Bank Loans versus Trade Credit: Evidence from China[*]

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Abstract

Using a World Bank data of Chinese firms, we investigate the relative importance of bank loans and trade credit in promoting firm performance. To deal with possible endogeneity issues, we employ distinct and separable instrumental variables for bank loans and trade credit. We find that access to bank loans is central to improving firm performance and growth, while the availability of trade credit is much less important. Our results suggest that trade credit cannot effectively substitute for bank loans. Overall, our findings suggest the need for further development of China's formal financial institutions, which would enable the non-state sector to grow much faster than it was in recent decades.

Keywords: Bank Loans, Trade Credit, Firm Performance, Firm Growth

JEL Codes: P34, O17, O16, G32

1 Introduction

The development of formal financial systems such as the banking sector has been shown to be instrumental in improving resource allocation efficiency

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and economic growth (see, for example, King and Levine, 1993; Levine and Zervos, 1998; Guiso, Sapienza, and Zingales, 2002). At the same time, informal financing channels, such as trade credit, are said to play a critical role in sustaining firm growth (see, among others, Garmaise and Moskowitz, 2003; Guiso, Sapienza and Zingales, 2004). The question, however, is which of these two financing channels is more important for firm growth. This is particularly relevant for developing and transition economies where formal finance is inadequate and informal finance is prevalent. Furthermore, the answer to this question is critical for policy recommendations on financial development in developing and transition economies.

Developing and transition economies generally lack market-supporting economic institutions, such as adequate property rights protection and effective contract enforcement. As a result, formal financing channels, such as bank loans, can not develop sufficiently to meet firms' demand for external finance. One view is that, under these circumstances, informal finance could still develop because it mainly relies on informal networks based on long-term relationships and reputation. Consequently, informal financing channels can potentially provide alternative financing sources for firms with poor access to formal finance to support firm growth and expansion. Thus, informal finance should play a pivotal role in sustaining firm operations and growth under weak economic institutions. In contrast, the other view holds that informal financing channels, such as trade credit, are unable to fill the gap left by formal finance. This is because the monitoring and enforcement mechanisms required for the functioning of informal finance are seen to be even more adversely affected by poor formal economic institutions, and informal finance is typically limited in size, so it cannot provide continuous support for firm expansion.[1] Hence, access to formal finance is still more important for firm development. Clearly, these two competing views have strikingly different implications for the necessity and urgency of promoting formal financial system development in developing and transition economies.

Despite the importance of this question, little systematic research has been conducted in this area.[2] In this study, we address this issue in the context of China. China provides an ideal setting to investigate the relative importance of formal and informal finance. Even after thirty years of eco-

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[1] Some informal financing channels are illegal or quasi-legal because they charge higher interest rates than loans made by formal financial institutions. As a result, the contract enforcement mechanism in informal finance modes becomes even more fragile.

[2] Ayyagari, Demirguc-Kunt, and Maksimovic (2008) document widespread use of informal financing channels by Chinese firms. They focus on the role of bank loans, not the relative importance of bank loans and trade credit, in enhancing firm performance and firm growth in China.

nomic reform, China's formal economic institutions remain inadequate (see, for example, Blanchard and Kremer, 1997; Allen, Qian, and Qian, 2005). As a result, China's banking institutions are far from fulfilling the mission of providing sufficient financial resources for firms. Similar to the situation in most other developing and transition economies, banks in China primarily serve the financing needs of a small group of elite firms, such as large-scale state-owned enterprises, whereas most other firms, especially medium- and small-sized non-state-owned enterprises, have poor access to bank loans. According to the Asian Development Bank (2003), the difficulty in getting access to external finance, such as bank loans, is a serious constraint encountered by private enterprises in China. Under these circumstances, those disfavored firms are believed to make extensive use of informal financing channels such as trade credit to satisfy their financing needs (Allen, Qian and Qian, 2005; Ayyagari, Demirguc-Kunt, Maksimovic, 2008).

In this study, we use a World Bank data set of 1,566 firms located in 18 cities and 9 manufacturing industries in China to assess the relative importance of bank loans (formal finance) and trade credit (informal finance) in contributing to firm performance and firm growth. From the ordinary-least-squares (OLS) estimations, we find that trade credit is more important to firm performance (labor productivity and return on total assets) and firm growth (re-investment rate and growth of employment) than bank loans. These results, however, may be biased because bank loans and trade credit are endogenously determined. To deal with this potential endogeneity issue, we employ distinct and separable instrumental variables for bank loans and trade credit. Specifically, we use an indicator of whether a city was British administered in the late Qing Dynasty as an instrument for bank loans, and an indicator of whether the suppliers for a firm are operated by relatives or friends of the firm owner as an instrument for trade credit. The instrumental variable estimations show that access to bank loans is much more important than the availability of trade credit in promoting firm performance and firm growth. These results are in sharp contrast to the OLS results and suggest that our earlier results are biased.

Our analysis demonstrates that trade credit is not as important as bank loans in enhancing the performance and growth of Chinese firms. These results suggest that informal finance can not fill the gap left by the formal finance. For developing and transition economies, it is imperative to promote the development of formal financial systems to enhance firm performance and firm growth. In the case of China, even though China's non-state sector has achieved an impressive performance in the past decades, it would be an overstatement to say that trade credit can replace bank loans in sustaining a high level of firm growth. It may well be the case that China's non-state

sector would have grown much faster if bank loans had been more easily available to non-state firms.

