Front. Bus. Res. China 2016, 10(2): 176–219
DOI 10.3868/s070-005-016-0008-1

RESEARCH ARTICLE

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The Global Financial Crisis and Stock Market Reaction to Bank Loan Announcements

Abstract This study investigates how equity investors react to bank loan announcements in China using an event study methodology. By estimating the average Cumulative Abnormal Returns (CARs) over the event period and controlling for the impact of other factors such as borrower, lender and loan characteristics, we find that the overall reaction is negative. However, the results for the two sub-sample periods are different. After the onset of the Global Financial Crisis, the average CARs are no longer statistically different from zero, indicating higher lending standards and improvement in the quality of credit analysis of Chinese banks.

Keywords bank loan announcements, stimulus package, event study, cumulative abnormal returns

1 Introduction

Listed firms usually have several external financing channels, e.g., issuing stocks, bonds and borrowing from financial institutions. Many studies have examined how investors react to various types of corporate financing. For example, Billett et al. (1995), James (1987), Lummer & McConnell (1989), Preece & Mullineaux (1994) and Slovin et al. (1992) found that bank loan announcements result in positive stock price reactions in the US market. On the other hand, the reactions to equity financing are typically negative and those to bonds are typically insignificant, both economically and statistically.

Similar phenomena have also been found in other countries, e.g., Canada,

Received January 14, 2016
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Australia, Japan, and Chinese Hong Kong. Compared to other methods of financing, the different market responses to bank loans are attributed to the uniqueness of bank loans as a form of inside debt (Billett et al., 2006; Carey et al., 1998; James, 1987; James & Smith, 2000).

Equity investors believe that banks have access to borrowers' confidential information and have expertise in conducting credit analysis and monitoring the borrowers' operational and financial conditions. Banks would not be willing to lend to a listed firm with a poor repayment ability and a bad credit record. The positive response from equity investors represents their confidence in the valuable information signaled by bank loan announcements.

The case of China is interesting. Bailey et al. (2011) examined the market response to bank loan announcements in China and found that the result is contrary to those in developed countries, i.e., negative and statistically significant. A similar conclusion was also reached by Gan et al. (2014). A possible explanation for these conflicting findings is that the Chinese banking system is dominated by state-owned/controlled banks. Banks' lending activities are not simply based on borrowers' performance but also on political considerations, especially when banks lend to state-owned enterprises (SOEs). Thus, a bank loan is often seen as a bailout fund for listed firms with financial problems.

However, the Chinese government has been implementing a series of reforms in the banking sector since 2005. For example, the Big Four banks went through a share-split reform and became publicly listed companies. By 2011, they were all listed both on the Shanghai stock exchange and the Hong Kong stock exchange, even though they are still controlled by state-related entities which are their largest shareholders. Further, after China's entry into the WTO, the banking system was open to foreign banks. The Chinese government also embarked on a gradual process of financial liberalization. Interest rate controls on deposits and loans were slowly removed. As a result, the series of measures significantly weakened the dominant power of state-owned/controlled banks in the banking industry. Banking reforms have improved banks' abilities to process loan applications more independently (Gan et al., 2014). Banks began to focus more on risk management and shareholder value and some have adopted advanced bank management tools such as internal fund transfer pricing (FTP) and risk-adjusted return on capital (RAROC).

After the outbreak of the Global Financial Crisis (GFC) in September 2008, the Chinese government unveiled a massive stimulus package (4 trillion Chinese yuan (CNY) or about USD 586 billion) to stimulate the domestic economy. Banks were encouraged or even pressured to increase lending. As a result, the amount of bank loans has grown rapidly and the asset quality of Chinese banks has become a serious concern for regulators and investors. Hence, it would be interesting to examine the market reaction to bank loan announcements using the latest data. To our knowledge, no studies have examined the impact of the GFC on bank lending standards in China so far.

Our findings show that Chinese stock market still reacts negatively to bank loan announcements for the entire sampling period (i.e., 2005–2014). However, further (sub-period) analysis shows that the reaction for the 2nd sub-period (i.e., after the GFC) is no longer statistically significantly different from zero, indicating that Chinese banks have tightened their lending standards and improved their credit evaluation processes.

The remainder of the paper is organized as follows. Section 2 provides an overview of the Chinese banking system. Section 3 reviews the related literature. Section 4 outlines our methodology and hypotheses. Section 5 describes the data and analyzes the empirical results. Section 6 concludes the study.

2 The Chinese Banking System

Like many developing countries where capital markets are not very well developed, banks play a dominant role in the financial industry. In the case of China, state-owned or state-controlled banks dominate the banking system. Before 1949, the Bank of China acted as the central bank in charge of currency issuance, financial market regulation and policy making. After the establishment of the People's Republic of China in October 1949, the People's Bank of China (PBOC) took over BOC's functions and started to perform the roles of central banking and the regulation of the financial system, while BOC became a normal state-owned commercial bank specializing in foreign exchange related banking business. After the late 1970s when the open-door policy was adopted by the Chinese government, the other three state-owned banks, namely, the Industrial and Commercial Bank of China (ICBC), China Construction Bank (CCB) and

Agricultural Bank of China (ABC) were reopened or established.[1] These three banks combined with BOC are well-known as the Big Four in China.

In the 1980s, joint-equity banks, city commercial banks, policy banks and rural credit cooperatives were allowed to be established. However, by the end of 2014, the banking system was still dominated by the Big Four state-owned banks, with a market share of 41.21%. Joint-equity banks, city commercial banks and rural credit cooperatives accounted for 18.21%, 10.49% and 12.83% of the market respectively. The remaining 17.26% was held by other types of banks, such as policy banks, foreign banks, or the Postal Savings Bank of China.[2]

Under this government-controlled system, banks, especially the Big Four, made loans based not on the firms' creditworthiness, but mostly according to instructions from the government (see Chen, 2010; Tan et al., 2012; Nanto & Sinha, 2002). Even though some state-owned firms might not have the ability to repay loans, banks were often forced to lend money to them as a bailout fund. The consequence of such lending practices is an increase in non-performing loans (NPLs) (Bailey et al., 2011; Dobson and Kashyap, 2006; Li, 2004). The ratio of NPLs in China was indeed higher than that in other Asian countries. At the end of the bubble period in the mid-1990s, the NPL ratio was as high as 60%. Even after the economy had recovered, many analysts still routinely put the ratio at 35% or above in 2001 (Hoffmann & Enright, 2008). In April 2007, China's NPL ratio was ranked as the second highest in Asia, only slightly lower than that of the Philippines according to a UBS equity research team.

High levels of NPLs are often due to making high risk and negative net present value loans, weak monitoring and lack of aggressive collection procedures,

[1] The Chinese banking system was initially modelled after that of the former Soviet Union and each bank was set up to provide credit to a different industry. The Agricultural Bank of China (ABC) was established in 1951 and reopened in February 1979. The Industrial and Commercial Bank of China (ICBC) was established on 1 January 1984. The Bank of China (BOC) was originally established in 1912 and then taken over by the People's Bank of China (PBOC) in 1949 before becoming independent from the PBOC on 13 March 1979. It was finally transformed into a commercial bank in 1994. The China Construction Bank (CCB) was officially established on 1 October 1954, originally named the People's Construction Bank of China.

[2] Market share is calculated as total assets of a specific bank type divided by total assets of the whole banking sector. In the last quarter of 2014, the total assets amounted to 172,335.5 billion CNY. For the Big Four banks, joint-equity banks, city commercial banks, rural credit cooperatives and other type of banks, the amount was 71,014.1 billion CNY, 31,390.1 billion CNY, 18,084.2 billion CNY, 22,116.5 billion CNY and 29,740.6 billion CNY respectively. See http://www.cbrc.gov.cn

which is often combined with backward financial systems and interventionist and inefficient governments (Iannotta et al., 2007; Klapper et al., 2005; Porta et al., 2002). In the case of China, the accumulation of NPLs is mainly from policy-based loans which were extended by state-owned banks to money-losing state-owned companies with little expectation that they would be completely repaid (Nanto & Sinha, 2002). NPLs posed a serious threat to the Chinese financial system and forced the government to take actions to prevent the problem from worsening.

As a response to the 1997 Asian financial crisis, in order to address the NPL issue and also prepare the Big Four for listing on the stock market, the Ministry of Finance established four wholly state-owned asset management corporations (AMCs) to absorb NPLs from the Big Four in 1999. The four state-owned AMCs were: China Orient Asset Management Corporation, China Great Wall Asset Management Corporation, China Huarong Asset Management Corporation, and China Cinda Asset Management Corporation.[3] The AMCs issued bonds which were guaranteed by the Ministry of Finance and sold these bonds to financial institutions and public investors. This arrangement significantly reduced the Big Four's financial burden from NPLs, and improved their asset quality and profitability. According to Dobson and Kashyap (2006), the AMCs cleaned sufficient NPLs from the Big Four banks' balance sheets with the exception of ABC and their NPLs ratios decreased to single-digit levels by the end of 2005.

In late 2005, BOC and CCB, as the first reform pilots, were transformed from wholly state-owned banks to listed corporations. Due to the success of the share-split reform, the other two Big Four banks, i.e., ICBC and ABC, were also set up as limited corporations and listed in Shanghai and Hong Kong.[4]

After listing, they began to adopt Western-style operations, hired external auditors and attracted strategic investors. For example, ICBC, currently the

3 China Orient Asset Management Corporation (established in October 1999) was in charge of recycling the BOC's NPLs. China Great Wall Asset Management Corporation (established in October 1999) was responsible for the ABC's NPLs. China Huarong Asset Management Corporation (established in November 1999) and China Cinda Asset Management Corporation (established in October 1999) were to absorb ICBC's and CCB's NPLs, respectively.

4 BOC was listed in Hong Kong on June 1, 2006 (03988.HK) and in Shanghai on November 18, 2010 (601988.SH); ICBC was simultaneously listed both in Hong Kong (01398.HK) and Shanghai (601398.SH) on October 27, 2006; CCB was listed in Hong Kong on October 27, 2005 (00939.HK) and in Shanghai on November 19, 2010 (601939.SH); ABC was listed in Hong Kong on July 16, 2010 (01288.HK) and in Shanghai on August 05, 2011 (601288.SH). The data are from the Hong Kong Exchange and Shanghai Stock Exchange official websites.

largest bank in the world by total assets, formulated and revised a wide range of policies and procedures covering "risk preference, risk management framework, risk reporting, risk and capital adequacy assessment and concentration management", strengthening the bank's risk management capacity. In 2010, it began to implement rigid control on loans' RAROC (risk-adjusted return on capital) and widely applied its internal credit risk ratings in loan marketing, approval, pricing, capital allocation and provision for loan losses.

