

Formal versus Informal Finance: Evidence from China

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Abstract: China is often mentioned as a counterexample to the findings in the finance and growth literature since, despite the weaknesses in its banking system, it is one of the fastest growing economies in the world. The fast growth of Chinese private sector firms is taken as evidence that it is alternative financing and governance mechanisms that support China's growth. This paper takes a closer look at firm financing patterns and growth using a database of 2400 Chinese firms. We find that a relatively small percentage of firms in our sample utilize formal bank finance with a much greater reliance on informal sources. However, our results suggest that despite its weaknesses, financing from the formal financial system is associated with faster firm growth, whereas fund raising from alternative channels is not. Using a selection model, we find no evidence that these results arise because of the selection of firms that have access to the formal financial system. While firms report bank corruption, we do not find evidence that it significantly affects the allocation of credit or the performance of firms that receive the credit. We find that an important determinant of access to bank loans is the ability to post collateral, which is in turn a function of firm size, level of fixed assets and firm location. Our findings suggest that the role of reputation and relationship based financing and governance mechanisms in financing the fastest growing firms in China is likely to be overestimated.

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Introduction

There is a significant body of research on the role of informal or non-market institutions¹ in low income countries in risk sharing and providing credit. The dominant theory in the literature has been that informal institutions have a comparative advantage in monitoring (the *peer monitoring* view as in Stiglitz (1990) and Arnott and Stiglitz (1990)) and enforcement capacity.² A common interpretation of this theory is that informal institutions act as a substitute to formal institutions in low income countries. For instance, Besley and Levenson (1996) have argued that economies like Taiwan grew despite an underdeveloped formal financial sector due to informal institutions. More recently, Allen, Qian, and Qian (2005) suggest that China may be an important counter-example to the law and finance literature since the fastest growing Chinese firms rely on alternative financing channels rather than formal external finance. They argue that private sector firms in China, despite facing weaker legal protections and poorer access to finance than firms in the state and listed sectors, are the fastest growing due to their reliance on alternative financing and governance mechanisms.

An alternative hypothesis is that informal financial institutions play a complementary role to the formal financial system by servicing the lower end of the market. Informal financial institutions serve firms who cannot access the formal financial system due to the lack of good growth opportunities or poor credit ratings or

¹ By informal financial institutions, we refer to the entire gamut of non-market institutions such as credit cooperatives, moneylenders, informal credit and insurance, rotating savings and credit associations, etc. that do not rely on formal contractual obligations enforced through a codified legal system. Several of these institutions operate as loan sharks in developing countries charging exorbitantly high interest rates.

² Theoretically the informal sector has been modeled as both, a competitor to its formal counterpart (as in Bell et al., 1997; Jain, 1999; Varghese, 2005) as well as a channel of formal funds, where informal lenders who offer credit acquire formal funds to service entrepreneurs' financing needs (Floro and Ray, 1997; Bose, 1998; Hoff and Stiglitz, 1998). Both strands of literature emphasize that informal lenders hold a monitoring advantage over the formal lender.

information asymmetry problems, and are able to use their monitoring and enforcement advantage to ensure repayment. According to this view however, informal financial systems cannot substitute for formal financial systems because their monitoring and enforcement mechanisms are ill-equipped to scale up and meet the needs of the higher end of the market.³

In this paper, we use detailed firm level survey data on twenty four hundred firms in China to investigate which of the two views are consistent with the operation of the informal sector in China. Does the informal sector act as a substitute to the formal financial system and finance the fastest growing firms or does the informal sector primarily serve the lower end of the market? To answer this question, we first investigate whether Chinese firms' financing patterns are different when compared to those of similar firms in other countries that have been the focus of the prior literature. Next, we explore how the financing patterns, both formal and informal vary across different types of firms in different cities and regions. We then study how bank finance and financing from informal sources are associated with firm sales growth, productivity growth and profit reinvestment.

We address these issues using a new data source, the Investment Climate Survey⁴, a major firm level survey conducted in China in 2003 and led by the World Bank. The survey has information on financing choices for firms across 18 different cities. One of

³ There is a direct parallel with the prevalence of angel finance (also referred to as informal venture capital) in the US. Business angels are typically wealthy individuals who provide the initial funding to get new firms off the ground. A big rationale for prevalence of angel financing is the capital constraints faced by new firms, especially technology intensive firms. In addition, venture capitalists tend to make highly concentrated investments and fund only firms with a substantial need for capital. Thus, the segment of young new firms with modest capital requirements rely on angel investors. However, Lerner (1998) argues that there is no evidence that angel financing generates positive financial returns or improves social welfare.

⁴ Other studies using the investment climate survey data on China include Cull and Xu (2004), Dollar et al. (2004).

the strengths of the survey is its coverage of small and medium enterprises. Hence, in addition to information on commercial financing sources such as bank finance, the survey also includes information on sources of financing that are associated with small firm finance such as trade credit and finance from informal sources such as a money lender or an informal bank or other financing sources.

We find that 20% of firm financing in our sample is sourced from banks, which is comparable to the use of bank financing in other developing countries such as India, Indonesia, Brazil, Bangladesh, Nigeria and the Russian Federation. However, the breakdown of non-bank financing sources shows greater differences. Compared to other countries, firms in our sample rely on a large informal sector and alternative financing channels as suggested by Allen et al. (2005). Alternative financing channels represent nearly 43% of firm financing in China compared to less than 9% in other developing countries. These other financing sources could well be the large underground lending in China, which represents several hundred billion dollars in bank deposits according to a recent McKinsey report (Farrell et al. (2006)).

We also find substantial firm level heterogeneity in financing patterns within China. The firms in the sample come from five different regions of China: Coastal, Southwest, Central, Northwest, and Northeast. The financing patterns show that the largest amount of bank financing is in the Coastal (23.3%) and Southwest regions (26%) which have been known to have a more supportive investment climate that facilitates access to formal sources of external finance (Dollar et al. (2004)).

We find that firms using formal bank finance grow faster than those financed from alternative channels. Our results hold even when we exclude firms registered as

publicly traded companies or state owned companies and look at a sample of just private sector firms, which are the fastest growing firms in the Chinese economy. We also find that firms financed by formal bank finance experience higher reinvestment rates, and productivity growth at least equal to that of firms financed from non-bank sources. This suggests that the growth financed by banks is not inefficient growth.

We find no evidence that the faster growth rates of bank financed firms is caused by selection of firms that obtain bank loans. Moreover, while firms complain about imperfections in the allocation of bank loans such as corruption among bank officers and importance of government help in obtaining loans, controlling for them in the selection models only strengthens the effect of bank financing on firm performance. Our results also highlight the role of collateral requirements in obtaining loans from the banking sector. We find that larger firms, firms with more fixed assets and firms located in certain cities and provinces are most likely to post collateral and thus obtain access to bank finance.

Overall, our results suggest that, even in fast growing economies like China where the formal financial system serves a small portion of the private sector, the fastest growing firms depend on external finance from the formal financial system. We find no evidence that alternative financing channels are associated with higher growth. Our findings suggest that the role of reputation and relationship based informal financing and governance mechanisms in supporting the growth of private sector firms is likely to be limited and unlikely to substitute for formal mechanisms.

We discuss the Chinese economy and its financial system in detail in Section 2. In Section 3 we describe the survey data and summary statistics and in section 4 we present our empirical model and regression results. Section 5 concludes.

2. The Chinese Financial System

The Chinese financial system is characterized by a large banking sector, dominated by four large state owned banks that have their own specialized role: the Industrial and Commercial Bank of China (provides working capital loans to state industrial enterprises), China Agriculture Bank (specializes in agricultural lending), China Construction Bank (provides funds for construction and fixed asset investment) and the Bank of China (specializes in trade finance and foreign-exchange transactions). In addition to the big four state-owned commercial banks, there are also several minor players that include Policy banks (eg: Export-Import Bank of China), Second-tier Commercial banks (eg: CITIC Industrial Bank) and Trust and Investment Corporations (ITICs) who capture a very small portion of the lending market.

The pervasive state ownership of the banking sector in China has given rise to several disturbing features including a huge ratio of non-performing loans to total loans, poor profitability, poor institutional framework of the banking system, weak corporate governance and reduced competitive pressures on the banks to operate as profit making enterprises. A large share of bank funding goes to state controlled companies, regardless of their profitability, leaving companies in the private sector credit constrained.⁵ Lending

⁵ Anderson (2006) argues that Chinese banks do not discriminate against private borrowers per se but do discriminate against small borrowers including smaller SOEs without visible cash flow. While they have a short tail of corporate customers, banks do compete aggressively for the business of large private borrowers.

by banks is also hampered by the lack of adequate information on borrowers' credit histories and financial performance, making lending to SOEs seem a low-risk option, given their government backing.