The rest of the paper is organized as follows. Section 2 describes the data and variables. Section 3 presents the ordinary least squares estimation results, while Section 4 discusses the instrumental variable estimation results. The paper concludes with Section 5.

2   Data and Variables

The data used in this paper come from a survey of firms on the investment climate in China conducted by the World Bank and the Enterprise Survey Organization of China in early 2003.[3] It covers a total of 1,566 firms from nine manufacturing industries located in eighteen cities.[4]

Our dependent variables concern firm performance and growth. To measure firm performance, we use *Labor Productivity* (measured by the logarithm of total output per worker in 2002) and *ROA* (measured by the ratio of operating profits to total assets in 2002). To measure firm growth, we use *Growth of Employment* (measured by the change in the logarithm of employment from 2001 to 2002) and *Reinvestment Rate* (measured by the share of net profits reinvested in 2002).

Our two key independent variables are *Bank Loans* (measured by the ratio of bank loans to total assets in 2002) and *Trade Credit* (measured by the percentage of a firm's two main inputs purchased with credit in 2002). To deal with potential endogeneity issues associated with bank loans and trade credit, we use two distinct and separable instrumental variables. Specifically, *British Administration* (a dummy variable indicating whether the respective city was administered by the Great Britain in the late Qing Dynasty) is used as an instrument for *Bank Loans*, and *Relationship* (a dummy variable indicating whether a firm's two main inputs are supplied by relatives or

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[3]The data set is cross-sectional with most of variables on firm operations and performance in 2002, though it also contains some financial information for the period of 2000-2002.

[4]The nine manufacturing industries are: garment & leather products, electronic equipment, electronic parts making, household electronics, automobile & automobile parts, food processing, chemical products & medicine, biotech products & Chinese medicine, and metallurgical products.

The eighteen cities are chosen from five geographical regions to achieve a representative sample: 1) Northeast: Benxi, Changchun, Dalian, and Harbin; 2) Coastal: Hangzhou, Jiangmen, Shenzhen, and Wenzhou; 3) Central: Changsha, Nanchang, Wuhan, and Zhengzhou; 4) Southwest: Chongqing, Guiyang, Kunming, and Nanning; and 5) Northwest: Lanzhou and Xi'an.

friends of the firm owner in 2002) is used as an instrument for *Trade Credit*. We discuss these two instrumental variables in detail in Section 4.

Summary statistics of all key variables are given in Table 1.

3   Ordinary Least Squares Estimation

We first conduct an OLS regression analysis using the following specification:

$$y_{fic} = \alpha + \beta \cdot Bank\ Loans_{fic} + \gamma \cdot Trade\ Credit_{fic} + \eta Z_{fic} + \varepsilon_{fic}$$

where y_{fic} is the performance or growth measure of firm f in industry i and city c; Z_{fic} is a vector of control variables; and ε_{fic} is the error term. Standard errors are clustered at the industry-city level to deal with the possible heteroskedasticity problem.

Table 2 presents the OLS regression results. For each of the four dependent variables, we first include *Bank Loans* and *Trade Credit* separately in the regressions, and then incorporate them together. It is shown that access to bank loans has positive and statistically significant effects on labor productivity and reinvestment rate, while the availability of trade credit has positive and statistically significant effects on labor productivity, ROA, and growth of employment. These results imply that trade credit is relatively more important to firm performance and growth than bank loans.

4   Instrumental Variable Estimation

The OLS regression results reported in Table 2 may be seriously biased due to endogeneity problems associated with bank loans and trade credit. For instance, better performing and faster growing firms are more likely to obtain bank loans and trade credit, implying the possibility of reverse causality. It is also possible that there are some unobservable variables affecting both firm performance/growth and bank loans/trade credit, leading to spurious correlations. To address these concerns, we take the instrumental variable approach.

4.1   Instrumental Variables: British Administration and▉ Relationship

Here, we look for valid instrumental variables that are correlated with the endogenous explanatory variables but do not affect the dependent variables

through any channel other than the endogenous explanatory variables. Furthermore, as we have two potentially endogenous variables, we follow Acemoglu and Johnson (2005) to look for distinct and separable instrumental variables, that is, instruments are able to isolate the two endogenous variables.

First, we use *British Administration*, a dummy variable indicating whether the respective city was administered by the Great Britain in the late Qing Dynasty, as an instrument for *Bank Loans*.

During the late Qing Dynasty (1840-1911), China was defeated in a series of wars against foreign powers, including the two Opium Wars with the Great Britain, the Sino-Japanese War of 1894-95, and the Boxer Rebellion. In the wake of these military defeats, the Qing government was forced to sign unequal treaties including territorial concessions. The wave of territorial partitioning climaxed at the end of the nineteenth century, with the Great Britain governing regions along the Yangtze River (Guizhou, Sichuan, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Henan, and Zhejiang provinces), France governing Yunnan, Hainan, Guangxi, and the majority of Guangdong province, Germany governing Shandong province, Japan governing Fujian province, and Russia governing Xinjiang, Mongolia, and the three north-eastern provinces (McAleavy, 1967).[5]