These reform measures aim to improve their financial performance, strengthen risk management and increase competitiveness. Though the Big Four banks are no longer wholly owned by the Chinese government after listing, the Chinese government still holds the largest percent of their shares. As at September 30, 2014, a state-owned company, Central Huijin Investment Ltd., is the largest shareholders of BOC, CCB, ABC and ICBC, holding 67.68%, 57.26%, 40.28% and 35.321% shares respectively.[5] Therefore, the four banks are state-controlled banks.

Competition from foreign banks played a significant role in improving bank management in China. The Chinese government opened the banking system to foreign banks after joining the World Trade Organization (WTO) at the end of 2001 and committed to remove entry restrictions within 5 years. Foreign banks were allowed to set up their branches or joint ventures in China. In early 2000, the number of representative offices and subsidiaries established by foreign banks and financial institutions was over 190 with total assets of 36 billion USD in 23 cities, including Beijing, Tianjin, Shanghai, and Shenzhen. Also foreign banks are approved to provide RMB retail business to Chinese citizens (Lin, 2001).[6] However, there are still many restrictions on foreign banks. For instance, China limits foreign ownership in a single bank to 20 percent of total equity for a single foreign investor and to 25 percent for all foreign investors.

On November 15, 2008, the Chinese central government officially announced a 4 trillion CNY stimulus package in response to the onset of the GFC. This massive fund covered most key areas, such as housing, disaster rebuilding, transportation, environment, rural infrastructure, industry, tax cuts, health and

[5] See website: finance. sina.com.cn (September 30, 2014).

[6] At the end of 2007, the China Banking Regulatory Commission approved 6 foreign banks entries, such as the Hong Kong and Shanghai Banking Corporation (HSBC China), The Bank of East Asia (BEA China), Citibank (China), Standard Chartered (China), Hang Seng Bank (China), and the Development Bank of Singapore (DBS China).

education, and finance. In order to quickly recover from this economic shock, banks are encouraged to increase lending activities. Compared to 2008, the gross lending amounts of the Big Four increased by 48.97%, 25.30%, 27.04% and 33.48% respectively in 2009, while the growth rate of bank lending during other time periods was less than 20%.[7] The majority of the loans have the characteristics of financial assistance, especially for large-sized listed SOEs. Over the past few years, NPLs in China have been on the rise again. According to Bloomberg News (February 14, 2014), the number of bad loans in the Chinese banking sector increased for the ninth straight quarter to the highest level since the 2008 financial crisis, creating pressure on asset quality and profit growth. More seriously, NPLs increased from 28.5 billion CNY in the last quarter of 2013 to 592.1 billion CNY in early 2014, the highest rate since September 2008.[8]

3 Literature Review

Many studies have found that bank loan announcements have significant influence on the stock price of the listed firms in different financial markets, for example, Billett et al. (1995), James (1987) and James & Smith (2000) for the United States; Kang & Liu (2008) and Kang & Stulz (1996) for Japan; Armitage (1995) and Franks & Sussman (2005) for the United Kingdom; Mathieu et al. (2006) and Aintablian & Roberts (2000) for Canada; and Fery et al. (2003), Boscaljon & Ho (2005) and Qing et al. (2011) for Australia, South Korea and Chinese Hong Kong respectively. They all reached the same conclusion that bank announcements result in positive stock price reactions.

James (1987) is the first to study how the stock prices of listed borrowing firms react to bank loan announcements. He examined the market reaction to three different financing methods in the US market: bank loan agreements, private placements and public straight debt offerings and found that the stock price response is positive for bank loan announcements only. He attributed the positive responses to the uniqueness of bank loans. The willingness of banks to lend is a signal to equity investors that the firm has the ability as well as the willingness to pay back the debt.

[7] The data are from the Big Four's annual reports.
[8] Source: the official website of the China Banking Regulatory Commission (February 13, 2014)

In the context of China, Bailey et al. (2011) and Gan et al. (2014) examined how the stock prices reacted to bank loan announcements in China and found the opposite results. Chinese equity investors react negatively and regard bank loan announcements as a bad signal for the future financial condition of the borrowing firms.

In developed countries such as the US, the UK, Australia, Canada, Japan and South Korea, banks operate on a commercial basis. Their lending activity is determined commercially by banks themselves and is merely based on the performance and financial condition of the borrowing firms. Furthermore, banks' lending processes are under the enriched notion of "inside debt". James (1987) pointed out that as an inside debt, bank loans are a way of avoiding the underinvestment problem associated with information asymmetries. In addition, banks usually have more professional measurements to evaluate a firm's growth potential. Fama (1985) found that in contrast to other financial intermediaries, banks have a comparative cost advantage in screening and monitoring borrowers' qualifications. Therefore, in the equity investors' view, bank loan announcements contain much valuable inside information about the borrowing firms. (Myers & Majluf, 1984). As a result, bank loan announcements tend to lead to a positive stock price reaction in countries with a non-government-controlled banking system.

The Chinese banking sector is typically under a government-controlled system (Zhang et al., 2010). Notably, the Big Four banks are all government-affiliated banks and dominate the banking industry. The state-owned/controlled commercial banks face more pressure to issue loans for political reasons, such as policy objectives or political criteria and connections, rather than economic considerations (Bailey et al., 2011; Dobson and Kashyap, 2006). Almost every state-owned/controlled companies/institutions/organizations establish a Party Branch in China, so that Senior Party members inevitably participate in the general management. According to Dobson and Kashyap (2006), government directors and Party appointees are normally on the board or among the senior managers of the Big Four banks. Their intervention undermines banks' independence in lending activities. State-related entities are involved not only in the banking system, but also in large-sized listed firms (i.e., SOEs). Even though some money-losing SOEs are in serious financial distress, the Big Four banks have to support them and make loans to them as a bailout or government aid in order to maintain social stability. Thus, most investors are not favorable to listed firms with funding from a state-owned/controlled bank in China, especially the listed SOEs.

In a sub-sample analysis, Gan et al. (2014) found that the negative response is statistically significant only for the period from 1996 to 2004 but not for the period from 2005 to 2009. They attributed the difference to the success of the reform measures adopted by the Chinese government.

Compared to Gan et al. (2014) and Bailey et al. (2011), our study uses an updated sample period (from 2005 to 2014) and examines the impact of the GFC and the massive stimulus package on the market reaction to bank loan announcements in China in order to see if banks in China changed their lending standards after the onset of the GFC.

4 Hypotheses and Methodology

4.1 Hypotheses

In this study, we test the following 3 hypotheses:

Firstly, Gan et al. (2014) mentioned that investors' attitudes towards bank loan announcements are opposite in government controlled and non-government controlled banking systems. While studies on bank loan announcements in Western countries typically find positive market reactions, those on the Chinese banks typically find negative reactions. Our first hypothesis is therefore as follows:

Null Hypothesis 1. There is no market reaction to bank loan announcements in China for the whole sample.

The alternative hypothesis is that there is a market reaction to bank loan announcements in China for the whole sample. More specifically, we expect the market reaction to be negative, similar to those findings by other studies on Chinese bank loan announcements.

Many studies have concluded that the stock market views the loan made by non-state-owned/controlled banks as a good signal in China since these banks tend to pursue shareholder value more. In contrast, state-affiliated banks sometimes grant loans based on political or social considerations. Our second hypothesis is therefore as follows:

Null Hypothesis 2. There is no difference in market reaction whether the bank loans are extended by state-owned or non-state-owned/controlled banks.

The alternative hypothesis is that there is a difference in market reaction to bank loan announcements, depending on whether the loans are extended by state-owned or for non-state-owned/controlled banks. More specifically, we expect the difference to be negative, i.e., the stock market reacts more negatively (or less positively) to loans made by state-owned banks than to those made by non-state-owned banks.

After the outbreak of the GFC in 2008, the State Council of China announced a massive CNY 4 trillion (USD 586 billion) fund to stimulate the economy. Banks were under pressure to lend money and the amount of bank loans increased sharply afterwards. Our final hypothesis is as follows:

Null Hypothesis 3. There is no market reaction to bank loan announcements in China after the official announcement of the stimulus package.

The alternative hypothesis is that there is a negative or positive market reaction to bank loan announcements in China after the stimulus package was announced officially. The negative reaction may be due to the pressure to lend whereas the positive reaction may be due to the deterioration in the macroeconomic environment and banks becoming more conservative in their lending standards.

4.2 Methodology

To quantify the impact of bank loan announcements on the stock prices of the borrowing firms, we use the standard event study methodology to calculate the abnormal returns. If a positive abnormal return is found, it shows that the bank loan announcement is a positive signal to investors. Equity investors have strong confidence in the embedded information in the loan announcement. If the abnormal return is negative, then the announcement is a negative signal regarding the future financial condition of the borrowing firm.

We chose a 250-day estimation window starting from 255 days prior to the announcement date and ending at 6 days before “Day 0” which is defined as the day that a bank loan is officially announced by a listed firm in the media or other designated newspaper or magazine. According to Shen and Li (2000), the length of an estimation period is usually from 100 days to 300 days. If the estimation period is too short, it will reduce the predictive power of the prediction model. But if the estimation period is too long, there may be structural changes during the estimation period and therefore instability in the prediction model (Fama, 1976).

In the literature, various event windows have been used. For example, Bailey et al. (2011) used [−5, −2] and Gan et al. (2014) adopted [−10, −1] to test whether there is symmetric information leakage before firms announced a bank loan in the Chinese market. Qing et al. (2011) chose two event windows [−10, −2] and [−1, 0]. The first one is to examine whether there are inside trading activities existing in the Hong Kong market (which was also tested by Wong et al. (2000) and Cheuk et al. (2006) using different windows) and the second window is to examine the unique advantages of banks in gathering information and monitoring debt contracts. Billett et al. (2006) tested the event period [1, 4] to study the post-announcement performance of bank borrowers. In our study, we shall use multiple event windows such as [−5, 5], [−5, −2], [−1, 0], [0, 2].[9]

After determining the length of the estimation window and event windows, we use the market model to estimate β (i.e., an individual stock’s systematic risk):[10]

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

$R_{i,t}$ is the return of stock i on day t. $R_{m,t}$ is market return on day t. $\varepsilon_{i,t}$ is the random error and α_i, β_i, are model parametres for stock i estimated by OLS.