Lack of enforcement by regulatory bodies that are politically connected has created a very weak governance environment. Furthermore, the highly decentralized structure of the banks prevents them from reaping benefits of scale and also makes lending decisions at the branch level susceptible to local government influence preventing the allocation of loans according to market criteria.⁶

While China's banking system is huge, its equity and bond markets are smaller than most of the other countries, both in terms of market capitalization and total value traded as a percentage of GDP. As stated in Farrell et al. (2006), equity market capitalization, excluding non-tradable state-owned shares, is equivalent to just 17 percent of GDP, compared to 60 percent or more in other emerging markets and corporate bond issues by non-financial companies amount to just 1 percent of GDP, compared to an average of 50 percent in other emerging markets.

One of the reasons for the poor performance of capital markets is again the pervasive influence of the government. The equity markets are largely a vehicle for privatization by the government rather than a market for capital raising by firms with growth opportunities. Most IPOs on China's largest exchanges are former SOEs with connections to government officials. Further, government entities hold a large share of the non-tradable shares reducing the corporate governance role of the market.

⁶ In the past few years, the banking sector is undergoing comprehensive reforms both to prepare the banks for equity listings and strategic sales and as a condition of China's accession to the WTO. These reforms include allowing entry of foreign banks and eliminating special investment regulations for foreign banks which are bound to change the lending landscape but are yet to have a major impact on the operation of the banking sector.

Consequently, the large and best Chinese companies list on international exchanges such as Hong Kong for their capital raising needs where as the smaller and riskier companies, whose access to foreign exchanges is limited by government restrictions, list on domestic exchanges within China. Durnev, Li, Morck, and Yeung (2004) show that compared to other transition economies, China has one of the poorest functioning stock markets with highly synchronous stock returns that can be linked to weak property rights, corporate opacity and political rent-seeking.

The corporate bond market in China is crippled by excessive government regulation and the lack of institutional investors and credit rating agencies to help price the debt accurately and create a vibrant bond market. Hence large companies prefer to borrow from banks rather than issue corporate bonds. This in turn leads to a crowding out of small and medium enterprises from bank lending. In addition to the poorly developed stock and bond markets, Allen et al. (2006) show that the venture capital industry in China is underdeveloped and has a limited role in supporting the growth of young firms.

Given the state of China's banking system and capital markets, several researchers including Tsai (2002) and Allen et al (2005) have argued that curb market finance has played a significant role in the Chinese economy by serving the needs of the private entrepreneurs who have been shut out of the formal banking system. In addition to the informal associations, there are also private money houses and underground lending organizations who function like banks but charge very high interest rates as suggested by Farrell et al. (2006). While these are technically illegal since they charge interest rates above the state-mandated interest rate ceilings, Tsai (2002) argues that in

reality, most forms of informal finance that private entrepreneurs use fall into the realm of quasi-legality. They are not sanctioned by the People's Bank of China but are legally registered by another government agency within China.

While the informal financing system in China has an important niche in the market, it also has a dark side to it. Curb market lending comes at a high cost to individual borrowers and ranges from legal to quasi-legal to highly illegal. It is therefore interesting to examine if informal lending substitutes for formal lending in the phenomenal growth of the private sector, or if it primarily serves a long tail of smaller, private, and not necessarily fast growing firms who are shut out of the formal banking system. Is it the case that the fastest growing firms in the private sector are serviced by informal institutions rather than the formal banking sector?

3. Data and Summary Statistics

The data on Chinese firms comes from the World Bank Investment Climate survey which was undertaken in early 2003 in collaboration with the Enterprise Survey Organization of the Chinese National Bureau of Statistics. The Chinese survey is part of the World Bank Enterprise Surveys which use standardized survey instruments and a uniform sampling methodology to benchmark the investment climate of countries across the world and to analyze firm performance. The Enterprise Surveys sample from the universe of registered businesses and follow a stratified random sampling methodology.⁷

⁷ A detailed description of the sample design and sample frame can be found at http://www.enterprisesurveys.org/documents/Sampling_Note.pdf and a detailed description of the implementation can be found at http://www.enterprisesurveys.org/documents/Implementation_note_January_2007.pdf

The firms are randomly surveyed from both manufacturing and services industries⁸ with a restriction on minimum firm size where firm size is defined by number of employees. The minimum number of employees was set at 20 for manufacturing firms, and at 15 employees for services firms.

Twenty four hundred firms were sampled from the following 18 cities in order to represent the five main regions in China: (i) *Northeast*: Benxi, Dalian, Changchun, and Haerbin; (ii) *Coastal*: Hangzhou, Wenzhou, Shenzhen, and Jiangmen; (iii) *Central*: Nanchang, Zhenzhou, Wuhan, and Changsha; (iv) *Southwest*: Nanning, Guiyang, Chongqing, and Kunming; (v) *Northwest*: Xi'an and Langzhou. Figure 1 shows a map of the different cities and the regions from where the firms were sampled.⁹

The survey questionnaire has two main sections. The first section consists of questions on general information about the firm, its relations with clients and suppliers, its relations with the government, and qualitative questions asking for the manager's opinion on the business environment. The second section is based on interviews with the firm's accountant and personnel manager, asking for balance sheet information and other quantitative information on employee training, schooling, and wages. While most of the qualitative questions pertain only to the year 2002, a short panel from 1999 to 2002 is available for the quantitative questions.

The survey allows us to identify firms on the basis of their registration status as corporations, state owned companies, cooperatives and other legal structures. In addition,

⁸ The industries sampled include both manufacturing (apparel and leather goods, electronic equipment, electronic components, consumer products, vehicles and vehicle parts) and services (accounting and related services, advertising and marketing, business logistics services, communication services, and information technology services).

⁹ In an earlier phase of the survey in 2001, firms were sampled from following 5 Chinese cities: Beijing, Tianjin, Shanghai, Guangzhou, and Chengdu. We do not use these cities in our paper since the time period over which the information is available is different (1998-2000 as opposed to 2000-2002). In addition, firms in the first phase survey were not asked detailed information about their financing patterns.

each firm also provides a detailed breakdown of its ownership structure into domestic versus foreign owners as well as a more disaggregated breakdown into percentage owned by individuals, managers, institutional investors, firms and banks.

3.1. Financing Patterns: China compared to other countries.

Enterprise managers in the survey were asked: “Please identify the contribution of each of the following sources of financing for your establishment’s new investments (i.e. new land, buildings, machinery and equipment).” The sources are internal financial sources such as retained earnings or loans from family and friends, and external financial sources such as equity, local commercial banks, foreign owned commercial banks, trade credit (supplier or customer credit), investment funds or special development financing, informal sources such as a moneylender or an informal bank and other sources. The sum of these proportions adds up to 100 percent.

We adopt two different categorizations of the various sources of financing. In the first categorization, we have the following six groups : **Bank Financing** that includes Local commercial banks and Foreign commercial banks; **Informal Finance** that includes financing from informal sources such as a money lender or an informal bank; **Operations Finance** that includes Trade Credit; **Equity Finance**; **Investment Funds** that includes Investment funds or Special Development Financing or other State Services and **Internal Finance** that includes Internal Funds or Retained Earnings, Loans from Family and Friends and the Other category.

In the second categorization, we adopt Allen et al. (2005)’s classification of financing sources into two groups: **Bank Finance**, that includes Local commercial banks

and Foreign commercial banks and **Self Fund Raising** that includes all other sources such as retained earnings, informal sources, loans from family and friends, trade credit, investment funds, equity and the other category.¹⁰ One limitation of our survey data is that financing patterns are given in terms of proportions of financing, not as debt to asset ratios, as is common in the previous literature.

In Table 1, we compare firm-level financing patterns in China with other developing countries in the world. The data for the countries is obtained from other Investment Climate Surveys (ICS).¹¹ As of 2006, there were 67 country surveys covering over 40000 firms. Since the core survey instrument is the same across all countries, we have comparable information on financing sources across the different countries. The only difference is some surveys also have information on leasing arrangements and credit card financing which is not provided in the case of China. We combine these two categories along with Trade Credit and label it Operations Finance in our tables.