Within their domains of control, the foreign powers imposed their own political, economic, judicial and military systems. In particular, the foreign powers greatly influenced economic activities by setting up and developing their own banks and issuing currencies (Wang, 1957; Huang, 1994). Nonetheless, there were variations in the development of banks across various foreign

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[5]Three main reasons account for the geographical pattern of territorial partitioning by the foreign powers. First, the geographic proximity between the foreign powers and China's regions was a primary force in shaping the pattern of territorial concessions (Dougherty and Pfaltzgraff, 2000). For example, Russia, located to the north of China, occupied most of China's northern regions, such as Xinjiang, Mongolia, and the three northeastern provinces. France, stepping from its colony of Vietnam, which lies to the southwest of China, extended its colonial power to the four southwestern provinces in China, i.e., Yunnan, Hainan, Guangxi, and the majority of Guangdong province (Yang, 2006). Japan, defeated by Russia in its aggression in Northeast China, chose to occupy China's regions such as Taiwan and Fujian that are close to its southern territories. The second reason for the territorial partitioning was to gain control of certain products that the foreign powers needed at that time. For example, the Great Britain, which was a big importer of tea and silk from China, chose to occupy those regions in China that produced these two products (Sa and Pan, 1996). Finally, the territorial occupation of Germany, which was late in its occupation of China, was a result of bargaining and negotiation with other foreign powers (China History Society, 1959). Hence, the geographical pattern of territorial concessions had little to do with the industrial development of different regions. It can be regarded as an exogenous process.

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powers, with the Great Britain having significantly more banks and branches than other foreign powers (Wang, 1957, 1995a; Zhu, 2004; Yuan, 2005).[6]

The presence of foreign banks had a significant impact on the local communities, which persisted over time despite several dramatic changes in political regimes in the subsequent decades.[7] As domestic banks were dwarfed by foreign banks and did not develop well, the subsequent development of China's banking sector was largely built on the foundation of foreign banks. It is documented that the foreign banks, including their businesses and personnel, were taken over by the national banks of the Republic of China, which were subsequently taken over by the state-owned banks of the People's Republic of China in 1949 (Zhang, 1957; Huang, 1994; Yuan, 2005). Meanwhile, as local people got used to borrowing money from foreign banks for their businesses (Wang, 1995b, 1997; Xiong and Xue, 2007), such bank lending and borrowing habits may persist over time.

Thus it is expected that access to bank loans in modern China is positively correlated with the influence of the Great Britain in the late Qing Dynasty. Hence we use *British Administration* as an instrument for *Bank Loans*. Specifically, in our sample, nine out of the eighteen cities (Changsha, Chongqing, Guiyang, Hangzhou, Nanchang, Shenzhen, Wenzhou, Wuhan, and Zhengzhou) were administered by the Great Britain, and the rest of the sample cities were administrated by France or Russia.

Next, we use *Relationship*, a dummy variable indicating whether a firm's two main inputs are supplied by relatives or friends of the firm owner in 2002, as an instrument for *Trade Credit*. As shown by McMillan and Woodruff (1999), suppliers are more likely to offer trade credit to their customers when they belong to the same networks, such as families, friends, and business associations. This is because any default by the customers would lead to the spread of bad words among members of the same networks causing severe damage to the customers. Thus, it is expected that the availability of trade credit is positively correlated with *Relationship*.

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[6]This could be explained by the better protection of creditors under the Great Britain's common law system than under the civil law system of other foreign powers such as France, Russia, Japan and Germany, and is consistent with the findings in the literature on law and finance, e.g., La Porta et al. (1997, 1998), Levine (1998), Levine, Loayza and Beck (2000), Beck, Demirguc-Kunt and Levine (2003).

[7]Indeed, there is a growing body of literature on the persistence of culture, beliefs, and ideologies over time (e.g., Bisin and Verdier, 2000; Dohmen et al., 2006; Tabellini, 2007a, 2007b, 2008).

4.2 Regression Results

The first stages of the two-stage-least-squares (2SLS) regressions are:

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\begin{aligned}
Bank\ Loans_{fic} &= c_1 + \delta_1 \cdot British\ Ad\min istration_c + \gamma_1 \cdot Relationship_{fic} + \eta_1 Z_{fic} + \varepsilon_{fic1} \\
Trade\ Credit_{fic} &= c_2 + \delta_2 \cdot British\ Ad\min istration_c + \gamma_2 \cdot Relationship_{fic} + \eta_2 Z_{fic} + \varepsilon_{fic2}
\end{aligned}
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As shown in Panels B and C of Table 3, *Bank Loans* is positively and significantly related to *British Administration* but not to *Relationship* (Panel B), while *Trade Credit* is positively and significantly associated with *Relationship* but not with *British Administration* (Panel C). These results suggest that the two instruments are strong and separable for the two endogenous variables.

Panel A of Table 3 presents the second-stage results of the 2SLS estimations. Clearly, *Bank Loans* has a positive and statistically significant impact on *Labor Productivity*, *ROA*, and *Reinvestment Rate*, while *Trade Credit* does not have any significant impact on firm performance and growth. These results show that access to bank loans is more important for firm growth and performance than the availability of trade credit. And they are in sharp contrast to those of the OLS estimations in Section 3, suggesting that the OLS results are indeed biased due to the endogeneity problem and should be interpreted with caution.