[9] Although it is well known that the Chinese stock market is dominated by individual investors and is quite volatile (see Li et al., 2008; Liu et al., 2012), event studies have been widely applied in the context of the Chinese stock market, e.g., Bailey et al. (2011), Gan et al. (2014) and Wang et al. (2008).

[10] Additionally, bank loan announcements are often reported with a one-day lag, i.e., the listed firms sometimes make a bank loan announcement during trading hours of the previous day but only officially report it after one day. Inside trading activities may also exist in the stock market (Qing et al., 2011). Considering the non-synchronous phenomenon, we add a one-day lag to the improved market model, i.e., $R_{i,t} = \alpha_i + \beta_{1i} R_{m,t-1} + \beta_{2i} R_{m,t} + \varepsilon_{i,t}$, However, our results show that the majority of the estimated parameters are insignificant using the improved market model. Thus, we only employ the original market model (Equation (1)) in this study.

The assumptions included in this model are as follows (Beja, 1972; Fama & MacBeth, 1973):

(1) $E(\varepsilon_{i,t})=0$;

(2) $Cov(\varepsilon_{i,\gamma}, \varepsilon_{i,\tau}) = \begin{cases} 0, & \gamma=\tau \\ \sigma_i^2, & \gamma \neq \tau \end{cases}, \quad \gamma, \tau \in estimation\ window$;

(3) $Cov(\varepsilon_{i,t}, R_{m,t})=0$.

Next, we substitute the estimated parameters of the market model (Equation 1) into Equation 2 based on the information from the event windows, and compute the expected return of the individual stock i using the following equation:

$$E(\hat{R}_{i,t}) = \hat{\alpha}_i + \hat{\beta}_i R_{m,t}. \tag{2}$$

Then we calculate the abnormal return (AR) for individual stock i during the event window using Equation 3. As the model prediction error, it equals the difference between the actual stock return and the expected return.

$$AR_{i,t} = R_{it} - E(\hat{R}_{i,t}) = R_{i,t} - (\hat{\alpha}_i + \hat{\beta}_i R_{m,t}), \tag{3}$$

$AR_{i,t}$ is the abnormal return of stock i on day t. $R_{i,t}$ is the actual return of stock i on day t.

The daily average abnormal return (AAR) for the portfolio is calculated as follows:

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{i,t}. \tag{4}$$

N is the number of the listed firms in the data sample. t is from t_1 to t_2,[t_1, t_2] $\in$ the event window [−5,5].

Summing up the daily AARs, we can generate the average cumulative abnormal return (CAR) during the event window.

$$CAR_{(t_1,t_2)} = \sum_{t=t_1}^{t_2} AAR_t = \frac{1}{N}\sum_{i=1}^{N}\sum_{t=t_1}^{t_2} AR_{i,t}. \tag{5}$$

To test if the AARs or the average CARs are statistically significantly different from zero, we follow Bailey et al. (2011), Gan et al. (2014) and James (1987) and use the standard two-tailed t-test, the sign test and Wilcoxon signed rank test.

Finally, we analyze the determinants of the cumulative abnormal returns using the following multiple regression analysis:

$$CAR_{(t_1,t_2)} = \alpha + \beta_1 B_1 + \beta_2 B_2 + \beta_3 F_1 + \beta_4 F_2 + \beta_5 F_3 + \beta_6 L_1 + \beta_7 L_2 + \beta_8 L_3 + \beta_9 L_4 + \beta_{10} L_5 + \beta_{11} L_{6A} + \beta_{12} L_{6B} + \varepsilon. \quad (6)$$

The 12 factors are all dummy variables. These independent variables are used to control for lender characteristics (i.e. B_1 and B_2), borrowing firm characteristics (i.e. from F_1 to F_3) and loan characteristics (i.e. from L_1 to L_{6B}). Please refer to Appendix A for the detailed description of each dummy variable.

5 Data and Results

5.1 Data

We collected all the bank loan announcements data from CSMAR (China Stock Market and Accounting Research) for the period from January 1, 2005 to December 31, 2014. In order to examine the influence of the stimulus package after the GFC, we divided the whole period into two subsamples and used November 15, 2008 as the demarcation date. Hence, the 1st subsample covers the period January 1, 2005 to November 15, 2008 and the 2nd subsample covers the period from 16 November 2008 to December 31, 2014.

The bank loan announcements are from the firms listed on the Shanghai Securities Exchange (SSE) and the Shenzhen Securities Exchange (SZSE) in China. According to the requirements of Chinese security laws (Article 62, Section 3, announced on July 1, 1999), all the listed firms must disclose important events that may significantly affect their stock prices, such as major changes in management policy and business scope, decisions on major investments and property acquisitions, important contracts that may impact firms' operational status, major losses, major changes in the external conditions for production and management, changes in the chairman of the board of directors or over 1/3 of the directors, and major litigation (Bailey et al., 2011).

However, as pointed out by Gan et al. (2014), Huang et al. (2012) and Lummer & McConnell (1989), many bank loan announcements issued by listed companies are not suitable for this study for various reasons (listed below). Following the literature, we re-checked all the announcements downloaded from CSMAR and filtered out the affected ones.

Bailey et al. (2011) define "credit agreement" announcements as "The ceiling on loans may extend to a certain firm over a period of time but are not actual loan offers for potential investment projects or other use of funds." Because of the uncertainty, a credit agreement is regarded as a loan commitment from banks. The "prequalification" loan announcements contain less information and have a weaker influence on investor behavior than the actual announcements. Thus we deleted all the "credit agreements" and only kept the announcement of a loan approved by a bank with a certain contract.

Sometimes, bank loan announcements are surrounded by other corporate events, such as stock issues, debt issues, earnings, dividend distribution, mergers and acquisitions, CEO turnover, or other types of concurrent financing arrangements and lawsuits. They are defined as "contaminated announcements". Bailey et al. (2011), Boscaljon & Ho (2005), Gan et al. (2014), Huang et al. (2012) and Qing et al. (2011) argued that other information during the event period can also cause stock price fluctuation. Especially after 2005, the Chinese government started to implement a series of reforms in the banking sector. For instance, some wholly state-owned banks were approved to be listed as public companies. The share-split announcements during the reform period might have had enormous impacts on investor behavior. To minimize the effect of these confounding events, we excluded all the bank loan announcements intersected with "contaminated information" during our event window [−5, 5].

Furthermore, we deleted the bank loan announcements issued by a firm with incomplete daily stock price data or issued by the parent company for their indirect/direct wholly/non-wholly owned subsidiaries. We also eliminated a few announcements with mixed lenders (i.e. syndicated loans). As well, the entrusted loan announcements between the listed company and its related parties are excluded from our sample.[11,12] In order to reduce the impact from interbank

[11] Since 2001, the People's Bank of China has allowed entrusted loans in the financial industry. Due to the restrictions on direct borrowing and lending between firms in China, entrusted loans organized by an agent bank offer firms an opportunity to earn interest with their idle funds. In an entrusted loan, the agent bank is regarded as the trustee and the firm providing the funds is considered the trustor. The trustee collects the principal and any interest, for which it charges a handling fee, but does not assume any of the credit risk involved. As a unique financing pattern, entrusted loans are treated as off-balance sheet assets because agent banks do not assume any credit risk, which can hide the risks banks face if lenders are unable to pay. See Investopedia website: http://www.investopedia.com/terms/e/entrusted-loan.asp#ixzz3pkVZ9eDR

[12] According to the "Accounting Criteria of Corporations" issued by the Ministry of Finance in China, a related party is defined as the one which may cause the listed firms' benefit transfer or have significant influence on listed firms' financial and operational activities. Related parties may include the listed firm's shareholders, its actual controllers, directors, supervisors, senior executives, large investors, joint operating partners, senior managers' family members and companies which are directly and indirectly controlled by the listed firm (such as parent company, subsidiary companies) etc. (Bailey et al., 2011).

lending activity, we also dropped the announcements published by finance companies. Additional exclusion includes financial leasing announcements and other special occasions.

We eventually obtained 250 effective bank loan announcements during the sample period (2005–2014).[13] Since a borrowing firm can borrow from different banks at the same time and hence announce a number of borrowing agreements on the same day, our final sample for the event studies (where the borrowing firm's abnormal returns are computed) has 151 observations (see also "Number of Borrowing Firms" Column in Panel A of Table 1).

We obtained other related financial data such as the daily market indexes,[14] the adjusted stock prices15 and the total assets of the listed firms from the Thomson Reuters and DataStream databases.

5.2 Empirical Results

5.2.1 Summary Statistics

Table 1 provides the descriptive statistics of bank loan announcements and subsamples based on bank, borrower and loan characteristics.

Panel A presents the annual distribution of all qualified bank loan announcements during the whole sample period and the two sub-sample periods. The total number of announcements is 250. There are 177 announcements in the 1st sub-sample (i.e., the period from 2005 to 2008), accounting for 70.8% of the

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[13] Sometimes, one firm can borrow from different banks and makes the announcement on the same day. When we calculate the abnormal returns or CARs for one listed firm during a specific estimation window and event window, we treat it as a single reaction. Even though we have 250 loans in the sample, the number of observations for the CAR calculation (i.e., the borrowing firms) is 151. Moreover, when we examine the impact of loan, lender and borrower characteristics on the average CARs, we exclude those cases from the sample. Hence, the number of observations is 108 for that type of analysis (i.e., Tables 6 to 8).

[14] The market indexes contain the SSE Composite Index (000001) and SZSE Composite Index (399106), since they are a market capitalization-weighted grouping of all the A-shares and B-shares which are traded on the Shanghai Securities Exchange and Shenzhen Securities Exchange, respectively. The two indexes provide a benchmark to measure and track price levels in the entire Chinese stock market.

[15] When examining historical returns, we chose the adjusted closing price which can more accurately represent the listed company's equity than the simple market price. The closing price is adjusted by all corporate actions such as stock splits, dividends/distributions and rights offerings.

total announcements. The number of bank loan announcement is much smaller for the 2nd sub-sample (i.e., the period from 2009 to 2014) with 73 announcements, accounting for less than 30%.

Panel B provides the descriptive statistics of borrower characteristics. The average firm size is 5.03 billion CNY for the whole sample. For the sub-samples, the average size increases substantially from 3.37 billion CNY for the 1st sub-sample to 8.92 billion CNY for the 2nd sub-sample. Regarding the number of announcements, small firms (i.e., those with assets below the median) are the majority of borrowers from the banks in the 1st sub-period. There are 85.14% (149 of 175) bank loan announcements from small firms. Aintablian & Roberts (2000) have pointed out that small enterprises may get more benefits from bank monitoring services. Qing et al. (2011) also argued that borrowing from the banks is an easier and more convenient source of financing for small firms due to their relatively shorter history, fewer finance channels, and poorer reputations when compared with large firms.