In panel A of Table 1, we present individual financing patterns and in panel B we present aggregate financing patterns. In both panels, we compare firm-level financing patterns (averaged across all firms) in China with those in other emerging markets such as Bangladesh, Brazil, India,¹² Indonesia, Nigeria, and the Russian Federation. Panel A shows that China has the least amount of Internal financing/Retained Earnings (only

¹⁰ Allen et al. (2005) consider two additional financing sources that we do not have information on in our survey: the state budget and foreign investment. This is unlikely to influence our results on bank finance and informal finance since we have only 116 firms in our sample that have more than 50% foreign ownership and as Allen et al. themselves mention, the state budget contributes to only 10% of state owned companies' total funding.

¹¹ The Investment Climate Surveys are an on-going initiative by the World Bank to study the investment climate conditions in developing countries and their impact on firm productivity, investment and employment.

¹² The information on financing choices for Indian firms comes from the World Business Environment Survey (WBES) which was also conducted by the World Bank as a precursor to the Investment Climate Surveys. The Indian ICS does not have detailed information on firm financing choices.

15.24%) compared to all the other emerging markets. On the other hand, China also has the highest average amount of Other Financing (42.70%) compared to the other developing countries. The next largest dependence on Other Financing is in Indonesia, but even there, only 8.8% of new investments are financed by Other sources. These other financing sources could well represent the large underground informal lending in China, which represents several hundred billion dollars in bank deposits according to a recent McKinsey report (Farrell et al. (2006)) and as suggested in Allen et al. (2005).¹³ However, the use of funds from Family and Friends and Informal lending sources such as money lender or informal banks seems to be comparable with its use in other countries.

China also looks unique in the large usage of Equity financing (12.39%) compared to the other developing countries (all below 5%). However, when we look across other geographic regions, the East Asia and Pacific region (excluding China) uses the largest amount of Equity financing (21.38%) compared to other regions (below 5%). Our data on China allows for a more detailed breakdown of the equity issuance into sale of stock to employees, public issue of marketable shares to outside investors and sale of stock to legal persons. The sale of stock to employees and public issuance of marketable shares to outside investors is quite low at 2.89% and 1.26% respectively and most of the equity issuance is really sale of stock to legal persons (8.24%). Legal Person shareholders are unique to China and are analogous to institutional shareholders in western economies

¹³ It could be that the Other Sources in China are actually Internal Funds/Retained Earnings that are misclassified. While we don't have a detailed breakdown of what these Other sources could be for all firms, the responses from the 100 firms that do report the exact type of Other Financing suggest that there could be some mis-classification.

except that they tend to have strong state linkages¹⁴ and are not widely held as in western economies.

In panel B, we look at the aggregate financing patterns. When we look at Internal Financing, which includes Retained Earnings, loans from Family/Friends and Other sources, Chinese firms look comparable to firms in other countries. Focusing on the Allen et al. (2005) categorization, Chinese firms source 20% of their funds from banks and the remaining 80% from self fund raising channels. These numbers are very similar to the averages for countries in Africa (Bank financing=19%, Self Fund Raising = 81%), South Asia (Bank financing=23%, Self Fund Raising=77%) and Latin America and the Caribbean (Bank financing=21%, Self Fund Raising=79%). Countries in East Asia and The Pacific use slightly more Bank financing (32%) and lesser amount of Self Fund Raising (68%) compared to China where as countries in East Europe and Central Asia and those in Middle East and North Africa use much lesser Bank financing (13%) and much greater Self Fund Raising (87%) than even China.

The financing numbers are consistent when we look across country-income groups. Use of Bank financing ranges from 18% in the Low Income and Middle Income countries to 21% in High Income countries and use of Self Fund Raising is between 79-83% across all country income groups. Overall, these figures suggest that Chinese firms are not an anomaly in their use of Self Fund Raising compared to other developing countries in contrast to the findings in Allen et al (2005).

¹⁴ The legal person identity was created to aid the transition of China's companies from state-owned to private-owned since the private sector did not have enough capital to acquire large tranches of state shareholdings. As described in Xu and Wang (1997) and Delios and Wu (2005), the legal person shareholder category comprises private companies, state-owned enterprises and non-bank financial institutions such as investment funds and security companies. The legal person shareholders differ from pure state shareholders in that they are profit seeking, and have relatively more freedom than state shareholders in deciding how to allocate profits and formulate and implement firm strategy.

3.2. Financing Patterns across firms within China

Table 2 shows how financing patterns vary across different types of firms in China. Panel A presents individual financing patterns and shows that there is substantial variation in financing patterns across different types of cities. Overall, there is very little use of formal external finance via banks or equity. For instance, the use of Local Bank financing is a mere 3.98% in the city of Haerbin (Heilongjiang province) in the Northeast region compared to 35.13% in Jiangmen which is in the coastal province of Guangdong. Jiangmen also has the highest amount of Foreign Bank financing, though it is a mere 1.57%. Wenzhou, another coastal city has the highest amount of Equity financing (40%) and also the lowest amount of Other financing (3.38%). The use of bank and equity financing in Jiangmen and Wenzhou, both coastal cities, can probably be attributed to their good investment climates (both cities were assigned a score of A+ in Dollar et al. (2004) who studied the investment climate in different cities in China). The use of Investment funds and Operations finance is generally low (<4%) across the different cities and firms in several cities like Wenzhou and Wuhan use no trade credit or investment funds.

When we look at sources other than formal finance, we find that the use of Retained Earnings varies from 8% in Benxi in the northeast province to over 26% in Changchun, also in the northeast province. The use of funds from Family and Friends ranges from less than 1% in Guiyang and Shenzhen to over 11% in Lanzhou, Nanning and Wenzhou. Benxi, Wuhan, and Chongqing have the highest amount of Informal financing (4-6%). The use of Other financing is typically high in most cities ranging from 22% in Kunming to 70% in Shenzhen except for firms in Wenzhou where the average

Other financing is only 3.38%.¹⁵ It is interesting that Shenzhen records the highest amount of Other financing since this city is located in the Guangdong province which has the highest number of private enterprises including underground lending organizations as suggested by the McKinsey study.

The five different regions, from which firms were sampled in the survey, vary considerably in their investment climate. The eastern and coastal areas (Yangtze and pearl river deltas) are more developed due to a number of factors including differences in natural endowments, access to ports, tax arrangements and favorable policies (Dollar et al. (2004)). By contrast, cities that are more inland, especially in the West and the Northeast tend to have worse investment climates. Cities in the central region appear to be in the middle in terms of their investment climate. The financing patterns are correlated with the quality of investment climate, with the largest amount of Local Bank financing being used in the Southwest (26%) and Coastal (23%) regions and the least amount being used in the Northwest (14%).

Looking at aggregate financing patterns in panel B, the use of Internal funds ranges from 46% in Benxi to 81% in Zhengzhou. When we use the Allen et al. (2005) categorization, we find that several cities have in excess of 90% of their financing coming from sources other than banks. Figure 2 reveals the financing patterns across the different cities in increasing order of their use of bank financing. Figure 2 shows that after Internal funds, firms use Equity or Bank finance. Use of informal sources, investment funds and operations finance is very low.

¹⁵ Four of the 18 cities were designated as export processing zones- Shenzhen, Dalian, Hangzhou, and Wuhan. Their use of Other Financing ranges from 24% in Hangzhou to over 70% in Shenzhen suggesting that Other might also be funds from overseas investments (Hong Kong, Taiwan, Macao).

Table 2 also shows that the very large firms use more of Bank financing (30%) than the micro and small firms (14-15%). Publicly listed companies finance a little over 33% of their new investments through Bank Financing and 67% from Self Fund Raising sources. By contrast, cooperatives fund only 18% of their new investments from banks and 82% from sources other than banks. When we look at ownership, domestic private firms use 20% Bank financing and 80% Self Fund Raising compared to state firms that use 26% Bank financing and 74% Self Fund Raising. In both cases, Other makes up a bulk of the Self Fund Raising. Older firms (firms > 20 years) use more of Bank financing (27%) compared to firms less than 5 years old which depend on Self Fund Raising for 80% of their financing needs.

3.3 Access to formal bank finance

Panel A of Table 3 presents the summary statistics for various measures that measure firms' access to the formal and informal financial systems in China. As the main independent variable of interest, we have an indicator variable, **Bank Dummy** showing whether the firm has access to the formal financial system. Bank Dummy takes the value 1 if the firm states that it has a loan from a bank or financial institution and 0 if the firm states that it has no bank loan and no overdraft facility or line of credit. We also construct an **Access Dummy**, a dummy variable that takes the value 1 if the firm had access to a bank loan in any year prior, from 1990-2001, and 0 otherwise.