Checks on the identification strategy. The validity of the instrumental variable estimation hinges upon two conditions: (i) the relevance of the instruments to the endogenous variables, and (ii) the exclusion restriction that the instruments affect the outcome variables only through the endogenous variables. The rationales put forward in Section 4.1 and the results of Table 3 (Panels B-C) have addressed the first requirement.

With regard to the exclusion restriction, we use the semi-reduced form estimation pioneered by Acemoglu and Johnson (2005). The rationale for this estimation strategy is as follows. In the scenario where the endogenous variable has no effect on the outcome variable, the instrumental variable should also have no effect in the reduced form regression in which the outcome variable is regressed directly on the instrumental variable. Otherwise, it would imply that there are other channels through which the instrumental variable can influence the outcome variable. In the setting of two endogenous variables and two instrumental variables, this estimation strategy is referred to as a "semi-reduced form estimation", for the validity of the instrumental variable is checked one by one. Specifically, in Columns 1-4 of Table 4 *British Administration* is used as the explanatory variable instead of *Bank Loans* while *Trade Credit* remains instrumented by *Relationship*. And, in Columns

5-8, *Relationship* is used as the explanatory variable instead of *Trade Credit* while *Bank Loans* remains instrumented by *British Administration*.

Note that in Table 3, *Bank Loans* has no significant effect on growth of employment. In the corresponding semi-reduced form estimation (Column 3 of Table 4), *British Administration* indeed has no significant effect on growth of employment. Note also that in Table 3, *Trade Credit* does not have significant effects on any measure of firm performance or growth. In the corresponding semi-reduced form estimations (Columns 5-8 of Table 4), *Relationship* indeed does not have any impacts on firm performance or growth.

While there is strong evidence suggesting that the geographical pattern of territorial concessions had little to do with the industrial development capacity of different regions, one may still be concerned about the validity of the instrumental variable for *Bank Loans* (i.e., *British Administration*). For example, some cities administered by the Great Britain may have had great prospects for economic growth, while some cities not administered by the Great Britain may have had very poor development potential. As a result, our estimation results could be driven by a small number of observations located in those cities. To rule out this concern, we conduct robustness checks using two subsamples: a subsample excluding firms located in coastal British-administered cities (i.e., Hangzhou and Wenzhou) and a subsample excluding firms located in inland non-British-administered cities (i.e., Lanzhou and Xi'an).[8] As shown in Table 5, our main results on the relative importance of bank loans over trade credit remain robust in these two subsamples.

Meanwhile, it could be argued that the instrumental variable for *Trade Credit* (i.e., *Relationship*) is not truly exogenous. For example, less profitable firms may have to rely more on their relatives and friends for the supply of inputs. To rule out this concern, we include the variable *Lagged ROA* and repeat the analysis. As shown in Table 6, our main results on the relative importance of bank loans over trade credit remain robust to this additional control. Furthermore, we also regress *Relationship* on a list of firm characteristics (including lagged profitability, firm size, firm age, and the percentage of shares held by parties other than government agencies), CEO characteristics (including education, managerial experience, and government experience), and industry and city dummies. It is found that none of these variables has any statistically significant effect, suggesting that there is no predictable determinant for the reliance on relatives and friends for the supply

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[8]Because of the pattern of uneven regional development in China, coastal cities have typically grown faster and been developed better than inland cities. Hence, firms located in these two types of cities could potentially drive our results.

of inputs (results available upon request).[9]

For further checks on the identification strategy, we directly control for some potential channels other than the endogenous variables through which the instrumental variables may affect firm performance and growth. Specifically, for the instrumental variable of *Bank Loans – British Administration*, we control for the effectiveness of contract enforcement, the security of property rights protection and the degree of economic development.[10] For the instrumental variable of *Trade Credit – Relationship*, we control for the quality and delivery of inputs. We find that our main results on the relative importance of bank loans over trade credit remain robust to these controls (results available upon request).

4.3   Robustness Checks

First, as a legacy of the gradual reforms in China, private enterprises are discriminated against while state-owned enterprises are favored by the state-owned banking system. Thus, our results on the relative importance of bank loans over trade credit could be over-estimated by including state-owned enterprises in the regressions, although state-owned enterprises only account for a small proportion of our sample firms. To address this concern, we test the robustness of our results by focusing on a subsample of private enterprises, with the results reported in Table 7. It turns out that access to bank loans is still more important to firm performance and growth than the availability of trade credit.

Second, one may be concerned that our results could be driven by a few outliers. To address this possibility, we follow the methodology of Hadi (1992, 1994) in identifying outliers in the multivariate data and exclude these outliers in the analysis.[11] The results are shown in Table 8. Clearly, our results remain robust to this exercise, implying that the concern of outliers

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[9]In a further check, we compare the profitability of firms located in British-administrated cities with that of firms relying on their relatives and friends for the supply of inputs. It is found that though the former group has a higher mean value of profitability (0.062±0.031) than the latter group (0.050±0.019), there is no statistically significant difference between these two values (t value is 0.0996 with *p*-value 0.9207).

[10]For a survey on the role of legal origins (specifically Great Britain's common law system) in affecting economic institutions, see La Porta, Lopez-de-Silanes, and Shleifer (2008).