The number of loan announcements from large firms shows an upward trend (from 26 to 48). Furthermore, the number of bank loan announcements from firms with B-shares or H-shares declines dramatically. Compared to 22 announcements in the 1st sub-period, there is only 1 bank loan announcement published in the 2nd sub-period. Companies with offshore share listings may have more sources of financing than other listed companies.

Most bank loans (152 of 250) are extended to state-owned/controlled firms, which are nearly twice that from non-SOE firms (98 of 250). According to Bailey et al. (2011), the majority of the listed firms in China have the state or state-related institutions as their largest shareholders. The state-related entities have the actual controlling power by holding a certain percentage of firms' equity stake. It is highly likely that the government interacts with SOEs' borrowing activities. Lastly, as the manufacturing sector takes over a large part of the Chinese stock market, over two-fifths (107 of 250) of the bank loan announcements are from manufacturing companies, with the transportation sector coming in second.

Panel C is the descriptive statistics of bank loan announcements by lender characteristics. The results show that the majority of loans are issued by the Big Four banks (118 of 250) and city commercial banks (100 of 250). In sub-periods, the number declines from 88 to 30 for the Big Four banks and from 65 in the 1st period to 35 in the 2nd period for city commercial banks.

Furthermore, the loans from the government-controlled banks account for 67.6% (169 of 250). Especially for the 1st sub-period, the number of loans made by the state-owned/controlled banks (127 of 175) is nearly three times that issued by non-state-owned/controlled banks (48 of 175). However, the numbers of announcements decreases sharply in the 2nd sub-period. The state-owned/controlled bank loan announcements dropped from 127 to 42.

Panel D shows the descriptive statistics of loan characteristics. Almost 88.8% (222 of 250) of the loans are below the median size (7.48% of total assets). For the 1st sub-sample period, the average loan size is 9.44% of total assets, which is much higher than that in the 2nd sub-sample period (2.91% of total assets). This may imply that the banks became more cautious when approving firms' loan applications after the onset of the GFC.

Regarding loan maturity, the average maturity of loans is 2.37 years for the whole sample. For the two sub-periods, the average maturity increased from 2.06 years to 3.03 years. Regarding collateral or guarantees for the loans, banks tend to issue loans to the listed companies with another firm's guarantee (132 of 250). As for the purpose of the loans, more than half the amount of the loans (137 of 250) are used for the firms' general operating activities.

Table 1 Sample Characteristics and Descriptive Statistics for Bank Loans in China (2005–2014)

Panel A: Annual distribution of bank loan announcements after selection

Year of Announcement	Number of Announcements	Number of Borrowing Firms
2005	51	30
2006	30	12
2007	46	28
2008	50	25
2009	23	18
2010	7	7
2011	8	7
2012	18	12
2013	11	6
2014	6	6
Total	**250**	**151**

(*To be continued*)

(*Continued*)

Panel B: Descriptive statistics sorted by borrower/firm characteristics						
	Whole Sample		**Before Stimulus Package**		**After Stimulus Package**	
	Obs	**Mean**	**Obs**	**Mean**	**Obs**	**Mean**
Firm size						
Total assets (billion CNY)	250	5.03	175	3.37	75	8.92
Large firms (>= median)	74	11.79	26	10.25	48	12.62
Small firms (< median)	176	2.19	149	2.16	27	2.36
Offshore shares						
With B/H-shares	23		22		1	
Firm ownership						
State-owned/ controlled firms	152		109		43	
Others	98		66		32	
Industry						
Manufacturing	107		73		34	
Information technology	2		2		0	
Real estate	28		17		11	
Transportation	88		64		24	
Others	25		19		6	

Panel C: Descriptive statistics sorted by lender/bank characteristics			
	Whole Sample	**Before Stimulus Package**	**After Stimulus Package**
	Observations	**Observations**	**Observations**
Bank types			
Big Four banks	118	88	30
Private banks	7	4	3
City commercial banks	100	65	35
Other banks	25	18	7
Total	**250**	**175**	**75**
Bank ownership			
State-owned/controlled banks	169	127	42
Other banks	81	48	33
Total	**250**	**175**	**75**

(*To be continued*)

(*Continued*)

Panel D: Descriptive statistics sorted by loan characteristics						
	Obs	**Mean**	**Obs**	**Mean**	**Obs**	**Mean**
Loan Type						
Renewed loans	10		9		1	
New loans	240		166		74	
Loan Size						
Amount of loan (% of total assets)	250	7.48	175	9.44	75	2.91
Large loans (>= median)	28	49.32	22	58.96	6	13.96
Small loans (< median)	222	2.2	153	2.32	69	1.95
Loan Maturity						
Maturity of loan (years)	216	2.37	147	2.06	69	3.03
Short term loans (⩽1 year)	137	0.92	102	0.91	35	0.95
Long term loans (>1 year)	79	4.89	45	4.67	34	5.17
Guarantee & Collateral						
Loans guaranteed by other firms	132		90		42	
Loans guaranteed by own credit	118		85		33	
Loans with collateral	56		35		21	
Loan proposal						
No purpose stated	60		38		22	
Project investment	39		25		14	
Capital expenditures	10		4		6	
General corporate purposes	137		104		33	
Repayment of debts	4		4		0	

Notes. Table 1 presents the descriptive statistics of the sample. The sample consists of 250 bank loan announcements made by the listed companies in the Shanghai and Shenzhen Securities Exchanges from January 1, 2005 to December 31, 2014, after eliminating all the contaminated bank loan announcements. The whole sample is divided into two sub-samples, before and after 15 November, 2008, when the Chinese government first announced the massive stimulus package.

5.2.2 Market Response to Bank Loan Announcements

Table 2 presents the results of the market reaction to bank loan announcements in China for the whole sample. Panel A shows the average excess returns for each day during the event window [−5, 5]. As can be seen, most of the AARs are negative and statistically insignificant. But on the bank loan announcement day (Day 0), the stock market response is negative with an average abnormal return of −0.411%.and it is statistically significant under both parametric and nonparametric tests.

Panel B displays the CARs for various event windows. Only the average CAR of event window [0, 1] is statistically significant at the 10% level. However, the typically negative effect exists for nearly all reported windows except for [−5, −2] (0.236%). The results are consistent with Shen et al. (2007), Bailey et al. (2011) and Gan et al. (2014).

The above results imply that Chinese investors have less confidence in the banks' certification role in the lending process and they view the bank loan announcement as a bad signal for the borrowers' financial condition. Thus we reject Null Hypothesis 1 and accept the alternative hypothesis that there is a significant negative market reaction to bank loan announcements in China for the whole sample.

Additionally, regarding the systemic information leakage before a bank loan announced to the public, Armitage (1995) examined the abnormal returns in the UK market and found that if significant excess returns appear in the pre-announcement days, the information is divulged. Qing et al. (2011) tested the average [−10, −2] CAR and concluded that there is a strong information leakage problem around non-bank loan announcements in the Hong Kong market. Our results show a statistically insignificantly positive average [−5, −2] CAR (0.236%). In other words, we found no evidence of systemic information leaks before a bank loan was announced in the Chinese stock market. Our result is consistent with those of Bailey et al. (2011) and Gan et al. (2014), who examined the leakage phenomenon in China as well.

Table 2 Abnormal Returns around Bank Loan Announcements in China (2005–2014)

Panel A: Average Abnormal Returns (AARs)

Event Day (0: announcement day)	AAR (%)	*t*-Test	Percent of AAR >0	Sign Test	Wilcoxon Signed Rank Test
−5	0.142%	0.712	49.669%	−0.081	−0.102
−4	0.100%	0.456	43.709%	−1.546	−0.340
−3	−0.138%	−0.657	49.669%	−0.081	−0.466

(*To be continued*)

(*Continued*)

Event Day (0: announcement day)	AAR (%)	*t*-Test	Percent of AAR >0	Sign Test	Wilcoxon Signed Rank Test
Panel A: Average Abnormal Returns (AARs)					
−2	0.132%	0.649	48.344%	−0.407	−0.035
−1	−0.032%	−0.163	47.020%	−0.732	−0.845
0	−0.411%	−2.077**	43.046%	−1.709*	−2.400**
1	−0.123%	−0.538	45.033%	−1.221	−0.485
2	−0.017%	−0.084	46.358%	−0.895	−0.652
3	0.045%	0.235	49.007%	−0.244	−0.362
4	−0.185%	−0.995	47.020%	−0.732	−1.377
5	0.349%	1.670*	49.669%	−0.081	−0.940
Panel B: Average Cumulative Abnormal Returns (CARs) over Various Event Windows					
Event Window (0: announcement day)	**CAR (%)**	***t*-Test**	**Percent of AAR >0**	**Sign Test**	**Wilcoxon Signed Rank Test**
[−5, 5]	−0.137%	−0.196	48.344%	−0.407	−0.503
[−1, 1]	−0.565%	−1.521	38.411%	−2.848***	−1.769*
[−2, 2]	−0.450%	−0.867	45.695%	−1.058	−0.858
[−3, 3]	−0.543%	−0.928	47.020%	−0.732	−0.949
[−4, 4]	−0.627%	−0.994	44.371%	−1.383	−0.972
[−5, −2]	0.236%	0.472	50.331%	0.081	−0.115
[−1, 0]	−0.442%	−1.480	41.722%	−2.035**	−1.954*
[−1, 2]	−0.582%	−1.319	42.384%	−1.872*	−1.514
[−1, 3]	−0.537%	−1.130	41.060%	−2.197**	−1.365
[−1, 4]	−0.722%	−1.485	40.397%	−2.360**	−1.956*
[0, 1]	−0.533%	−1.695*	42.384%	−1.872*	−1.802*
[0, 2]	−0.550%	−1.380	41.722%	−2.035**	−1.258

Notes. Table 2 presents the average abnormal returns (AARs) and the average cumulative abnormal returns (CARs) during the whole research period, calculated using the market model and standard event study methodology. The number of observations is 151.The estimation window for calculating the market model parameters is [−255,−6]. The parametric and nonparametric tests are both used in the significance test of AARs and CARs. The 2-tail *t*-test, as the parametric test, has the null hypothesis of the abnormal returns not being significantly different from zero. The sign test, one of the nonparametric tests, divides data into binary outcomes with the null hypothesis that the percentage of positive AAR (or CAR) equals to the percentage of negative AAR (or CAR). The Wilcoxon signed rank test, also one of the nonparametric tests, has the null hypothesis that the magnitude of positive AAR (or CAR) equals the magnitude of negative AAR (or CAR). *, **, *** indicates significance at the 10%, 5% and 1% level, respectively.

