373
F	[0.39]	[2.93]	[1.03]	[0.05]	[0.07]
N	310	428	310	171	171
Number of issuers (clusters)	244	329	244	123	123
R^2	0.098	0.089	0.135	0.146	0.211

The table below presents the regression of CAR[–1,1] calculated with sector indexes. Issue and issuer variables, dummies for the sectors and years are included, but not reported. Variances are clustered at the issuance level. The t-statistic is reported in parentheses, the F-statistic in brackets.

Table 10 displays regressions with the new CARs. We use the CAR obtained with the [–1,1] event window as the dependent variable. We test five specifications of our explanatory variables with various combinations of ownership and management variables and obtain the same basic conclusion. Ownership and management variables do not exert an impact on stock market reaction after a bond issue with the exception of insider shareholding. We again find evidence of an N-shaped relation between insider shareholding and stock market reaction.

Thus, the robustness checks confirm our main results.

6 Conclusion

This study examined the stock market reaction to bond issues of Chinese companies. 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 stock market investors react to corporate bond issues. Our three main findings are summarized below.

First, 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. Shareholders may also expect bondholders to perform an effective monitoring on management actions and use of proceeds.

Second, analysis of this positive stock market reaction provides evidence of the influence of some ownership characteristics.

On one hand, our univariate results suggest that the positive stock market reaction only applies to central state-owned companies, even though these stock market reactions are not significantly different for these companies than those observed for other ownership types.

On the other hand, we find evidence of an N-shaped relation between shareholders' reaction and insider ownership. Insider ownership contributes to a favorable stock market reaction following bond issuance when the insider ownership is either less than 11% or more than 41% of the company. The stock market reaction tends to be negative if insider ownership lies within the 11–41% range.

Third, we observe no influence of management characteristics on stock market reaction after a bond issue.

These findings provide important insights on possible trends in China's growing corporate bond market. Of particular relevance is the finding that investors attach value to state and insider ownership, while management characteristics are largely irrelevant. Corporate bonds can therefore provide a source of funding for firms to ensure their growth without diminishing their stock valuation.

References

Allen, Franklin, Jun Qian, and Meijun Qian (2005). "Law, finance, and economic growth in China," *Journal of Financial Economics* 77, 57–116.

Bai, Chong-En, Qiao Liu, Joe Lu, Frank M. Song, and Junxi Zhang (2004). "Corporate governance and market valuation in China," *Journal of Comparative Economics* 32, 599–616.

Bailey, Warren, Wei Huang, and Zhishu Yang (2012). "Bank Loans with Chinese Characteristics: Some Evidence on Inside Debt in a State-Controlled Banking System," *Journal of Financial and Quantitative Analysis* 46, 1795–1830.

Bloomberg (2015). "China's Stock Market Value Tops $10 Trillion for First Time," posted June 13, 2015 on *Bloomberg.com*.

Boehmer, Ekkehart, Jim Masumeci, and Annette B. Poulsen (1991). "Event-study methodology under conditions of event-induced variance," *Journal of Financial Economics* 30, 253–272.

Cai, Kelly, and Heiwai Lee (2013). "Stock Price Reactions to Debt Initial Public Offering Announcements," *Journal of Applied Business Research* 29, 69–78.

Çelik, Serdar, Gül Demirtaş, and Mats Isaksson (2015). "Corporate Bonds, Bondholders and Corporate Governance." OECD Corporate Governance Working Papers, Organisation for Economic Co-operation and Development, Paris.

Chang, Shao-Chi, Sheng-Syan Chen, Ailing Hsing, and Chia Wei Huang (2006). "Investment opportunities, free cash flow, and stock valuation effects of secured debt offerings," *Review of Quantitative Finance and Accounting* 28, 123–145.

Chang, Xin (Simba), and Hong Feng Zhang (2013). "Managerial Entrenchment and Firm Value: A Dynamic Perspective." SSRN Scholarly Paper, Social Science Research Network, Rochester, NY.

Chen, Andrew H., Sumon C. Mazumdar, and Rahul Surana (2011). "China's Corporate Bond Market Development: Security Design Implications of Information Asymmetry," *Chinese Economy* 44, 6–33.