[11]For a sample with n observations and p variables, the method works by first identifying a base cluster of $p + 1$ observations based on the minimization of a covariance-matrix distance on the variables with their medians removed. Then it chooses $p + 2$ observations that are closest in the covariance-matrix to the center of the base cluster. This procedure continues until some optimal stopping rule is met.

is not relevant in our case.

5   Conclusion

Formal finance has been found to be important for firm growth. However, in most developing and transition economies, where economic institutions are weak, and the formal financial institutions are underdeveloped, it is suggested that firms instead use informal finance for their operations and expansion. The question is whether informal finance can adequately substitute for formal finance to meet the capital needs of firms.

In this paper, using a World Bank data set on Chinese firms, we systematically investigate the relative importance of bank loans and trade credit in promoting firm performance and growth. To deal with possible endogeneity issues, we employ distinct and separable instrumental variables for bank loans and trade credit. We find that access to bank loans is central to improving firm performance and spurring firm growth, while the availability of trade credit is typically much less important. Our results suggest that trade credit cannot effectively substitute for bank loans, and informal finance cannot fully accommodate the financing needs of fast-growing non-state firms in contemporary China. Moreover, our results call for further development of China's formal financial institutions, which would enable non-state sector to grow even faster than it was in recent decades.

References

Acemoglu, Daron and Simon Johnson (2005) "Unbundling Institutions", *Journal of Political Economy,* 113: 949-995.

Asian Development Bank (2003) "The Development of Private Enterprises in the People's Republic of China", Asian Development Bank Publication.

Allen, Franklin, Jun Qian and Meijun Qian (2005) "Law, Finance, and Economic Growth in China", *Journal of Financial Economics*, 77: 57-116.

Ayyagari, Meghana, Asli Demirguc-Kunt, and Vojislav Maksimovic (2007) "Formal versus Informal Finance: Evidence from China", working paper.

Beck, Thorsten, Asli Demirguc-Kunt, and Ross Levine (2003) "Law, Endowments, and Finance", *Journal of Financial Economics*, 70:137-81.

Bisin, Alberto and Thierry Verdier (2000) "Beyond the Melting Pot: Cultural Transmission, Marriage, and the Evolution of Ethnic and Religious Traits", *Quarterly Journal of Economics,* 115: 955-988.

Blanchard, Olivier and Michael Kremer (1997) "Disorganization", *Quarterly Journal of Economics*, 112: 1091-1126.

China History Society (1959) *Selected Works of Shandong Province's Modern History*, Shandong, China: Shandong People's Publishing House.

Dohmen, Thomas, Armin Falk, David Huffman, and Uwe Sunde (2006) "The Intergenerational Transmission of Risk and Trust Attitudes", IZA DP 2380.

Dougherty, James E. and Robert L. Pfaltzgraff (2000) *Contending Theories of International Relations: A Comprehensive Survey*, New York: Longman.

Garmaise, Mark J., and Tobias J. Moskowitz (2003) "Informal financial networks: Theory and evidence", *Review of Financial Studies*, 16: 1007-1040.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales (2002) "Does local financial development matter?" National Bureau of Economic Research Working Paper No. 8922.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales (2004) "The role of social capital in financial development", *American Economic Review*, 94: 526-556.

Hadi, Ali S. (1992) "Identifying Multiple Outliers in Multivariate Data", *Journal of the Royal Statistical Society. Series B*, 54: 761-771.

Hadi, Ali S. (1994) "A Modification of a Method for the Detection of Outliers in Multivariate Samples", *Journal of the Royal Statistical Society, Series B*, 56: 393-396.

Huang, Jianhui (1994) *History of China's Banking Industry*, Shanxi, China: Shanxi Economic Press.

King, Robert G., and Ross Levine (1993) "Finance and growth: Schumpeter might be right", *Quarterly Journal of Economics*, 108: 717–738.

La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer (2008) "The Economics Consequences of Legal Origins", *Journal of Economic Literature*, 46: 285-332.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny (1997) "Legal Determinants of External Finance", *Journal of Finance*, 52: 1131-1150.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny (1998) "Law and Finance", *Journal of Political Economy*, 106:1113-1155.

Levine, Ross (1998) "The Legal Environment, Banks and Long-run Economic Growth", *Journal of Money, Credit and Banking*, 30: 596-620.

Levine, Ross, Norman Loayza, and Thorsten Beck (2000) "Financial Intermediation and Growth: Causality and Causes", *Journal of Monetary Economics*, 46: 31-77.

Levine, Ross, and Sara Zervos (1998) "Stock market, banks, and economic growth", *American Economic Review*, 88: 537–558.

McAleavy, Henry (1967) *The Modern History of China*, London:Weidenfeld Goldbacks.

McMillan, John and Christopher Woodruff, 1999. "Interfirm Relationships and Informal Credit in Vietnam." *Quarterly Journal of Economics*, 114(4): 1285-1320.

Sa, Benren and Xinming Pan (1996) *Anglo-Chinese Relations in the Twentieth Century*, Shanghai, China: Shanghai People's Publishing House.

Tabellini, Guido (2007a) "Culture and Institutions: Economic Development in the Regions of Europe", working paper.

Tabellini, Guido (2007b) "Institutions and Culture", working paper.

Tabellini, Guido (2008) "The Scope of Cooperation: Values and Incentives", *Quarterly Journal of Economics*, forthcoming.