Table 3 shows the AARs on each event day and average CARs over various event windows for the 1st sub-sample (i.e., before the stimulus package announced by the Chinese government). On Day 0, the average abnormal return is still negative and statistically significant at the 5% level and it has the largest negative value (−0.638%) for event window [−5, 5], which is consistent with the results for the whole sample period (See Table 2). For the cumulative abnormal returns, event window [0, 1] has a CAR of −0.828% and it is statistically significant at the 10% level for the parametric test (two-tailed *t*-test) and at 5% for the nonparametric test (sign test and Wilcoxon signed rank test).

The results demonstrate that equity investors viewed bank loan announcements as a bad signal for listed Chinese firms before the GFC. The possible reason for the negative reaction is that government intervention may exist in the lending market. The majority of Chinese banks, especially the Big Four banks, were controlled by government entities and lent typically to SOEs. Individuals or non-state-owned firms still have difficulties in borrowing from the Chinese state-owned/controlled banks (Gan et al., 2014). Furthermore, these banks' lending activities are not purely based on a borrower's growth perspective instead of political considerations. If a firm applies for a loan from banks, Chinese equity investors view this as a signal that the firm is probably having financial troubles and requires a bailout.

Our results for the 1st sub-period is different from those of Gan et al. (2014). Gan et al. (2014) found that, for the sub-period 2005 to 2009, the negative market reaction was no longer statistically significant. The difference is probably due to the fact that their sample period is slightly different from ours (January 1, 2005 to November 15, 2008) and the number of observations is also different.

Table 3 Abnormal Returns around Bank Loan Announcements in China (Before Stimulus Package)

Panel A: Average Abnormal Returns (AARs)

Event Day (0: announcement day)	AAR (%)	*t*-Test	Percent of AAR >0	Sign Test	Wilcoxon Signed Rank Test
−5	0.308%	1.156	51.613%	−0.695	−0.138
−4	0.056%	0.201	37.634%	−0.466	−0.688
−3	−0.237%	−0.820	48.387%	−0.481	−0.108
−2	0.339%	1.268	58.065%	−1.301	−0.653

(*To be continued*)

(*Continued*)

Panel A: Average Abnormal Returns (AARs)					
Event Day (0: announcement day)	**AAR (%)**	***t*-Test**	**Percent of AAR >0**	**Sign Test**	**Wilcoxon Signed Rank Test**
−1	−0.024%	−0.088	47.312%	−0.634	−0.348
0	−0.638%	−2.233**	40.860%	−2.508**	−1.835*
1	−0.190%	−0.653	47.312%	−0.274	−0.547
2	0.083%	0.295	48.387%	−0.194	−0.307
3	0.125%	0.498	50.538%	−0.052	−0.389
4	−0.093%	−0.341	48.387%	−0.787	−0.811
5	0.219%	0.888	46.237%	−0.266	−0.904
Panel B: Average Cumulative Abnormal Returns (CARs)					
Event Window (0: announcement day)	**CAR (%)**	***t*-Test**	**Percent of AAR >0**	**Sign Test**	**Wilcoxon Signed Rank Test**
[−5, 5]	−0.053%	−0.056	47.312%	−0.519	−0.347
[−1, 1]	−0.852%	−1.686*	38.710%	−2.178**	−1.730*
[−2, 2]	−0.431%	−0.609	46.237%	−0.730	−0.538
[−3, 3]	−0.543%	−0.702	45.161%	−0.933	−0.906
[−4, 4]	−0.580%	−0.660	43.011%	−1.348	−0.757
[−5, −2]	0.465%	0.683	52.688%	0.519	−0.922
[−1, 0]	−0.662%	−1.548	43.011%	−1.348	−1.673*
[−1, 2]	−0.770%	−1.255	40.860%	−1.763*	−1.439
[−1, 3]	−0.645%	−0.986	39.785%	−1.970*	−1.454
[−1, 4]	−0.737%	−1.098	38.710%	−2.178**	−1.856*
[0, 1]	−0.828%	−1.940*	39.785%	−1.970**	−1.979**
[0, 2]	−0.746%	−1.350	38.710%	−2.178**	−1.182

Notes. Table 3 presents the average abnormal returns (AARs) and the [0, 1] average cumulative abnormal returns (CARs) before the Chinese government announced the stimulus package on 15 November, 2008, calculated by using the market model and standard event study methodology. The number of observations is 151. The estimation window for calculating the market model parameters is [−255,−6]. The parametric and nonparametric tests are both used in the significance test of AARs and CARs. The 2-tail *t*-test, as the parametric test, has the null hypothesis of the abnormal returns being not significantly different from zero. The sign test, one of the nonparametric tests, divides data into binary outcomes with the null hypothesis that the percentage of positive AAR (or CAR) equals to the percentage of negative AAR (or CAR). The Wilcoxon signed rank test, also one of the nonparametric tests, has the null hypothesis that the magnitude of positive AAR (or CAR) equals the magnitude of negative AAR (or CAR). *, **, *** indicates significance at the 10%, 5% and 1% level, respectively.

Table 4 shows the AARs on each event day and average CARs over various event windows after the stimulus package was announced by the Chinese government (i.e., the 2nd sub-sample). All the excess returns and cumulative abnormal returns are statistically insignificant at the 10% level. The results are consistent with *Null Hypothesis 3*: there is no negative market reaction to bank loan announcements in China after the official announcement of the stimulus package. In comparison with the 1st sub-period, we can see that the negative effect of bank loan announcements disappears in the 2nd.

The above results may be due to two reasons: Firstly, after the onset of the GFC, banks typically tightened their lending standards and became more selective in making loans. Secondly, in the 2nd sub-period, the percentage of loans made by non-state-owned banks such as city commercial banks, private banks and foreign banks approached 50%. Compared to the banks with largely government ownership, these banks tend to pay more attention to asset quality and are more cautious in the screening and monitoring process and grant bank loans for commercial reasons (Barth et al., 2004; Altunbas et al., 2001).

Table 4 Abnormal Returns around Bank Loan Announcements in China (After Stimulus Package)

Panel A: Average Abnormal Return (AAR)

Event Day (0: announcement day)	AAR (%)	*t*-Test	Percent of AAR >0	Sign Test	Wilcoxon Signed Rank Test
−5	−0.124%	−0.425	46.552%	−0.525	−1.158
−4	0.171%	0.473	53.448%	0.525	−0.383
−3	0.020%	0.070	51.724%	0.263	−0.043
−2	−0.199%	−0.643	32.759%	−2.626***	−1.792*
−1	−0.043%	−0.169	46.552%	−0.525	−0.523
0	−0.046%	−0.200	46.552%	−0.525	−0.476
1	−0.014%	−0.038	41.379%	−1.313	−0.499
2	−0.177%	−0.637	43.103%	−1.051	−0.871
3	−0.085%	−0.293	46.552%	−0.525	−0.654
4	−0.332%	−1.593	44.828%	−0.788	−1.405
5	0.556%	1.488	55.172%	0.788	−1.158

(*To be continued*)

(*Continued*)

Panel B: Cumulative Average Abnormal Return (CAR)

Event Window (0: announcement day)	CAR (%)	*t*-Test	Percent of AAR >0	Sign Test	Wilcoxon Signed Rank Test
[−5, 5]	−0.272%	−0.266	50.000%	0.000	−0.190
[−1, 1]	−0.103%	−0.196	37.931%	−1.838	−0.678
[−2, 2]	−0.479%	−0.649	44.828%	−0.788	−0.685
[−3, 3]	−0.544%	−0.608	50.000%	0.000	−0.383
[−4, 4]	−0.704%	−0.722	46.552%	−0.525	−0.507
[−5, −2]	−0.132%	−0.185	46.552%	−0.525	−1.181
[−1, 0]	−0.090%	−0.244	39.655%	−1.576	−1.165
[−1, 2]	−0.280%	−0.469	44.828%	−0.788	−0.554
[−1, 3]	−0.365%	−0.549	43.103%	−1.051	−0.383
[−1, 4]	−0.696%	−1.037	43.103%	−1.051	−0.770
[0, 1]	−0.060%	−0.135	46.552%	−0.525	−0.391
[0, 2]	−0.237%	−0.435	46.552%	−0.525	−0.484

Notes. Table 4 presents the average abnormal returns (AARs) and the [0, 1] average cumulative abnormal returns (CARs) after the Chinese government announced the stimulus package on 15 November, 2008, calculated by using the market model and standard event study methodology. The number of observations is 151. The estimation window for calculating the market model parameters is [−255,−6]. The parametric and nonparametric tests were both used in the significance test of AARs and CARs. The 2-tail *t*-test, as the parametric test, has the null hypothesis of the abnormal returns not being significantly different from zero. The sign test, one of the nonparametric tests, divides data into binary outcomes with the null hypothesis that the percentage of positive AAR (or CAR) equals to the percentage of negative AAR (or CAR). The Wilcoxon signed rank test, also one of the nonparametric tests, has the null hypothesis that the magnitude of positive AAR (or CAR) equals to the magnitude of negative AAR (or CAR). *, **, *** indicates significance at the 10%, 5% and 1% level, respectively.

5.2.3 Results Based on Borrower, Lender and Loan Characteristics

To shed more light on the market reaction to the bank loan announcements in China, we examine how borrower, lender and loan characteristics are related to the abnormal returns. Both parametric tests (two-tailed *t*-test) and nonparametric tests (sign test and Wilcoxon signed rank test) are used to test whether the average [0, 1] cumulative abnormal returns are significantly different in each subgroup.

Table 5 shows the summary statistics of [0, 1] CAR over the period 2005 to 2014. For this type of analysis, we eliminated loan announcements where one firm was borrowing from multiple banks at the same time. As a result, we are left with 108 observations.

Panel A shows the average CARs for different types of banks. We classify banks into two sub-groups, namely, the Big Four and others. For the number of loan announcements, there are 41 loans extended by the Big Four banks and other remaining 67 are by other banks. While loan announcements issued by both groups of banks led to negative but statistically insignificant market reactions (−0.45% for the Big Four banks, −0.303% for other banks). Although the CARs for the Big Four banks are more negative, further tests show that there is no difference in the average CARs of the two sub-groups. Altunbas et al. (2001) and Barth et al. (2004) argue that banks with a high degree of government ownership operate inefficiently in lending activities. These state-owned/controlled banks (especially the Big Four) have more responsibilities to maintain social stability and are often forced to lend policy-based loans, which generally leads to unfavorable economic consequences.