Chen, Donghua, Oliver Zhen Li, and Shangkun Liang (2009). "Do Managers Perform for Perks?" SSRN Scholarly Paper, Social Science Research Network, Rochester, NY.

Chen, Charles J. P., Zengquan Li, Xijia Su, and Zheng Sun (2011a). "Rent-seeking incentives, corporate political connections, and the control structure of private firms: Chinese evidence," *Journal of Corporate Finance* 17, 229–243.

Chen, Shimin, Zheng Sun, Song Tang, and Donghui Wu (2011b). "Government intervention and investment efficiency: Evidence from China," *Journal of Corporate Finance* 17, 259–271.

Conyon, Martin J., and Lerong He (2014). "CEO turnover in China: the role of market-based and accounting performance measures," *European Journal of Finance* 20, 657–680.

Cousin, Violaine (2011). *Banking in China*. Vol. 13 (Palgrave Macmillan).

Dann, Larry Y., and Wayne H. Mikkelson (1984). "Convertible debt issuance, capital structure change and financing-related information: Some new evidence," *Journal of Financial Economics* 13, 157–186.

Davies, J. R., David Hillier, and Patrick McColgan (2005). "Ownership structure, managerial behavior and corporate value," *Journal of Corporate Finance* 11, 645–660.

Eckbo, B. Espen (1986). "Valuation effects of corporate debt offerings," *Journal of Financial Economics* 15, 119–151.

Eichengreen, Barry, 2015, Financial development in Asia: the Role of policy and institutions, with special reference to Asia. Presentation at the Second Annual Asian Monetary Policy Forum, Singapore.

Faccio, Mara, Larry H. P. Lang, and Leslie Young (2001). "Dividends and Expropriation," *American Economic Review* 91, 54–78.

Faccio, Mara, Larry HP Lang, and Leslie Young (2009). "Pyramiding vs. leverage in corporate groups: International evidence," *Journal of International Business Studies* 41, 88–104.

Fong, Wai-Ming, and Kevin C. K. Lam (2014). "Rights Offerings and Expropriation by Controlling Shareholders," *Journal of Business Finance and Accounting* 41, 773–790.

Fortin, Steve, Chandra Subramaniam, Xu (Frank) Wang, and Sanjian (Bill) Zhang (2014). "Incentive alignment through performance-focused shareholder proposals on management compensation," *Journal of Contemporary Accounting & Economics* 10, 130–147.

Friedman, Eric, Simon Johnson, and Todd Mitton (2003). "Propping and tunneling," *Journal of Comparative Economics* 31, 732–750.

Fungacova, Zuzana, Christophe J. Godlewski, and Laurent Weill (2015). "Does the Type of Debt Matter? Stock Market Perception in Europe," Bank of Finland Research Discussion Paper 19 / 2015, Bank of Finland.

Goldman Sachs (2015). *China's Bond Market*, (Goldman Sachs).

Huang, Weihua, Armin Schwienbacher, and Shan Zhao (2012). "When bank loans are bad news: Evidence from market reactions to loan announcements under the risk of expropriation," *Journal of International Financial Markets, Institutions and Money* 22, 233–252.

Jaggi, Bikki, Sidney Leung, and Ferdinand Gul (2009). "Family control, board independence and earnings management: Evidence based on Hong Kong firms," *Journal of Accounting and Public Policy* 28, 281–300.

Jensen, Michael C. (1986). "Agency costs of free cash flow, corporate finance, and takeovers," *American Economic Review*, 323–329.

Jensen, Michael C., and William H. Meckling (1976). "Theory of the firm: Managerial behavior, agency costs and ownership structure," *Journal of Financial Economics* 3, 305–360.

Johnson, Simon, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer (2000). "Tunneling," *American Economic Review* 90, 22–27.

Khanna, Tarun, and Yishay Yafeh (2005). "Business Groups in Emerging Markets: Paragons or Parasites? SSRN Scholarly Paper, Social Science Research Network, Rochester, NY.