Wang, Jingyu (1957) "The Expansion of Foreign Banks in China in the Nineteenth Century", *Historical Research*, 5: 51-74.

Wang, Jingyu (1995a) "The Expansion of Foreign Banks in China 1895-1927", *Researches In Chinese Economic History*: 51-74.

Wang, Jingyu (1995b) "Banks and Firms with Foreign Banking Activities in China During the 19th Century", *Social Sciences in China*: 153-161.

Xiong, Wei and Yi Xue (2007) "Evolution of Money House in Modern Hankow", in the Chinese People's Political Consultative Congress of Hubei Province eds. *Hubei Literature and History*, Volumn 83.

Yang, Yuanhua (2006) *The History of Sino-French Relations*, Shanghai, China: Shanghai People's Publishing House.

Yuan, Yuanfu (2005) *A Brief History of China's Financial Industry*, Beijing, China: China Financial Publishing House.

Zhu, Yinggui (2004) "Foreign Banks in China Before the Anti-Japanese War", *Researches In Chinese Economic History*: 3-12.

Table 1: Summary Statistics

Note: *Labor Productivity* is measured as the logarithm of total output per worker in 2002. *ROA* is measured as the ratio of operating profits to total assets in 2002. *Growth of Employment* is measured as the logarithm change in employment from 2001 to 2002. *Reinvestment Rate* is measured as the share of net profits reinvested in 2002. *Bank Loans* is measured as the ratio of bank loans to total assets in 2002. *Trade Credit* is measured as the percentage of inputs purchased with credit for the firm's two main inputs in 2002. *British Administration* is a dummy variable indicating whether the respective city was administered by Great Britain in the late Qing Dynasty. *Relationship* is a dummy variable indicating whether the firm's two main inputs are supplied by relatives or friends of the firm owner in 2002. *Lagged ROA* is measured as the ratio of operating profits to total assets in 2001. *Legal System* is measured as the firm's perception of the likelihood of legal system to uphold private contracts in 2002. *Helping Hand* is measured as the firm's perception of the likelihood of local government officials acting as helping rather than hindering hand in 2002. *Logarithm of GDP per capita* is measured as the logarithm of GDP per capita in 2002. *Inadequate Quality* is measured as the percentage of inputs that were returned to their suppliers due to inadequate quality in 2002. *Delivery Loss* is measured as the percentage of sales that was lost due to the delivery delays in 2002. *Percentage of Private Ownership* is measured as by the percentage of ownership held by parties other than government agencies. *Firm Size* is measured as the logarithm of employment in 2002. *Firm Age* is measured as the logarithm of the years of establishment by the end of 2002. *Education* is measured as years of schooling by the end of 2002. *Tenure* is measured as years of being CEO by the end of 2002. *Deputy CEO Before* is a dummy variable indicating whether the CEO used to be the firm's deputy CEO. *Government Cadre* is a dummy variable indicating whether the CED used to be a government official.

Variable	Obs	Mean	Std. Dev.	Min	Max
Labor Productivity	1,557	4.322	1.562	-3.989	11.893
ROA	1,547	0.021	0.761	-16.820	20.870
Growth of Employment	1,563	0.052	0.480	-2.303	5.333
Reinvestment Rate	1,406	0.188	0.329	0.000	1.000
Bank Loans	1,529	0.058	0.136	0.000	0.952
Trade Credit	1,368	0.357	0.373	0.000	1.000
British Administration	1,566	0.510	0.500	0.000	1.000
Relationship	1,442	0.021	0.123	0.000	1.000
Lagged ROA	1,542	0.041	0.735	-6.417	20.571

Table 2: OLS Regressions

Note: *Labor Productivity* is measured as the logarithm of total output per worker in 2002. *ROA* is measured as the ratio of operating profits to total assets in 2002. *Growth of Employment* is measured as the logarithm change in employment from 2001 to 2002. *Reinvestment Rate* is measured as the share of net profits reinvested in 2002. *Bank Loans* is measured as the ratio of bank loans to total assets in 2002. *Trade Credit* is measured as the percentage of inputs purchased with credit for the firm's two main inputs in 2002. Standard errors, clustered at the industry/city level, are presented in the parenthesis. *, **, *** represent significance at 10%, 5%, 1% level respectively. Constant terms are included in the regressions but not reported (available upon request).

	1	2	3	4	5	6
Panel A: Dependent Variable	Labor Productivity			ROA		
Estimation	OLS			OLS		
Bank Loans	2.049***		1.838***	0.073		0.041
	(0.320)		(0.322)	(0.050)		(0.061)
Trade Credit		0.914***	0.837***		0.102**	0.106**
		(0.127)	(0.130)		(0.049)	(0.050)
No. of Observation	1,521	1,364	1,333	1,511	1,356	1,326
R-squared	0.0319	0.0515	0.0808	0.0002	0.0022	0.0025
Panel B: Dependent Variable	Growth of Employment			Reinvestment Rate		
Estimation	OLS			Tobit		
Bank Loan	0.112		0.134	0.817***		0.738***
	(0.082)		(0.083)	(0.174)		(0.173)
Trade Credit		0.087**	0.083**		-0.015	-0.054
		(0.038)	(0.039)		(0.090)	(0.090)
No. of Observation	1,526	1,367	1,336	1,374	1,226	1,199
R-squared/Pseudo R2	0.0010	0.0049	0.0067	0.0070	0.0000	0.0059