We also consider alternative indicators of access based on the financing proportions of new investments that firms report. **Bank Financing Dummy** takes the value 1 if the firm states that it has a loan from a bank or financial institution and reports

that bank finances at least 50% of new investments or that bank financing of working capital was greater than 50%. Bank Financing takes the value 0 if the firm states that it has no loan from a bank or financial institution or said it had no overdraft facility or line of credit and the bank financing of new investments was equal to 0% and bank financing of working capital was equal to 0%. Thus, a firm is assigned a value of 1 for Bank Financing only if we have evidence of substantial reliance on bank financing and a value of 0 if it does not rely on bank financing.

We also employ two measures of self financing. **Self Financing1** takes the value 1 if the sum of Informal financing and Other financing of either new investments or working capital is greater than 50%. Self Financing1 takes the value 0 if the sum of informal and other financing of new investments and working capital is equal to 0%. **Self Financing2** broadens the definition of self financing and takes the value 1 if the sum of Informal, *Family*, and Other financing of new investments or working capital is greater than 50%

The summary statistics for the three bank variables, Bank Dummy, Access Dummy and Bank Financing indicate that on average only 21-28% of the firms in the sample have access to bank financing. For instance, according to the Bank Dummy, only 537 out of the 2326 firms answering the bank loan question reported having a bank loan. Of the full sample of 2400 firms, 1466 firms report one of two reasons for not having an existing loan - 1237 firms report not applying for a bank loan and 229 firms report not having a bank loan because their application for a bank loan was rejected. When we look at firms that are not registered as publicly traded corporations or as state owned enterprises, of the 1666 private firms, 1301 firms reported not having an existing loan

from a bank or a financial institution, 933 private firms reported not having a bank loan because they did not apply for the loan and 154 private firms reported not having a bank loan because their application for a bank loan was rejected.

Figures 3 and 4 elaborate on the reasons why the firms in our sample do not apply for loans and if they do apply, why they get rejected. The firms report six reasons for not applying for a loan: *Do not need loans*, *Application procedures for bank loans are too cumbersome*, *Collateral requirements of bank loans are too stringent*, *Did not expect to be approved*, *Interest rates are too high*, and *Corruption in the allocation of bank credit*. The reasons reported are not mutually exclusive. Figure 3 shows a distribution of the reasons given by all firms and only private firms for not applying for a loan. Over 66% of the firms report not applying for a loan because they didn't need the loan. 25% of the firms report cumbersome application procedures and stringent collateral requirements as reasons for not applying for a loan, 16-18% of the firms report not expecting to be approved and high interest rates as reasons and only 10% of the firms report corruption in the allocation of bank credit as the reason for not applying for a loan. The statistics for private firms are very similar.

The firms that report their loan application was rejected report three mutually exclusive reasons for why their application was rejected: *Lack of collateral*, *Perceived lack of feasibility of project* and *Incompleteness of application*. Figure 4 shows that of the 229 firms that report their loan application being rejected, 66% (152 firms) report lack of collateral as the main reason why their loan was rejected. This includes 44 private sector firms out of a sample of 154 private sector firms that report their loan application was rejected.

Thus we are able to identify firms that that may or may not need bank financing but do not apply for loans as well as firms that apply for loans but have their loan applications rejected. The summary statistics also show that collateral seems to be main constraint for access to bank loans.

3.4. Firm Performance and Control Variables

Our principal measure firm of performance is **Sales Growth** which is computed as the log change in firm sales over the period 2001-2002. We supplement sales growth with two additional indicators. We measure **Productivity Growth** over the period 2001-2002 and the firm's reinvestment rate in 2002. Productivity Growth is the log change in productivity over the period 1999 to 2002 where productivity is defined as $(\text{Sales} - \text{Total Material Costs}) / \text{Total Number of Workers}$. **Reinvestment Rate** is the manager's estimate of the percentage of net profits that are re-invested in the establishment and not distributed to owners, the state or the shareholders. Productivity Growth shows whether a source of financing is associated with declines in firm efficiency. The firm's reinvestment rate shows whether the firm's managers are committing the firm's resources to finance growth, or whether external financing is used to substitute for internal resources. The latter case would be suggestive of inefficient investment. We also consider firm performance over a longer horizon by looking at Sales and Productivity growth over the period 1999 to 2002.

The mean Sales growth rate across the full sample of firms from 2001 to 2002 is 5.6% where as Productivity growth is 0.45%. The corresponding figures for the period 1999 to 2002 are 13.3% and 8.1% respectively.

In addition to the rich detail on the financing choices of firms, the survey has information on firm size, age, ownership, legal organization and capacity utilization, all of which are used as firm level controls in our study. An important strength of the survey is its wide coverage of micro and small size firms.¹⁶ We construct **Size Dummies** which are the quintiles of firm's sales in 1999. The survey thus provides data across a much broader cross-section of firm sizes than is available in commercial data bases, such as Worldscope.

Panel A of Table 3 shows that the average firm age in the sample is 16 years. We include dummy variables to identify very young firms (1-5 years), middle-aged firms (5-20 years) and older firms (>20 years). The firms in the survey are broadly classified in terms of their current legal status into corporations, cooperatives and an other category. Corporations, both public and private, make up 40% of our sample where as 16% of our sample is composed of Cooperatives or Collectives. We also have detailed information on the ownership breakdown of these companies and the percentage owned by different entities in the private sector (eg: domestic firms, domestic institutional investors, foreign individuals, foreign firms, foreign institutional investors, etc) and different entities in the state sector (e.g.: national government, state/provincial government, local/municipal government or other government bodies like collectives, etc). We use a dummy variable **State Ownership** to characterize firms where the government owns more than 50% of the company. Nearly 22% of the sample (531 firms) is composed of firms with more than 50% state ownership and the remaining is made up of firms with more than 50% private ownership. We also identify the number of competitors of the firm in its main business

¹⁶ The mean (median) number of employees in a firm in our sample in 1999 was 579 (100) employees with 33% of our sample composed of firms with less than 50 employees.

line in the domestic market by using five **Competition** dummies for 1-3 competitors, 4-6 competitors, 7-15 competitors, 16-100 competitors and over 100 competitors respectively.

Panel B of Table 3 presents the correlation between the access variables and firm performance. We find that the bank finance variables are all significantly correlated with each other and in fact Bank Dummy and Bank Financing dummy, where the latter variable takes into account bank financing of new investments and working capital are perfectly correlated. Bank Financing and Bank Dummy are also positively correlated with the firm performance measures where as the Access Dummy which focuses on access to past bank financing appears to be negatively correlated. Both the Self Financing dummies are negatively correlated with all measures of bank finance and also appear to be negatively correlated with Sales Growth and Reinvestment rate and have a positive association with productivity growth.

The raw correlations between firm performance and the financing variables mask some of the underlying variation. The average 2001-2002 growth rate of firms that receive bank finance is 10.34% compared to an average growth rate of 4.2% for firms that receive no bank finance. To investigate if bank financing is indeed associated with better firm performance, we next turn to regression analysis, controlling for a number of firm level variables.

4. Financing Patterns and Firm Performance

4.1. The Empirical Model

We first estimate the following regression model:

$$\begin{aligned}
\text{Sales Growth/Reinvestment Rate/Productivity Growth} = & \alpha + \beta_1 \text{Bank Dummy} + \beta_2 \text{Firm} \\
& \text{Size dummies} + \beta_3 \text{Age dummies} + \beta_4 \text{Corporations} + \beta_5 \text{Collectives} + \beta_6 \text{State Ownership} \\
& + \beta_7 \text{Competition Dummies} + \beta_8 \text{City Dummies} + \varepsilon
\end{aligned}
\tag{1}$$

The bank loans for our sample were approved prior to 2002. Accordingly, we report regressions for which the dependent variable is sales or productivity growth rate between 2001 and 2002 or the reinvestment rate measured in 2002. However, because annual growth rates are likely to be subject to random shocks, we also report regressions using sales growth and productivity growth of firms for the period 1999-2002. These regressions are descriptive, showing the association between growth and firm access to the formal sector over a longer horizon.