Panel B presents the 2-day [0, 1] CAR over the bank loan announcements sorted by borrower characteristics. In this study, all the borrowers are listed firms in Shanghai and Shenzhen stock exchanges. Using total assets to represent the firm size, out of the 108 loans, 72 were extended to small firms with an average CAR of (−0.365%) and the remaining 36 were lent to large firms with an average CAR of (−0.347%). In accordance with expectations, the number of announcements from a firm with government entities involved (57 of 108) is slightly more than that from a non-SOEs (51 of 108). Therefore, the announcements from state-owned/controlled firms display a significantly negative CAR (−0.947%) at the 5% significance level, while the CAR from other firms is positive (0.298%). The results are evidence that under some circumstances, bank loans are used as a bailout to help the listed SOEs overcome their financial hardship, implying that the policy-related motivation is still the primary consideration in a bank's lending. Investors understand that the credit assessment process of bank loans is not purely based on the SOE's performance. Finally, bank loan announcements from firms with offshore shares, namely B-shares and H-shares, cause strongly negative and statistically significant market responses (−2.005%).

Panel C shows the univariate statistics of loan characteristics for the whole sample period. For announcements of loan renewals, the results show a positive and statistically significant 2-day [0, 1] CAR (3.399%). The above result is different from the findings of Cui & Zhao (2004), Boscaljon & Ho (2005), and Gan et al. (2014). They argue that subsequent loans are usually used to prop up troubled enterprises, so the renewed loan announcements are perceived as bad market signals for equity investors. Our results imply that because the bank's screening and monitoring procedures have become more rigorous and comprehensive in recent years, the willingness for a bank to renew an old contract indicates the listed firm has an up-and-coming business with a healthy operations condition, and a good standing in the bank's lending assessment system. Therefore, a renewed loan announcement has becomes a favorite market signal to equity investors.

Regarding loan size, it is calculated as a relative value, i.e., loan size divided by the borrower's total assets. The small-sized loans (80 of 108) are more common in the market. But the large-sized loans generate a more negative CAR (−0.731%) than smaller ones (−0.229%). According to Krishnaswami et al. (1999) and Kang & Liu (2008), the large-sized loans contain more inside information. Bailey et al. (2011) and Gan et al. (2014) have suggested that large-sized loans are usually used as financial aid to help troubled firms, especially in the banking system where political lending behaviors are common.

Regarding loan maturity, the negative CAR (−0.369%) is statistically insignificant for loans with 1 year or shorter maturity, but significant for loans with longer than 1 year maturity (−0.874%). Gan et al. (2014) concluded that Chinese investors react unfavorably to short maturity loan announcements, but the market reacts positively to short-term loans within the non-government-controlled banking system. Their explanation is that the assessment procedure is more frequently applied when the bank renews an old loan. This behavior helps the banks be privy to the firm's updated operations information and monitor the loan risk effectively. Firms with worsening financial and operational conditions tend to seek loans with longer maturity, hence, the difference in market reactions.

Lastly, the results show that bank loans with another firm's guarantee have a positive CAR of 0.146%. Bank loans used for capital expenditure or debt repayment lead to large negative abnormal returns (−3.411% for loans used for debts repayment, −2.296% for loans used for capital expenditure).

Table 5 Cumulative Abnormal Returns Sorted on Lender, Borrower and Loan Characteristics (2005–2014)

Panel A: Values of CAR [0,1] for Various Types of Banks						
Types of Banks	**Obs.**	**CAR [0,1]**	***t*–Test**	**Percent of CAR >0**	**Sign Test**	**Wilcoxon Signed Rank Test**
Big Four banks	41	−0.450%	−0.731	43.902%	−0.781	−0.810
Other banks	67	−0.303%	−0.624	44.776%	−0.855	−0.675
Panel B: Sorted by Borrower Characteristics (Listed Firms)						
Categories	**Obs.**	**CAR [0,1]**	***t*-Test**	**Percent of CAR >0**	**Sign Test**	**Wilcoxon Signed Rank Test**
By Firm Size (Total Assets)						
Above Median (>= Median)	36	−0.347%	−0.524	44.444%	−0.667	−0.424
Below Median (< Median)	72	−0.365%	−0.782	44.444%	−0.943	−1.061
By Industry						
Manufacturing	51	0.033%	0.060	45.098%	−0.700	−0.188
Information Technology	2	1.773%	0.468	50.000%	0.000	−0.447
Real Estate	24	−0.183%	−0.210	41.667%	−0.817	−0.343
Transportation	14	−0.385%	−0.679	42.857%	−0.535	−0.659
Others	17	−2.013%	−1.754*	47.059%	−0.243	−1.444
By Ownership						
State-owned/controlled Firms	57	−0.947%	−2.098**	38.597%	−1.722*	−1.966**
Others	51	0.298%	0.482	50.980%	0.140	−0.412
By Firms with B-shares or H-shares						
with B/ H-shares	9	−2.005%	−2.450**	22.222%	−1.667*	−2.073**
without B/ H-shares	99	−0.209%	−0.517	46.465%	−0.704	−0.499
Panel C: Sorted by Loan Characteristics						
By Loan Type						
Renewed Loan	4	3.399%	2.934***	100.000%	2.000**	−1.826*
New Loan	104	−0.504%	−1.306	42.308%	−1.569	−1.463
By Relative Loan Size (Loan amount/ Total Assets)						
Above Median (>= Median)	10	−0.386%	−0.515	40.000%	−0.633	−0.561
Below Median (< Median)	98	−0.356%	−0.864	44.898%	−1.010	−0.920

(*To be continued*)

(*Continued*)

Panel C: Sorted by Loan Characteristics						
Categories	**Obs.**	**CAR [0,1]**	***t*-Test**	**Percent of CAR >0**	**Sign Test**	**Wilcoxon Signed Rank Test**
By Loan Maturity						
1 year or shorter	60	−0.369%	−0.686	48.333%	−0.258	−0.677
Longer than 1 year	39	−0.874%	−1.658*	35.897%	−1.761*	−1.270
By Guarantee						
With Other Firm's Guarantee	63	0.146%	0.321	49.206%	−0.126	−0.048
Without Other Firm's Guarantee	45	−1.066%	−1.658*	37.778%	−1.640	−1.609
By Collateral						
With Collateral	37	−1.243%	−1.854*	43.243%	−0.822	−1.320
Without Collateral	71	0.102%	0.224	45.070%	−0.831	−0.338
By Loan Purpose−Debts Repayment						
Repayment of Debts	1	−3.411%	N/A	0.000%	−1.000	−1.000
Other Purposes	107	−0.331%	−0.865	44.860%	−1.063	−0.914
By Loan Purpose−Capital Expenditures						
Capital Expenditures	7	−2.296%	−4.490***	14.286%	−1.890*	−2.197**
Other Purposes	101	−0.225%	−0.560	46.535%	−0.697	−0.500

Notes. Table 5 presents the [0, 1] average cumulative abnormal returns (CARs) around bank loan announcements by subsamples based on borrower, lender and loan characteristics. The total number of observations is 108. The parametric and nonparametric tests were both used in the significance test of CARs. The 2-tail *t*-test, as the parametric test, has the null hypothesis of the abnormal returns not being significantly different from zero. The sign test, one of the nonparametric tests, divides data into binary outcomes with the null hypothesis that the percentage of positive AAR (or CAR) equals to the percentage of negative AAR (or CAR). The Wilcoxon signed rank test, also one of the nonparametric tests, has the null hypothesis that the magnitude of positive AAR (or CAR) equals to the magnitude of negative AAR (or CAR). The "Repayment of debts" subsample contains only 1 announcement, so the *t*-test value is not applicable (N/A). *, **, *** indicates significance at the 10%, 5% and 1% level, respectively.

5.2.3.1 Effects of Borrower/ Firm Characteristics in the Sub-periods

Table 6 presents the different 2-day [0, 1] CAR around the bank loan announcements grouped by borrower characteristics in the two sub-periods. The number of loans announced by large firms increased from 9 to 27 while it

Table 6 Cumulative Abnormal Returns Sorted by Borrower/ Firm Characteristics in China (Before and After Stimulus Package)

Categories	Before Stimulus Package						After Stimulus Package					
	Obs.	CAR [0,1]	*t*-Test	% of CAR >0	Sign Test	Wilcoxon Signed Rank Test	Obs.	CAR [0,1]	*t*-Test	% of CAR >0	Sign Test	Wilcoxon Signed Rank Test
By Firm Size (Total Assets)												
Above Median (>= Median)	9	−3.550%	−2.021**	22.222%	−1.667**	−1.836**	27	0.720%	1.326	51.852%	0.193	−0.850
Below Median (< Median)	49	−0.068%	−0.120	46.939%	−0.429	−0.482	23	−0.997%	−1.217	39.130%	−1.043	−1.247
By Industry												
Manufacturing	26	0.028%	0.034	46.154%	−0.392	−0.038	25	0.037%	0.054	44.000%	−0.600	−0.229
Information Technology	2	1.773%	0.468	50.000%	0.000	−0.447	0	NA	NA	NA	NA	NA
Real Estate	13	−0.210%	0.210	46.154%	−0.277	−0.315	11	−0.646%	−0.426	36.364%	−0.905	−0.445
Transportation	6	−0.575%	−0.449	33.333%	−0.817	−0.105	8	−0.242%	−0.613	50.000%	0.000	−0.420
Others	11	−3.532%	−2.297***	36.364%	−0.905	−1.956*	6	0.771%	0.821	66.667%	0.817	−0.734

(*To be continued*)

(*Continued*)

Categories	Before Stimulus Package						After Stimulus Package					
	Obs.	CAR [0,1]	*t*-Test	% of CAR >0	Sign Test	Wilcoxon Signed Rank Test	Obs.	CAR [0,1]	*t*-Test	% of CAR >0	Sign Test	Wilcoxon Signed Rank Test
By Ownership												
State−owned/controlled Firms	30	−1.613%	−2.360**	36.667%	−1.461	−2.170**	27	−0.208%	−0.374	40.741%	−0.962	−0.673
Others	28	0.468%	0.522	50.000%	0.000	−0.364	23	0.092%	0.108	52.174%	0.209	−0.274
By Firms with B/H−shares												
with B/ H−shares	8	−2.199%	−2.440**	25.000%	−1.414	−1.960**	1	−0.451%	NA	0.000%	−1.000	−1.000
without B/H−shares	50	−0.354%	−0.552	46.000%	−0.566	−0.594	49	−0.062%	−0.124	46.939%	−0.429	−0.204

Notes. Table 6 presents the [0, 1] average cumulative abnormal returns (CARs) around bank loan announcements sorted by borrower characteristics in two sub-periods. The State Council of China officially announced the stimulus package in the media on 15 November, 2008. We set 15 November 2008 as the cut-off point when dividing the whole sample period. Therefore, the period “Before Stimulus Package Announced” is from 1 January 2005 to 15 November 2008. The period “After Stimulus Package Announced” is from 16 November 2008 to 31 December 2014. There are 108 observations. The parametric and nonparametric tests were both used in the significance test of CAR. *, **, *** indicates significance at the 10%, 5% and 1% level, respectively.

decreased from 49 to 23 for small firms. For large firms, the two-day average CARs increased from −3.550% for the 1st sub-period to a positive value of 0.720% (though statistically insignificant) for the 2nd sub-period. For small firms, the average CARs decreased slightly in the 2nd sub-period (−0.068% vs −0.997%).