KPMG (2014). *Mainland China Banking Survey.*

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny (2000). "Investor protection and corporate governance," *Journal of Financial Economics* 58, 3–27.

La Porta, Rafael, Florencio Lopez-De-Silanes, Andrei Shleifer, and Robert Vishny, 2002, "Investor Protection and Corporate Valuation," The Journal of Finance 57, 1147–1170.

Liu, Qigui, and Gary Gang Tian (2010). "Political Connections, Founding Family Ownership and Leverage Decision of Privately Owned Firms." SSRN Scholarly Paper, Social Science Research Network, Rochester, NY.

Luo, Wei, Yi Zhang, and Ning Zhu (2011). "Bank ownership and executive perquisites: New evidence from an emerging market," *Journal of Corporate Finance* 17, 352–370.

MacKinlay, A. Craig (1997). "Event studies in economics and finance." *Journal of Economic Literature*, 13–39.

Mikkelson, Wayne H., and M. Megan Partch (1986). "Valuation effects of security offerings and the issuance process," *Journal of Financial Economics* 15, 31–60.

Miller, Darius P., and John J. Puthenpurackal (2005). "Security Fungibility and the Cost of Capital: Evidence from Global Bonds," *Journal of Financial and Quantitative Analysis* 40, 849–872.

Morck, Randall, Andrei Shleifer, and Robert W. Vishny (1988). "Management ownership and market valuation: An empirical analysis," *Journal of Financial Economics* 20, 293–315.

Myers, Stewart C. (1977). "Determinants of corporate borrowing," *Journal of Financial Economics* 5, 147–175.

Myers, Stewart C. (2000). "Outside Equity," *Journal of Finance* 55, 1005–1037.

PBOC, 2013, *Annual Report*.

Peng, Winnie Qian, K. C. John Wei, and Zhishu Yang (2011). "Tunneling or propping: Evidence from connected transactions in China," *Journal of Corporate Finance* 17, 306–325.

Pessarossi, Pierre, and Laurent Weill (2013). "Choice of corporate debt in China: The role of state ownership," *China Economic Review* 26, 1–16.

Ruan, Wenjuan, Gary Tian, and Shiguang Ma (2011). "Managerial Ownership, Capital Structure and Firm Value: Evidence from China's Civilian-run Firms," *Australasian Accounting, Business and Finance Journal* 5, 73–92.

Shirley, Mary M., and Patrick Walsh (2001). "Public vs. Private Ownership: The Current State of the Debate," SSRN Scholarly Paper, Social Science Research Network, Rochester, NY.

Shleifer, Andrei, and Robert W. Vishny (1997). "A Survey of Corporate Governance," *Journal of Finance* 52, 737–783.

Tian, Lihui (2001). "Government Shareholding and the Value of China's Modern Firms," SSRN Scholarly Paper, Social Science Research Network, Rochester, NY.

Tian, Lihui, and Saul Estrin (2008). "Retained state shareholding in Chinese PLCs: Does government ownership always reduce corporate value?" *Journal of Comparative Economics* 36, 74–89.

Wang, Liu, and William Q. Judge, 2010, "Managerial ownership and the role of privatization in transition economies: The case of China," Asia Pacific Journal of Management 29, 479–498.

Xiao, Sheng, and Shan Zhao (2014). "How do agency problems affect firm value? – Evidence from China," *European Journal of Finance* 20, 803–828.

Young, Michael N., Mike W. Peng, David Ahlstrom, Garry D. Bruton, and Yi Jiang (2008). "Corporate Governance in Emerging Economies: A Review of the Principal-Principal Perspective," *Journal of Management Studies* 45, 196–220.

BOFIT Discussion Papers

A series devoted to academic studies by BOFIT economists and guest researchers. The focus is on works relevant for economic policy and economic developments in transition / emerging economies.