Our main independent variable of interest is the Bank Dummy. We also report alternative specifications using the other financing variables described in section 3.3 - Access Dummy, Bank Financing Dummy, and the two informal financing variables, Self Financing1 and Self Financing2. We also include a number of firm level control variables - Firm Size dummies, Age dummies, State Ownership dummy, Corporation dummy, Cooperatives dummy and Competition dummies. These variables are described in detail in section 3.4. We also include city dummies to control for unobserved heterogeneity at the city level. The data on industry sector is available for a very narrow definition of business activity giving us 81 industry dummies. Hence, while our results are robust to controlling for industry dummies, we do not include industry dummies in our baseline specification so as to not lose too many degrees of freedom.

We use equation (1) as the baseline and then build on the model to explore a number of questions. First we instrument for Bank finance and second we examine firm

heterogeneity in access to bank finance. Specifically, we examine if the positive association between proportion of bank finance and firm growth is driven by politically connected firms that get government help or by firms that are better at bribing bank officers.

Equation (1) establishes a broad association between formal vs. informal financial systems and firm performance, but does not address the issue of causality. One of the important concerns when investigating the impact of external finance on growth is that firms that are able to attract external finance from the formal financial system are those with better growth opportunities and the positive relation we may observe between external finance and firm growth (or the negative one between self fund raising and firm growth) may be simply due to reverse causality. In the Chinese context, this is less likely to be true since the private sector, which is the fastest growing sector in the Chinese economy, finds access to bank lending tough due to asymmetric information, poor protection of private properties and resulting lack of collateral, and discriminatory lending policies by state banks. There exists an implicit political pecking order of firms (Huang, 2003) whereby large and inefficient state owned enterprises and collectives and cooperatives have easier access to cheap capital from state banks and thus overinvest.

We introduce a selection model that predicts which firms obtain bank financing. To estimate the selection model using instrumental variables, we need an instrument that is correlated with bank finance at the firm level, yet uncorrelated with firms' growth opportunities.¹⁷ One of the factors that could affect access to bank loan is the ability to post collateral, although the importance of collateral for accessing bank loans could vary

¹⁷ See Li and Prabhala (2007) for a discussion of selection models in corporate finance. As Li and Prabhala (2007) and Heckman and Navarro-Lozano (2004) note, strictly speaking we do not need any exclusion restrictions because the model is identified by non-linearity, thus allowing estimation.

according to the market environment in which the firm operates. Figures 3 and 4 indeed show that firms report the inability to meet collateral requirements as causing banks to reject their loan applications as well as making them not apply for loans. Hence as an instrument for bank finance, we construct a dummy variable **Collateral**, which takes the value 1 if the firm reported that the financing required collateral and takes the value 0 if the firm reported that the financing did not need collateral or that it did not apply for a loan because of stringent collateral requirements or that it was rejected for a loan because of the lack of collateral. Thus Collateral serves as a proxy for the firm's ability to post collateral.

Whether there was a collateral requirement or not is less likely to be correlated with firm's growth and hence need not enter the second stage. Thus, collateral serves as the identifying variable in our selection equation. There is a possibility that the selection of firms receiving bank loans may be caused by firm characteristics unobserved by us, but observable by banks.

Specifically, we assume that a firm obtains access to formal bank finance (i.e. Bank Dummy = 1) if it meets the formal criteria of the banking system, so that the linear function of information observed by us and proprietary information observed by the bank exceeds a threshold. Therefore, Bank Dummy = 1 if

$$\alpha_0 + \beta_1 \text{Collateral} + \beta_2 \text{Size dummies} + \beta_3 \text{Age dummies} + \beta_4 \text{Corporations} + \beta_5 \text{Collectives} + \beta_6 \text{State Ownership} + \beta_7 \text{Competition Dummies} + \beta_8 \text{City Dummies} + \zeta > 0, \quad (2)$$

where $\zeta \sim (0, \sigma^2)$ is proprietary information observed by the bank. Equation (2) is also referred to as the Selection or Treatment Equation and forms the first stage of a two-stage selection model in which equation (3) below forms the second stage :

$$\begin{aligned}
\text{Sales Growth/Reinvestment Rate/Productivity Growth} = & \alpha_1 + \gamma_1 \text{BankDummy} + \gamma_2 \text{Size} \\
& \text{dummies} + \gamma_3 \text{Age dummies} + \gamma_4 \text{Corporations} + \gamma_5 \text{Collectives} + \gamma_6 \text{State Ownership} + \\
& \gamma_7 \text{Competition Dummies} + \gamma_8 \text{City Dummies} + \lambda + \varepsilon
\end{aligned}
\tag{3}$$

We first obtain estimates of the selection equation and from these estimates, the nonselection hazard λ (inverse of the Mill's ratio), is computed for each observation. λ is an estimate of the banks' private information underlying the selection of firms. The regression equation (3) is then augmented with the nonselection hazard λ which provides an estimate of the selection bias.

4.2. Results

Table 4 reports the estimated coefficients from baseline regression (1). Columns (1) and (6) show that the formal financial system is associated with higher sales growth for both the full sample of all firms and a sub-sample of private firms (dropping public and state owned firms). The role of bank financing in the second sub-sample is of particular interest, since private firms are likely to have fewer alternative options than publicly traded firms or state owned firms. Firms that have bank financing also reinvest a higher proportion of their profits in their businesses in both samples (columns (2) and (7)). Thus, there is no evidence that bank financing funds growth that firms are unwilling to undertake using their own capital.

Columns (3) and (8) show that bank finance is not significantly negatively associated with productivity growth. These findings suggest that the formal financial system rather than informal sources have a positive association with firm growth and reinvestment and that the growth that results is not inefficient. Columns (4) and (5) for

the full sample, and (9) and (10) for the sub sample reinforce this finding by showing that the association holds over a longer horizon.

When we look at the control variables, larger firms, older firms and firms organized as cooperatives or collectives are found to have lower growth rates. Growth rates are lower in highly competitive (>100 competitors) industries. The city dummies show that compared to firms in Benxi, firms in Changchun, Chongqing, Hangzhou, Nanchang, Shenzhen, and Wenzhou are the fastest growing over the period 1999 to 2002. Note that each of these cities received an investment climate score of A or A+ (except for Nanchang which received a score of B+) in the Dollar et al. (2004) study compared to Benxi which received an investment climate score of B- in the study. When we look at growth rates over a smaller time horizon from 2001 to 2002, only firms in Shenzhen seem to be growing faster than firms in Benxi. All our results in Table 4 are robust to controlling for 81 industry dummies.

4.2.1. Accounting for Selection

In Table 5, we investigate the relation between bank financing and sales growth, reinvestment, and productivity growth, controlling for the selection of firms that obtain bank financing. The estimates of the selection equation (even numbered columns) indicate that firms that obtain formal financing are more likely to have collateral that they can pledge, are large companies organized as corporations, with some but relatively few (<6), competitors. Interestingly, although firms in highly competitive industries grow more slowly, there is little evidence that banks lend to them at a lower rate. The hazard

lambda (also referred to as the Inverse Mills Ratio) which measures the impact of self selection is reported at the foot of Table 5.

In Table 5, controlling for selection, the coefficients of bank financing, are greater than in Table 4, for both the full sample and the private firms sub-sample. This is in part because banks lend disproportionately to large firms, which grow more slowly than small firms. Once this selection effect is controlled for, there is a stronger relation between bank financing and firm growth. Similarly, the coefficients of bank financing in the productivity regressions are larger, albeit statistically insignificant. Thus, as in Table 4, there is no evidence that bank financing is associated with inefficient growth.

In panel A of Table 6, we consider a wider range of determinants of access to the formal financial sector. We examine alternative explanations for why the proportion of bank finance is associated with higher sales growth, profit reinvestment and productivity. It could be that the firms that get bank finance are the ones that are politically connected or have been singled out for financing (directed credit) or that firms that get bank finance are those that are better at bribing bank officers. Hence we introduce the following variables into the selection equation. We introduce a “Government Help” dummy which takes the value 1 if firms answer “yes” to the question “*During the year 2002, did any government agency or official assist you in obtaining bank financing?*” and a value of zero otherwise. As a proxy for bank corruption, we use firm responses to the following question “*In your dealings with bank officials and loan officers, was a gift or informal payment expected?*” We also measure the firm’s general perception of its property rights

enforcement. Property Rights Protection is the firm's estimate of the likelihood that the legal system will uphold the firm's contract and property rights in business disputes.¹⁸

We also investigate additional firm-level variables that might affect a firm's ability to obtain a loan from the formal financial sector. The dummy variable, Loan from Group or Holding Company, takes the value 1 if the firm is a member of a group or a holding company that provided loan to the firm and 0 otherwise. Loan Guarantee Program is a dummy variable that takes the value 1 if the firm benefited from a loan guarantee program offered by loan guarantee companies. Located in Export Processing Zone is also a dummy variable that takes the value 1 if the firm is located in an industrial park, science park, or export processing zone and 0 otherwise. CEO Education Level takes values 1 to 4 - 1 if the CEO had no formal education, 2 if the CEO had high-school, secondary school or primary school education, 3 if the CEO had an undergraduate education at home or abroad and 4 if the CEO had postgraduate education at home or abroad. Politically Connected CEO takes the value 1 if the CEO was a party secretary, deputy party secretary, party committee member or executive member or a party member and 0 if the CEO is not a party member. Columns 1 to 4 present results for the sales growth regression, columns 5 and 6 for profit reinvestment rate and columns 7 and 8 present results for the productivity growth. In columns 3 and 4, we also include past sales growth rate from 1999 to 2001 to investigate if past performance is a predictor of bank financing.