Many large-sized listed firms mostly have government entities as their large shareholders in China (Bailey et al., 2011). When these large SOEs are experiencing financing distress, they need bank loans to stay afloat. So the negative effect (−3.550%) of loan announcements from large firms is more significant than from small firms (−0.068%) in the 1st sub-period. However, in the 2nd sub-period, the difference in average CARs disappeared.

Similar results can be found when we controlled for firm ownership. There is a more negative and significant CAR for SOEs (−1.613%) than for non-SOEs (0.468%) in the 1st period. However, the negative response for SOEs (−0.208%) is lower for the 2nd sub-period. Finally, if the borrower has shares listed offshore, the bank loan announcements led to a negative and statistically significant excess return (−2.199%) before the GFC but not afterwards.

5.2.3.2 Effects of Lender/ Bank Characteristics in the Two Periods

Table 7 reports the stock price responses to loan announcements classified by bank characteristics in the two sub-periods. In both sub-samples, Chinese equity investors show negative reactions to the loans from the Big Four banks but an insignificant abnormal return (0.185%), though the difference is not statistically significant. A similar market reaction is shown for loans extended by other banks.

5.2.3.3 Effects of Loan Characteristics in the Two Sub-periods

Table 8 shows the average [0, 1] CAR based on loan characteristics classification. With a quite small sample of loan renewals (3 vs 1), the positive market reaction can be obtained both before and after the stimulus package. For new loans, the average [0, 1] CAR is slightly more negative in the 1st sub- period. While the market reaction for short-term loans improved over time, that for long-term (longer than 1 year) loans deteriorated in the 2nd sub-period, changing from −0.4% to −1.554%. Finally, negative reactions from bank loans used for capital expenditure and other purposes became less severe over time.

Table 7 Cumulative Abnormal Returns Sorted by Lender/ Bank Characteristics in China (Before and After Stimulus Package)

Categories	Before Stimulus Package						After Stimulus Package					
	Obs.	CAR [0,1]	*t*-Test	% of CAR >0	Sign Test	Wilcoxon Signed Rank Test	Obs.	CAR [0,1]	*t*-Test	% of CAR >0	Sign Test	Wilcoxon Signed Rank Test
By Bank Type												
Big 4 banks	21	−0.204%	−0.235	42.857%	−0.655	−0.574	20	−0.709%	−0.792	45.000%	−0.447	−0.709
Other banks	37	−0.838%	−1.113	43.243%	−0.822	−1.049	30	0.356%	0.644	46.667%	−0.365	−0.113

Notes. Table 7 presents the [0, 1] average cumulative abnormal returns (CARs) around bank loan announcements sorted by lender characteristics in two sub-periods. The State Council of China officially announced the stimulus package in the media on 15 November, 2008. We set 15 November 2008 as the cut-off point when dividing the whole sample period. Therefore, the period “Before Stimulus Package Announced” is from 1 January 2005 to 15 November 2008. The period “After Stimulus Package Announced” is from 16 November 2008 to 31 December 2014. There are 108 observations. The parametric and nonparametric tests were both used in the significance test of CAR. *, **, *** indicates significance at the 10%, 5% and 1% level, respectively.

Table 8 Cumulative Abnormal Returns Sorted by Loan Characteristics in China (Before and After Stimulus Package)

Categories	Before Stimulus Package						After Stimulus Package					
	Obs.	CAR [0,1]	*t*-Test	% of CAR >0	Sign Test	Wilcoxon Signed Rank Test	Obs.	CAR [0,1]	*t*-Test	% of CAR >0	Sign Test	Wilcoxon Signed Rank Test
By Loan Type												
Renewed Loan	3	2.825%	1.985*	100.000%	1.732*	−1.604	1	5.121%	NA	100.000%	1.000	−1.000
New Loan	55	−0.796%	−1.354	40.000%	−1.483	−1.575	49	−0.176%	−0.3612	44.898%	−0.714	−0.473
By Relative Loan Size (Loan Amount/ Total Assets)												
Above Median (>= Median)	8	−0.640%	−0.701	37.500%	−0.707	−0.700	2	0.633%	0.817	50.000%	0.000	−0.447
Below Median (< Median)	50	−0.604%	−0.931	44.000%	−0.849	−1.047	48	−0.099%	−0.195	45.833%	−0.577	−0.369
By Loan Maturity												
1 year or shorter	30	−1.053%	−1.217	43.333%	−0.730	−1.430	30	0.315%	0.4994	53.333%	0.365	−0.566
Longer than 1 year	23	−0.400%	−0.551	43.478%	−0.626	−0.243	16	−1.554%	−2.0932**	25.000%	−2.000**	−2.068**
By Guarantee												
With Other Firm's Guarantee	32	−0.212%	−0.324	46.875%	−0.354	−0.580	31	0.515%	0.8084	51.613%	0.180	−0.686
Without Other Firm's Guarantee	26	−1.097%	−1.104	38.462%	−1.177	−1.816*	19	−1.024%	−1.4200	36.842%	−1.147	−1.288

(*To be continued*)

(*Continued*)

Categories	Before Stimulus Package						After Stimulus Package					
	Obs.	CAR [0,1]	*t*-Test	% of CAR >0	Sign Test	Wilcoxon Signed Rank Test	Obs.	CAR [0,1]	*t*-Test	% of CAR >0	Sign Test	Wilcoxon Signed Rank Test
By Collateral												
With Collateral	22	−1.219%	−1.324	40.909%	−0.853	−1.055	15	−1.279%	−1.2864	46.667%	−0.258	−0.738
Without Collateral	36	−0.235%	−0.322	44.444%	−0.667	−0.691	35	0.448%	0.8329	45.714%	−0.507	−0.115
By Loan Purposes− Debts Repayment												
Repayment of Debts	1	−3.411%	NA	0.000%	−1.000	−1.000	0	NA	NA	NA	NA	NA
Other Purposes	57	−0.559%	−0.967	43.860%	−0.927	-1.839^{*}	50	−0.070%	−0.143	46.000%	−0.566	−0.256
By Loan Purposes−Capital Expenditures												
Capital Expenditures	3	−2.760%	-8.170^{***}	0.000%	-1.732^{*}	−1.605	4	−1.947%	-2.228^{**}	25.000%	−1.000	−1.461
Other Purposes	55	−0.491%	−0.822	45.455%	−0.674	−0.888	46	0.094%	0.180	47.826%	−0.295	−0.148

Notes. Table 8 presents the [0, 1] average cumulative abnormal returns (CARs) around bank loan announcements sorted by loan characteristics in two sub-periods. The State Council of China officially announced the stimulus package in the media on 15 November, 2008. We set 15 November 2008 as the cut-off point when dividing the whole sample period. Therefore, the period "Before Stimulus Package Announced" is from 1 January 2005 to 15 November 2008. The period "After Stimulus Package Announced" is from 16 November 2008 to 31 December 2014. There are 108 observations. The parametric and nonparametric tests were both used in the significance test of CAR. *, **, *** indicates significance at the 10%, 5% and 1% level, respectively.

5.2.4 Multiple Cross-sectional Regression Analysis of the Market Response

To further explain the market reaction to bank loan announcements, we estimated the multiple cross-sectional regression analysis by using the [0.1] two-day CAR as the dependent variable. The independent variables are chosen from the 13 variables, representing bank, listed firm and loan characteristics.

For bank characteristics, there are two dummy variables, B_1 and B_2, indicating Bank type (B_1 is equal to one if the bank is one of the Big Four banks and zero otherwise) and Bank Ownership (B_2 is equal to 1 if the bank is state-owned/controlled and zero otherwise).

For listed firm characteristics, there are three dummy variables, F_1, F_2 and F_3, indicating the Firm Size (F_1 is equal to one if the borrower is above the median size and zero otherwise), Firm Ownership (F_2 is equal to one if the borrower is state-owned/controlled and zero otherwise) and Offshore Shares (F_3 is equal to one if the borrower issues either B-shares or H-shares and zero otherwise), respectively.

For loan characteristics, there are seven dummy variables, L_1, L_2, L_3, L_4, L_5, L_{6A} and L_{6B}, indicating Loan Type (L_1 is equal to one if the loan is a renewed loan and zero otherwise), Loan Size (L_2 is equal to one if the relative loan size is below median and zero otherwise), Loan Maturity (L_3 is equal to one if the loan maturity is 1 year or shorter and zero otherwise), Guarantee (L_4 is equal to one if the loan is with another firm's guarantee and zero otherwise), Collateral (L_5 is equal to one if the loan is with collateral and zero otherwise), Loan Purpose 1 (L_{6A} is equal to one if the loan is used to repay a firm's debts and zero otherwise) and Loan Purpose 2 (L_{6B} is equal to one if the loan is used for capital expenditures and zero otherwise), respectively.

Table 9 shows the correlation matrix for these selected independent variables. The majority of the correlation coefficients are typically small.

Table 10 shows the multiple regression results. The coefficient is significantly negative if the borrower is a listed SOE. The results are identical around the 7 regression models and consistent with the results reported in Panel B of Table 5. It implies that SOEs tend to obtain bank loans based on political considerations, leading to a negative market response.