Table 3: 2SLS Regressions

Note: *Labor Productivity* is measured as the logarithm of total output per worker in 2002. *ROA* is measured as the ratio of operating profits to total assets in 2002. *Growth of Employment* is measured as the logarithm change in employment from 2001 to 2002. *Reinvestment Rate* is measured as the share of net profits reinvested in 2002. *Bank Loans* is measured as the ratio of bank loans to total assets in 2002. *Trade Credit* is measured as the percentage of inputs purchased with credit for the firm's two main inputs in 2002. *British Administration* is a dummy variable indicating whether the respective city was administered by Great Britain in the late Qing Dynasty. *Relationship* is a dummy variable indicating whether the firm's two main inputs are supplied by relatives or friends of the firm owner in 2002. Standard errors, clustered at the industry/city level, are presented in the parenthesis. *, **, *** represent significance at 10%, 5%, 1% level respectively. Constant terms are included in the regressions but not reported (available upon request).

	1	2	3	4
	Panel A: Second Stage of 2SLS			
Dependent Variable	Labor Productivity	ROA	Growth of Employment	Reinvestment Rate
Bank Loans	15.543***	2.499*	1.246	5.181**
	(5.906)	(1.325)	(1.341)	(2.393)
Trade Credit	1.208	0.073	0.391	0.107
	(1.707)	(0.179)	(0.535)	(1.053)
No. of Observation	1,303	1,296	1,306	1,172
	Panel B: First Stage of 2SLS, dependent variable is Bank Loans			
British Administration	0.037***	0.037***	0.037***	0.037***
	(0.010)	(0.010)	(0.010)	(0.010)
Relationship	0.007	0.007	0.007	0.007
	(0.030)	(0.030)	(0.030)	(0.030)
No. of Observation	1,410	1,410	1,410	1,410
R-squared	0.0176	0.0176	0.0176	0.0176
	Panel C: First Stage of 2SLS, dependent variable is Trade Credit			
British Administration	0.051	0.051	0.051	0.051
	(0.033)	(0.033)	(0.033)	(0.033)
Relationship	0.276**	0.276**	0.276**	0.276**
	（0.106）	（0.106）	（0.106）	（0.106）
No. of Observation	1，337	1，337	1，337	1，337
R-squared	0.0122	0.0122	0.0122	0.0122

Table 4: 2SLS Regressions, Semi-reduced Form

Note: *Labor Productivity* is measured as the logarithm of total output per worker in 2002. *ROA* is measured as the ratio of operating profits to total assets in 2002. *Growth of Employment* is measured as the logarithm change in employment from 2001 to 2002. *Reinvestment Rate* is measured as the share of net profits reinvested in 2002. *Bank Loans* is measured as the ratio of bank loans to total assets in 2002. *Trade Credit* is measured as the percentage of inputs purchased with credit for the firm's two main inputs in 2002. *British Administration* is a dummy variable indicating whether the respective city was administered by Great Britain in the late Qing Dynasty. *Relationship* is a dummy variable indicating whether the firm's two main inputs are supplied by relatives or friends of the firm owner in 2002. Standard errors, clustered at the industry/city level, are presented in the parenthesis. *, **, *** represent significance at 10%, 5%, 1% level respectively. Constant terms are included in the regressions but not reported (available upon request).

Dependent Variable	1 Labor Productivity	2 ROA	3 Growth of Employment	4 Reinvestment Rate	5 Labor Productivity	6 ROA	7 Growth of Employment	8 Reinvestment Rate
Bank Loans					16.173***	2.465**	1.732**	5.643***
					(5.172)	(1.376)	(0.823)	(2.135)
British Administration	0.544**	0.092**	0.040	0.143*				
	(0.209)	(0.046)	(0.046)	(0.082)				
Trade Credit	1.494	0.101	0.383	0.797				
	(1.543)	(0.154)	(0.474)	(0.987)				
Relationship					0.377	0.008	0.084	-0.110
					(0.368)	(0.042)	(0.115)	(0.263)
No. of Observation	1,333	1,325	1,336	1,198	1,405	1,397	1,408	1,264

Table 5: 2SLS Regressions, Sub-sample without Special Cities

Note: *Labor Productivity* is measured as the logarithm of total output per worker in 2002. *ROA* is measured as the ratio of operating profits to total assets in 2002. *Growth of Employment* is measured as the logarithm change in employment from 2001 to 2002. *Reinvestment Rate* is measured as the share of net profits reinvested in 2002. *Bank Loans* is measured as the ratio of bank loans to total assets in 2002. *Trade Credit* is measured as the percentage of inputs purchased with credit for the firm's two main inputs in 2002. *British Administration* is a dummy variable indicating whether the respective city was administered by Great Britain in the late Qing Dynasty. *Relationship* is a dummy variable indicating whether the firm's two main inputs are supplied by relatives or friends of the firm owner in 2002. Coastal British administrated cities are Hangzhou and Wenzhou, whereas inland non-British administrated cities are Lanzhou and Xi'an. Standard errors, clustered at the industry/city level, are presented in the parenthesis. *, **, *** represent significance at 10%, 5%, 1% level respectively. Constant terms are included in the regressions but not reported (available upon request).