We find evidence that firms which report government help in obtaining loans, report receiving loans from other firms in their group, or which are located in export

¹⁸ To the extent that property rights enforcement varies across localities, its variation will be captured by City Dummies. This variable captures firm-level deviations from the city-level mean as well as city-level deviations in firm perceptions from the city means.

processing zones are more likely to receive loans. While affecting the probability of a loan, none of these variables significantly predict increases in the firm's growth rate, reinvestment rate, or productivity growth. Thus, there is no evidence that government help in obtaining loans is directed to firms which subsequently report better outcomes. However, we also find little evidence that firms which receive government help in obtaining loans perform less well than other firms.

Controlling for these factors, we do not find evidence that the degree of perceived bank corruption, participation in loan guarantee programs, the educational level of general manager or reported political connections, significantly affects the probability of obtaining a loan. Likewise, an index of property rights does not add explanatory power. However the effect of the property rights could be subsumed by the size dummies since larger firms in our sample report higher likelihood that the legal system will uphold their contract and property rights in business disputes.

We do find that firms which grew fast in 1999-2001 were more likely to have loans in 2001-2002 (Column 4). However, fast growth in 1999-2001 predicts slower growth in 2001-2002. Thus, while the banking system is more likely to lend to firms that grow fast, it is only those firms that the banks lend to who continue to grow fast.

In Panel B, Table 6 we repeat our analysis of Table 5, with a broader definition of bank financing. Access Dummy is a dummy variable that takes the value 1 if the firm had access to a bank loan in any year prior, from 1990-2001, and 0 otherwise. The results on sales growth, reinvestment and productivity growth are qualitatively similar. One difference is that we find less evidence that bank access is skewed in favor of larger firms. This may be because small firms which do not have loans in 2001 may have obtained a

loan in the preceding decade. Thus, these firms may have access to the formal sector but have a lower frequency of loans. All our results in Table 6 hold when we look at a smaller sample without publicly traded corporations and state owned enterprises. We don't report these results in the interest of space.

4.2.2. Financing of New Investments and Working Capital and Robustness

In Table 7, panel A, we examine the association between indicators of performance and bank financing for those firms that explicitly report using bank financing to fund at least 50% of their new investments or working capital. The coefficient estimates for the Bank Financing Dummy are shown in panel A. Since we have data on uses of bank financing only for 2002, we do not estimate a selection model. We interpret our estimates as a consistency check on our earlier results rather than as evidence of a causal relationship.

Panel A shows that our earlier results hold for firms that report heavy use of bank financing to fund investment and working capital. Such firms tend to grow faster and reinvest more of their profits than comparable firms. This faster growth is not associated with slower improvements in productivity.

In panel B, we show the association between performance indicators and self-financing of investment and working capital. To recall, Self Financing1 takes the value 1 if the firm reports that it has financed at least half of its new investments or working capital from informal and "other" sources. Self Financing 1 takes the value 0 if the firm reports not using informal or "other" financing to fund investment or working capital. A more comprehensive measure of self-financing, Self Financing2 takes the value 1 if the

firm reports using informal, *family*, and other financing to fund at least a half of its new investments or working capital. Self Financing² takes the value 0 if the firm reports not using these sources to fund investment or working capital.

Panel B of Table 7 shows that there is no association between firm growth and either measure of self-financing. Interestingly, firms that are self-funded reinvest a lower proportion of their earnings in their business. We do find, however, that self-funded firms report higher growth in productivity. If we were to decompose self financing into its individual components (results not reported) and drop firms with any bank finance, we find that firms that use informal and other financing reinvest significantly less than the firms that rely on their internal funds. There is also evidence suggesting that firms relying on informal and other financing grow slower, though not significantly, than firms relying on their retained earnings.¹⁹

To check whether our results are driven by outliers, we perform several robustness checks. We have re-estimated all our specifications by removing potential outliers (growth rates in excess of $\pm 1000\%$), by winsorizing the top 1% of the sales growth, reinvestment rate and productivity growth variables, and by using median regressions. Our results (not reported) remain unchanged in all cases. A representative specification is shown in Table 8, where we re-estimate the base specification in Table 4 using median regressions. The coefficients of the Bank Dummy in Table 8 are qualitatively similar to those in Table 4, indicating that our earlier results are not driven by outliers.

¹⁹ The association between slow growth and dependence on informal and other sources is significant and strong when we look at growth over the longer time period of 1999-2002.

4.2.3. Role of collateral

The selection model in Tables 5 and 6 and the raw data shown in Figures 3 and 4 suggest that the availability of collateral is a key determinant of whether or not the firm can obtain financing from the formal sector. Hence, in this section we investigate the composition of collateral and its determinants.

In Panel A, Table 9, we present the mean and median percentage shares of the type of collateral posted by firms in our sample. Land and buildings are the predominant forms of collateral. The median share of collateral in this category is 80% (mean 63%). The next largest category is machinery, with a median of 0% and a mean of approximately 18%. Thus, for most firms, land and buildings are the key types of collateral and may determine the firm's ability to obtain bank financing.

In panel B of Table 9 we explore the ability to explain whether a firm can post collateral by estimating the following reduced form model:

$$Collateral_{ijk} = \mu + \alpha_i + \beta_j + \gamma_{ij} + \varepsilon_{ijk} \quad (4)$$

where Collateral (defined in the selection model in Section 4.1) is a proxy for the firm's ability to post collateral, μ is the average response across all firms and cities, α_i are city effects ($i=1, \dots, 18$), β_j are firm category effects ($j=1, \dots, 1\beta$), γ_{ij} are city-firm interaction effects, and ε_{ijk} are random disturbances.

At the city level, to capture institutional differences in the determinants of collateral across cities, we first use city dummies. We look at four different categories at the firm level: firm size, age, total fixed assets and legal status. The premise in each estimation is that the model being estimated is the true one. The model takes the classification of firms into firm-categories and cities as given and is essentially

descriptive. In particular, while it posits the existence of differences in responses across firms and cities, it offers no causal or structural explanation for these differences.

The model is estimated using a regression based simultaneous ANOVA approach. We begin by estimating a restricted version of equation (4), where we exclude all effects other than the constant and the city dummy variable. The R^2 of this regression provides an estimate of the variation in collateral at the firm level explained by city dummies alone. In each case, we next add the firm level characteristic and compute the R^2 to obtain an estimate of the proportion of the variation in collateral explained by the city dummies and the firm characteristic together.²⁰ Finally, we add an interaction term, to provide for the possibility that the firm characteristics may affect collateral more in some cities than in others.

As an alternative measure of the institutional environment, we replace city dummies with a Legal Environment Index at the province level, in the second sub-panel of Panel B of Table 9. The Legal Environment Index is based on information from Fan and Wang (2004), capturing (1) the development of market intermediaries using the ratio of the number of lawyers and registered accountants to population; (2) protection of the legal rights of producers using the frequency of economic crimes normalized by GDP; (3) protection of property rights using the average number of patents applied per engineer and the average number of patents approved per engineer; and (3) protection of

²⁰ Note that the difference in R^2 of the new regression and the restricted regression does not provide an estimate of the variation explained by the firm specific variable by itself, only the marginal increment of explanatory power that is gained by adding the firm specific variable.

consumers using the number of consumer complaints received by the Consumer Association. A higher index is reflective of a better legal environment.²¹

Firm Size Dummies are quintiles of total firm sales in 1999. Age Dummies take values 1 to 3 for age < 5 years, 5 - 20 years and greater than 20 years respectively. Fixed Asset Dummies are quintiles of fixed assets in 1999. Legal Status Dummies take the value 1 for corporations, 2 for state owned enterprises, 3 for cooperatives and collectives and 4 for all other legal status.