In addition, the coefficients for loan renewals (i.e., L_1=1) are positive and statistically significant at the 5% level in all 7 regression analyses, suggesting

Table 9 Pearson Correlation Coefficients Among the Independent Variables

	B_1	B_2	F_1	F_2	F_3	L_1	L_2	L_3	L_4	L_5	L_{6A}	L_{6B}
B_1	1.00	−0.72	−0.07	0.02	0.06	0.06	−0.14	−0.32	0.20	−0.19	−0.12	−0.22
B_2		1.00	0.15	−0.07	−0.17	−0.12	0.14	0.35	−0.19	0.18	0.09	0.15
F_1			1.00	0.19	−0.12	−0.03	−0.25	0.03	−0.09	−0.27	−0.07	0.01
F_2				1.00	0.29	0.10	−0.01	0.29	0.01	−0.16	−0.10	−0.00
F_3					1.00	−0.06	−0.01	−0.16	0.23	−0.14	−0.03	−0.08
L_1						1.00	−0.01	−0.16	0.06	−0.04	−0.02	−0.05
L_2							1.00	0.37	−0.19	0.33	0.17	0.04
L_3								1.00	−0.30	0.20	−0.08	0.34
L_4									1.00	−0.11	0.08	−0.06
L_5										1.00	0.14	0.17
L_{6A}											1.00	−0.03
L_{6B}												1.00

that the Chinese stock market regards renewed loan announcements as a good signal. Renewing an existing loan for a listed company proves that the lending bank trusts in the borrower's growth abilities and reputation.

If the bank loan comes with a guarantee from a third party, the stock market reacts positively as well. In China, the guarantors are usually related parties of the borrowing firms. They have frequent and close business transactions, namely Related Party Transactions (RPTs). So the related parties always have more information on the borrowers' operational and financial status. If guarantors are willing to guarantee the loans, it shows that guarantors have confidence in the borrowers' financial condition. For investors, these announcements are good market signals. The remaining coefficients are insignificant. For example, because the Big Four are also state-owned/controlled banks, we controlled bank type and bank ownership alternatively in the last 6 regressions. We found that neither bank types nor bank ownership makes a difference in the average CARs. In other words, we accept Null Hypothesis 2. Finally, firm size, firm with offshore shares, loan maturity and loan purpose all have a low explanatory power for the negative abnormal returns.

Table 10 Cross-sectional Regression on the Average Cumulative Abnormal Returns (2005−2014)

	Model	1	2	3	4	5	6	7
C	**Intercept**	−0.029	−0.016	−0.021	−0.020	−0.015	−0.001	−0.017
		(−1.444)	(−0.931)	(−1.220)	(−1.406)	(−1.091)	(−0.198)	(−1.264)
B_1	**Bank type**	0.003	0.000	0.000				
		(0.903)	(0.140)	(0.155)				
B_2	**Bank ownership**	0.012			0.005	0.006	0.006	
		(1.041)			(0.596)	(0.701)	(0.793)	
F_1	**Firm size**	−0.001	0.000	0.001	−0.001	−0.001		
		(−0.128)	(0.050	(0.063)	(−0.075)	(−0.106)		
F_2	**Firm ownership**	−0.017	−0.018	−0.020	−0.018	−0.017	−0.014	
		(−1.936)*	(−2.058)**	(−2.177)**	(−2.049)**	(−1.917)*	(−1.811)*	
F_3	**Firm with B/H−share**	−0.010	−0.013	−0.011	−0.011	−0.013		
		(−0.651)	(−0.807)	(−0.712)	(−0.725)	(−0.825)		
L_1	**Loan type**	0.0463	0.044	0.046	0.046	0.044	0.044	0.039
		(2.348)**	(2.223)**	(2.320)**	(2.339)**	(2.245)**	(2.217)**	(2.028)**
L_2	**Loan size**	0.005	0.007	0.004	0.004	0.007		0.006
		(0.516)	(0.719)	(0.385)	(0.379)	(0.735)		(0.626)
L_3	**Loan maturity**	0.008	0.008	0.013	0.011	0.005		0.003
		(0.864)	(0.866)	(1.365)	(1.152)	(0.609)		(0.344)

(*To be continued*)

(*Continued*)

	Model	1	2	3	4	5	6	7
L_4	**Loan with guarantee**	0.017	0.018	0.017	0.018	0.018		0.014
		(1.996)**	(2.103)**	(2.083)**	(2.143)**	(2.179)**		(1.710)*
L_5	**Loan with collateral**	−0.017	−0.016	−0.015	−0.016	−0.016		−0.012
		(−1.897)*	(−1.777)*	(−1.708)*	(−1.806)*	(−1.883)*		(−1.414)
L_{6A}	**Purpose− repaying debts**		−0.035			−0.039		
			(−0.906)			(−1.014)		
L_{6B}	**Purpose− capital expenditure**			−0.020	−0.021			
				(−1.205)	(−1.232)			
	No. of observations	**99**	**99**	**99**	**99**	**99**	**108**	**99**
	Adjusted R−square	**0.079**	**0.076**	**0.083**	**0.086**	**0.081**	**0.045**	**0.047**

Notes. Table 10 presents the multiple cross-sectional regressions with the average [0, 1] cumulative abnormal return as the dependent variable. 13 independent variables are selected to represent borrower, lender and loan characteristics. 2 dummy variables, i.e., B_1 (Bank Type) and B_2 (Bank Ownership), are used as measures for bank characteristics. 3 dummy variables, i.e., F_1 (Firm Size), F_2 (Firm Ownership), and F_3 (Firm's Offshore Shares), are used as representatives for firm characteristics. Total asset is used to measure firm size. A listed firm issuing either B-shares or H-shares is recorded as the firm with offshore shares. 7 dummy variables, i.e., L_1 (Loan Type), L_2 (Loan Size), L_3 (Loan Maturity), L_4 (Guarantee), L_5 (Collateral), L_{6A} (Loan Purpose 1), L_{6B} (Loan Purpose 2), are used as measures for loan characteristics. Loan size is a relative value using the dollar value of the loan divided by total assets of the firm (Qing et al., 2011). Loan purpose is divided into 5 subgroups as reported in Table 1. Following Bailey et al. (2011), this study chooses two typical purposes: debt repayment as loan purpose 1 and capital expenditure as loan purpose 2. *, **, *** indicates significance at the 10%, 5% and 1% level, respectively.

6 Conclusions

This study investigates the market reaction to bank loan announcements in the Chinese market over the period 2005 to 2014 using a sample of 250 loan announcements and 108 borrowing firms. After the onset of the GFC in 2008, the Chinese government unveiled a massive stimulus package (4 trillion CNY) to stimulate the domestic economy. On the one hand, government measures encouraged banks to lend. On the other hand, banks needed to pay more attention to asset quality and lending standards given the deteriorating macroeconomic condition. To examine if there are any changes in Chinese lending practices after the onset of the GFC, we test the stock market response over two sub-periods (i.e., 2005 to 2009 and 2009 to 2014). We also control for lender, borrower and loan characteristics.

Our results show that the market reacts negatively to bank loan announcements in China for the whole sample. This result is consistent with Bailey et al. (2011) and Gan et al. (2014). However, the results for the sub-periods show a different picture. For the 1st sub-period, the market reaction is negative and statistically significant, but for the 2nd sub-period, the market reaction is negative but not statistically significant, indicating that the lending standard over the 2nd sub-period has improved in China, similar to that in other (especially developed) countries, despite the huge growth in the loan portfolios of banks in China.

The role of the Big Four state-controlled banks in China has also been declining over time even though they still dominate the industry. City commercial banks and privately controlled banks, especially foreign banks, are playing an increasingly important role in the country. While the state-owned/controlled banks still have many social or political responsibilities in their general business, such as maintaining stable employment rates and helping money-losing SOEs, they are all listed on the stock exchange and need to respond to pressure from shareholders to create value. To improve the governance framework, Chinese state-owned/controlled banks started to attract strategic and public investors and reduced the number of government officials acting as directors. These measures helped Chinese traditional banks increase their independence and transform into Western-style commercial banks.

In developed countries or regions with a non-government controlled banking system, such as the US, the UK, Korea and Chinese Hong Kong, bank loan announcements, on average, lead to positive excess returns in the stock market. The reasons are that their lending market has high autonomy and the information contained in a loan announcement is reliable to the investors. Our results show that financial liberalization and reforms in China are beginning to produce some positive results as far as bank lending practice is concerned even though there is still a long way to go.

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Appendix A: Dummy Variable Definitions for Equation 6

$$CAR_{(t_1,t_2)} = \alpha + \beta_1 B_1 + \beta_2 B_2 + \beta_3 F_1 + \beta_4 F_2 + \beta_5 F_3 + \beta_6 L_1 + \beta_7 L_2 + \beta_8 L_3 + \beta_9 L_4 + \beta_{10} L_5 + \beta_{11} L_{6A} + \beta_{12} L_{6B} + \varepsilon$$

$\boldsymbol{B_1}$= Bank type. It is equal to 1 if the bank is one of the Big Four banks and 0 otherwise.

$\boldsymbol{B_2}$= Bank ownership. It is equal to 1 if the bank is state-owned/ controlled and 0 otherwise.

$\boldsymbol{F_1}$= Firm size. Total assets is the proxy to value the size of a listed firm. It is equal to 1 if the firm size is above the median and 0 otherwise.

$\boldsymbol{F_2}$= Firm ownership. It is equal to 1 if the firm is state-owned/ controlled and 0 otherwise

$\boldsymbol{F_3}$= Firms with B-shares or H-shares. It is equal to 1 if the firm has either B-shares or H-shares outstanding and 0 otherwise.

$\boldsymbol{L_1}$= Loan type. It is equal to 1 for loan renewals, and 0 for new loans.

$\boldsymbol{L_2}$= Loan size. It is a relative value which equals to the amount of the bank loan divided by the firm's total assets. It is equal to 1 if the loan size is above the median and 0 otherwise.

$\boldsymbol{L_3}$= Loan maturity. It is equal to 1 if the maturity is 1 year or shorter, and longer than 1 year marked as 0.

$\boldsymbol{L_4}$= Guarantee. It is equal to 1 if the loan is with another firm's guarantee and 0 otherwise.

$\boldsymbol{L_5}$= Collateral. It is equal to 1 if the loan has collateral and 0 otherwise.

$\boldsymbol{L_{6A}}$= Purpose-Repay debt. It is equal to 1 if the loan is used to repay a firm's debt and 0 otherwise.

$\boldsymbol{L_{6B}}$= Purpose-Capital expenditures. It is equal to 1 if the loan is used for capital expenditures and 0 otherwise.