	1	2	3	4	5	6	7	8
Sub-sample	Without Coastal British Administrated Cities				Without Inland Non-British Administrated Cities			
Dependent Variable	Labor Productivity	ROA	Growth of Employment	Reinvestment Rate	Labor Productivity	ROA	Growth of Employment	Reinvestment Rate
Bank Loans	20.151**	2.324*	0.445	5.698	13.811**	3.005*	2.492**	4.897*
	(9.322)	(1.232)	(2.048)	(3.925)	(6.669)	(1.550)	(0.960)	(2.568)
Trade Credit	-0.512	-0.070	0.609	-0.520	1.736	-0.008	-0.211	-0.232
	(2.725)	(0.141)	(0.867)	(1.658)	(1.195)	(0.180)	(0.148)	(0.898)
No. of Observation	1,194	1,188	1,197	1,066	1,150	1,145	1,152	1,023

Table 6: 2SLS Regressions, Inclusion of Lagged Profitability

Note: *Labor Productivity* is measured as the logarithm of total output per worker in 2002. *ROA* is measured as the ratio of operating profits to total assets in 2002. *Growth of Employment* is measured as the logarithm change in employment from 2001 to 2002. *Reinvestment Rate* is measured as the share of net profits reinvested in 2002. *Bank Loans* is measured as the ratio of bank loans to total assets in 2002. *Trade Credit* is measured as the percentage of inputs purchased with credit for the firm's two main inputs in 2002. *British Administration* is a dummy variable indicating whether the respective city was administered by Great Britain in the late Qing Dynasty. *Relationship* is a dummy variable indicating whether the firm's two main inputs are supplied by relatives or friends of the firm owner in 2002. *Lagged ROA* is measured as the ratio of operating profits to total assets in 2001. Standard errors, clustered at the industry/city level, are presented in the parenthesis. *, **, *** represent significance at 10%, 5%, 1% level respectively. Constant terms are included in the regressions but not reported (available upon request).

	1	2	3	4
Dependent Variable	Labor Productivity	ROA	Growth of Employment	Reinvestment Rate
Bank Loans	15.291**	2.293*	1.086	5.101**
	(5.907)	(1.358)	(1.354)	(2.398)
Trade Credit	1.226	0.060	0.408	0.112
	(1.707)	(0.176)	(0.535)	(1.055)
Lagged ROA	0.036	0.255	0.010	0.084***
	(0.080)	(0.603)	(0.009)	(0.031)
No. of Observation	1,293	1,292	1,295	1,162

Table 7: 2SLS Regressions, Sub-sample of Private Enterprises

Note: *Labor Productivity* is measured as the logarithm of total output per worker in 2002. *ROA* is measured as the ratio of operating profits to total assets in 2002. *Growth of Employment* is measured as the logarithm change in employment from 2001 to 2002. *Reinvestment Rate* is measured as the share of net profits reinvested in 2002. *Bank Loans* is measured as the ratio of bank loans to total assets in 2002. *Trade Credit* is measured as the percentage of inputs purchased with credit for the firm's two main inputs in 2002. *British Administration* is a dummy variable indicating whether the respective city was administered by Great Britain in the late Qing Dynasty. *Relationship* is a dummy variable indicating whether the firm's two main inputs are supplied by relatives or friends of the firm owner in 2002. Private enterprise is defined as those whose percentage of private ownership is great than 0.5. Standard errors, clustered at the industry/city level, are presented in the parenthesis. *, **, *** represent significance at 10%, 5%, 1% level respectively. Constant terms are included in the regressions but not reported (available upon request).

Dependent Variable	1 Labor Productivity	2 ROA	3 Growth of Employment	4 Reinvestment Rate
Bank Loans	14.392**	3.145*	0.751	4.725*
	(6.186)	(1.650)	(1.491)	(2.625)
Trade Credit	1.058	-0.033	0.318	0.104
	(1.757)	(0.209)	(0.561)	(1.080)
No. of Observation	1,063	1,058	1,066	965

Table 8: 2SLS Regressions, Outliers

Note: *Labor Productivity* is measured as the logarithm of total output per worker in 2002. *ROA* is measured as the ratio of operating profits to total assets in 2002. *Growth of Employment* is measured as the logarithm change in employment from 2001 to 2002. *Reinvestment Rate* is measured as the share of net profits reinvested in 2002. *Bank Loans* is measured as the ratio of bank loans to total assets in 2002. *Trade Credit* is measured as the percentage of inputs purchased with credit for the firm's two main inputs in 2002. *British Administration* is a dummy variable indicating whether the respective city was administered by Great Britain in the late Qing Dynasty. *Relationship* is a dummy variable indicating whether the firm's two main inputs are supplied by relatives or friends of the firm owner in 2002. Outliers are identified using Hadi (1992, 1994)'s methodology. Standard errors, clustered at the industry/city level, are presented in the parenthesis. *, **, *** represent significance at 10%, 5%, 1% level respectively. Constant terms are included in the regressions but not reported (available upon request).

	1	2	3
Dependent Variable	Labor Productivity	ROA	Growth of Employment
Bank Loans	11.949**	0.280	0.149
	(5.885)	(0.240)	(0.411)
Trade Credit	1.225	0.174	0.166
	(2.140)	(0.143)	(0.143)
No. of Observation	934	905	914