Since the LHS variable is a 0-1 dummy variable we use logistic regression, and in each case compute the McKelvey and Zavoina (MZ) (1975) R-square of the logistic regression model. We choose the MZ R-square statistic since DeMaris (2002) finds the MZ R-square to be the best at estimating explained variance in a study comparing eight R-square analogues.

Panel B of Table 9 shows that the city dummies explain 6.4% of the variance in the posting of collateral by firms. When the firm variables are entered after the country dummies, size dummies explain 7.2%, fixed asset dummies explain 10%, age dummies explain 0.6%, and legal status dummies explain 0.3%.²² The results show that a firm's level of fixed assets has the highest marginal contribution to MZ R-square confirming that fixed assets has the greatest explanatory power compared to other firm-level variables in explaining a firm's ability to post collateral. Size is also a significant determinant of a firm's ability to post collateral where as age and legal status are not.

²¹ The Fan and Wong (2004) Index has been used recently in other studies including Li, Yue, and Zhao (2006) and Fan, Wong, and Zhang (2007)

²² When firm size dummies are entered by themselves, without country dummies (results not reported), they explain 8%, fixed asset dummies explain 11.1%, age dummies explain 0.7%, and legal status dummies explain 0.6% of the variance in firm's ability to post collateral.

When we look at the joint effect of city and firm characteristics, the city-firm interactions are large and significant. The interaction of fixed asset dummies and city dummies explains 45.7% and the interaction of size dummies and city dummies explains nearly 27% of the variance in firm's ability to post collateral. By contrast, the interaction of city dummies with age dummies and legal status dummies explains 3.9% and 4.6% respectively.

When we replace city dummies with province level indicators of the legal environment, we find that the legal environment explains 5% of the variation in the firm's ability to post collateral. Size and Level of fixed assets again have high explanatory power compared to age and legal status. The interaction of size dummies and Legal Environment index explains 27.3%, the interaction of fixed asset dummies and Legal Environment index explains 37.5% while all other interactions explain less than 5% of the variation in the firm's ability to post collateral.

Thus we find that given the role of collateral in selecting which firms obtain loans, size and possession of fixed assets²³ confer advantages on firms attempting to obtain access to the formal financial system. We also find evidence that there is sufficient institutional variation across provinces which affects firms' ability to post collateral. When we take a closer look at the interactions, we find that firms in cities with poor institutional environment but with higher fixed assets post more collateral. This suggests that in poor institutional environments, firms have to rely on collateral to access bank finance rather than relying on credit histories and growth opportunities.

²³ If we were to re-estimate the selection equation in Tables 4 and 5 by replacing Collateral with the quintiles of fixed assets, we find that higher level of fixed assets are a significant predictor of the availability of bank finance.

4.3. Discussion

In this section, we discuss our findings in the context of recent evidence on the link between finance and growth in China. Allen et al. (2005) find that while the Private Sector dominates the State and Listed sectors in both the size of the output and the growth trend, there is a huge reliance on non-bank financing sources amongst firms in the Private sector. Given the weak external markets and poor legal protection of minority and outside investors in China, Allen et al. (2005) attribute the growth of the Private sector to the reliance on alternative financing channels and corporate governance mechanisms such as reputation and relationships. They interpret this as evidence against the finance and growth literature that the development of stock markets and a banking system is important for growth of firms and economies. However, due to data limitations, the results in Allen et al. (2005) are based on an analysis of the 17 largest, and perhaps unrepresentative, firms in the two most developed regions in the country. Further, their definition of informal financing channels includes retained earnings, informal financing, issuance of equity and all other sources of fund raising except bank financing, state funding and foreign investment.

While our data on 2400 firms (including 1720 non-publicly traded and non-state companies) confirms the wide use of financing channels other than Bank Finance, our regression results suggest that it is the formal financing channel, specifically Bank Finance that is positively associated with higher growth and reinvestment. These increases are not associated with decreases in firm productivity. We find no evidence that alternative financing channels such as informal sources have a positive impact on growth and reinvestment.

To investigate the relation between growth and bank financing further we estimate a selection model which takes into account that banks may use proprietary information not observed by researchers to allocate credit to firms that subsequently grow faster. Controlling for this type of selection bias strengthens the relation between bank financing and subsequent growth.

Our results are consistent with other studies emphasizing the role of institutions and formal finance in China. Cull and Xu (2005) find that profit reinvestment rates are affected by enterprise managers' perceptions about the security of property rights, the risk of expropriation by government officials, the efficiency and reliability of courts, and access to credit. In a more recent paper, Cull, Xu, and Zhu (2007) find that despite a biased and inefficient banking system, trade credit does not play an economically significant role in China. There are also more recent studies emphasizing the link between institutions and growth at the provincial level. Cheng and Degryse (2006) explore the impact of the development of bank versus non-bank financial institutions on the growth rate of Chinese provinces over the period 1995-2003 and conclude that only bank loans have a significant impact on local economic growth. Fan, Morck, Xu, and Yeung (2007) find that inward FDI within China flows disproportionately into provinces with less corrupt governments and governments that better protect private property rights.²⁴

²⁴ Fan et al. (2007) estimate a cross-country (without China) FDI model explaining inward FDI using different measures of institutions and make out-of-sample predictions from their model for China. They find that China is no exception since Chinese FDI inflows are in line with what the model predicts for a country at China's level of institutional development as measured by general government quality and rule of law. However, when they measure institutions by "strength of executive constraints", they find that China receives more FDI than predicted by their model. But they argue that this could be because of other reasons including underestimation of the strength of checks on executive power in China or foreign firms enjoying better protections than identical Chinese firms.

So how do we reconcile our results with the inefficiencies in the formal financial system described in section 2? The formal financial system does serve a small sector of the economy and both the aggregate statistics and firm responses suggest that there are imperfections in the allocation of capital. However, our results show that despite these weaknesses, at the margin, private sector firms that have loans from the formal sector do better than other firms and having a better developed financial system will only bring more benefits.

The informal sector does finance a huge section of the economy but we have no evidence that the firms depending on informal finance are the fastest growing firms. Rather, the evidence suggests that firms relying on their retained earnings grow faster than firms relying on informal or other sources. However, even though in the aggregate informal financing sources are not associated with high growth, there could be small entrepreneurial firms that depend on the informal financing sources for their growth and survival, akin to the critical role played by angel finance, in the financing and creation of rapid-growth start-ups in developed economies. So while the informal sector has its own niche in financing firms we find no evidence that it is an efficient substitute for the formal sector.

5. Conclusion

With one of the largest and fastest growing economies in the world, China provides many puzzles. More recently, it has been singled out as a counterexample to the findings of the finance and growth literature: while Chinese financial systems and institutions are underdeveloped, its economy, particularly its private sector, has been

growing very fast. One explanation for this observation has been that China has alternative mechanisms and institutions that play an important role in supporting its growth and these alternative mechanisms are good substitutes for standard corporate governance mechanisms and financing channels (Allen, et al. 2005).

In this paper we take a closer look at the financing of 2400 Chinese firms and their performance, using a detailed firm level survey. We find that in China, private firms' use of formal financing channels is comparable to its use in other developing countries, and it is financing from these sources that is positively associated with firm performance. Contrary to earlier findings, fund raising from informal channels is not associated with faster firm growth. These findings have broader implications for the role of informal versus formal financial systems. Our results contradict the belief that nonstandard financing mechanisms provide effective substitutes to formal financing channels in promoting growth. They suggest that the role of reputation and relationship based financing and governance mechanisms in supporting the growth of private sector firms is likely to be overestimated.

We also find that an important determinant of access to bank finance is collateral requirements and larger firms, firms with more fixed assets and firms located in poor institutional environments tend to post more collateral. This suggests that in poor institutional environments, firms have to rely on collateral to access bank finance rather than relying on credit histories and growth opportunities. Our findings underscore the importance of institutions in facilitating firms' access to bank finance.