2015

No 1 Qing He, Liping Lu and Steven Ongena: Who gains from credit granted between firms? Evidence from inter-corporate loan announcements Made in China
No 2 Ke Pang and Pierre L. Siklos: Macroeconomic consequences of the real-financial nexus: Imbalances and spillovers between China and the U.S.
No 3 V.V. Mironov, A.V. Petronevich: Discovering the signs of Dutch disease in Russia
No 4 Joshua Aizenman: The internationalization of the RMB, capital market openness, and financial reforms in China
No 5 Yu-Fu Chen, Michael Funke and Kunyu Tao: Financial market reform – A new driver for China's economic growth?
No 6 Jarko Fidrmuc and Iikka Korhonen: Meta-analysis of Chinese business cycle correlation
No 7 Jarko Fidrmuc, Zuzana Fungáčová and Laurent Weill: Does bank liquidity creation contribute to economic growth? Evidence from Russia
No 8 Elena Deryugina, Olga Kovalenko, Irina Pantina and Alexey Ponomarenko: Disentangling loan demand and supply shocks in Russia
No 9 Michael Funke, Petar Mihaylovski and Haibin Zhu: Monetary policy transmission in China: A DSGE model with parallel shadow banking and interest rate control
No 10 Riikka Nuutilainen: Contemporary monetary policy in China: A move towards price-based policy?
No 11 Iftekhar Hasan, Nada Kobeissi, Haizhi Wang and Mingming Zhou: Banking structure, marketization and small business development: Regional evidence from China
No 12 Linlin Niu, Xiu Xua and Ying Chen: An adaptive approach to forecasting three key macroeconomic variables for transitional China
No 13 Heiner Mikosch and Stefan Neuwirth: Real-time forecasting with a MIDAS VAR
No 14 Alexander Libman and Björn Vollan: Anti-Western conspiracy thinking and expectations of collusion: Evidence from Russia and China
No 15 Mikhail Stolbov: Causality between credit depth and economic growth: Evidence from 24 OECD countries
No 16 Kefei You: What drives China's outward FDI? A regional analysis
No 17 José R. Sánchez-Fung: Estimating the impact of monetary policy on inequality in China
No 18 Christian Hattendorff: Economic concentration and finance: Evidence from Russian regions
No 19 Alexey Porshakov, Elena Deryugina, Alexey Ponomarenko and Andrey Sinyakov: Nowcasting and short-term forecasting of Russian GDP with a dynamic factor model
No 20 Qing He, Iikka Korhonen, Junjie Guo and Fangge Liu: The geographic distribution of international currencies and RMB internationalization
No 21 Haining Wang, Zhiming Cheng and Russell Smyth: Does consuming more make you happier? Evidence from Chinese panel data
No 22 Mikhail Mamonov and Andrei Vernikov: Bank ownership and cost efficiency in Russia, revisited
No 23 Rui Mao and Yang Yao: Fixed exchange rate regimes, real undervaluation and economic growth
No 24 Elena Deryugina, Alexey Ponomarenko, Andrey Sinyakov and Constantine Sorokin: Evaluating underlying inflation measures for Russia
No 25 Christian Dreger, Jarko Fidrmuc, Konstantin Kholodilin and Dirk Ulbricht: The Ruble between the hammer and the anvil: Oil prices and economic sanctions
No 26 Zuzana Fungáčová, Riikka Nuutilainen and Laurent Weill: Reserve requirements and the bank lending channel in China
No 27 Simo Leppänen, Laura Solanko and Riitta Kosonen: Could climate change affect government expenditures? Early evidence from the Russian regions
No 28 Mariarosaria Comunale: Current account and REER misalignments in Central Eastern EU countries: an update using the macroeconomic balance approach
No 29 John Fernald, Eric Hsu and Mark M. Spiegel: Is China fudging its figures? Evidence from trading partner data
No 30 Jyri Kinnunen and Minna Martikainen: Expected returns and idiosyncratic risk: Industry-level evidence from Russia
No 31 John P. Bonin and Dana Louie: Did foreign banks "cut and run" or stay committed to Emerging Europe during the crises?
No 32 Anna Krupkina and Alexey Ponomarenko: Deposit dollarization in emerging markets: modelling the hysteresis effect
No 33 Paul-Olivier Klein and Laurent Weill: Is it worth issuing bonds in China? Evidence from stock market reactions

ISSN 1456-4564 (print) // ISSN 1456-5889 (online)