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Figure 1: Chinese Cities Surveyed by the Investment Climate Surveys



Figure 2: Aggregate Financing Patterns across Chinese Cities

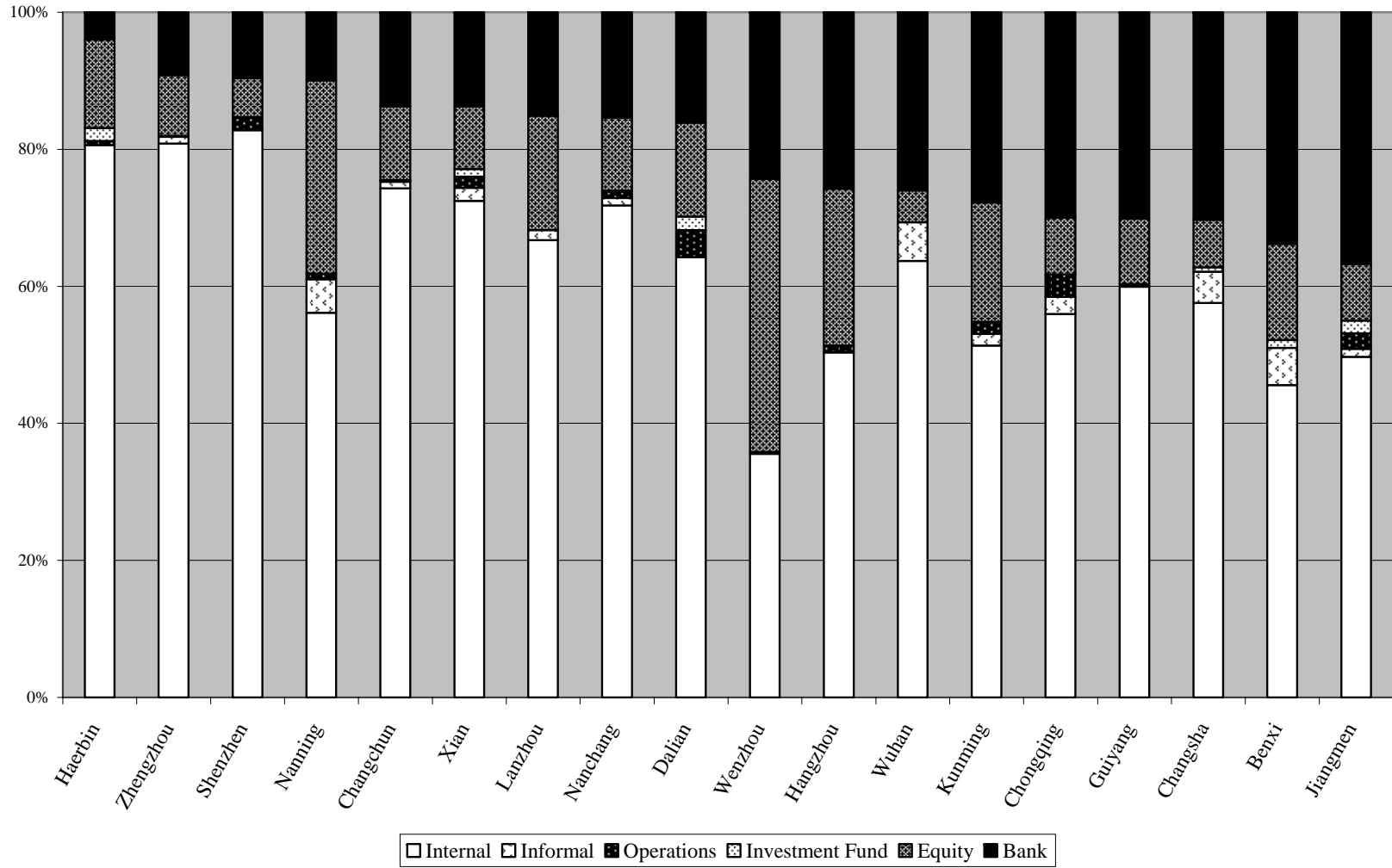


Figure 3: Why Chinese firms do not apply for bank loans

Of the full sample of 2326 firms, 1789 firms reported not having an existing loan from a bank or a financial institution. 1237 firms reported not having a bank loan because they did not apply for a bank loan. Of the 1666 private firms, 1301 firms reported not having an existing loan from a bank or a financial institution. 933 private firms reported not having a bank loan because they did not apply for the loan. The firms report six reasons for not applying for a loan: Do not need loans, Application procedures for bank loans are too cumbersome, Collateral requirements of bank loans are too stringent, Did not expect to be approved, Interest rates are too high, Corruption in the allocation of bank credit. The reasons reported are not mutually exclusive.

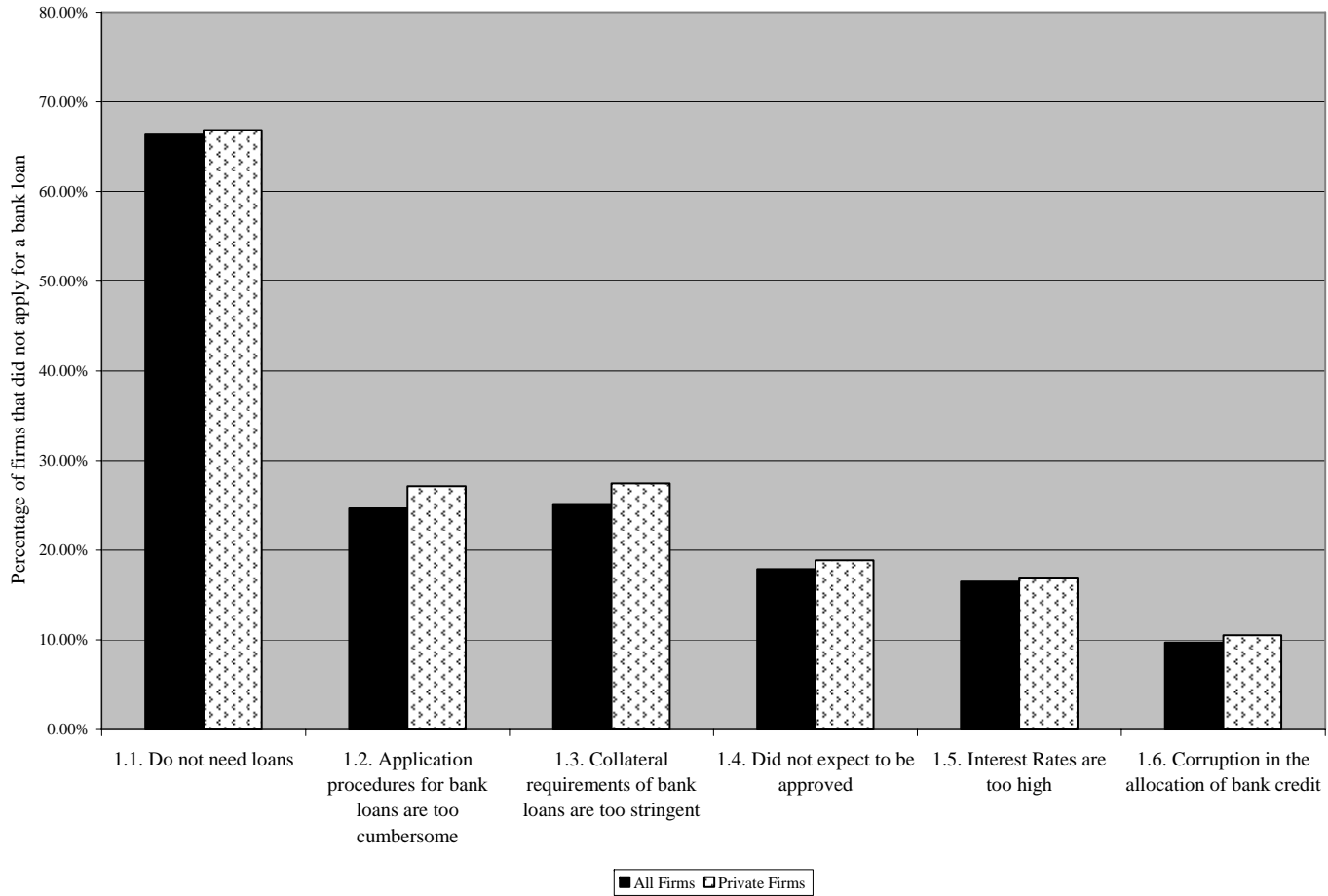


Figure 4: Reasons why loan application was rejected

Of the full sample of 2326 firms, 1789 firms reported not having an existing loan from a bank or a financial institution. 229 firms reported not having a bank loan because their application for a bank loan was rejected. Of the 1666 private firms, 1301 firms reported not having an existing loan from a bank or a financial institution. 154 private firms reported not having a bank loan because their application for a bank loan was rejected. The firms report three reasons for having their application for a bank loan rejected: Lack of collateral, Perceived lack of feasibility of project and Incompleteness of application. The reasons reported are not mutually exclusive

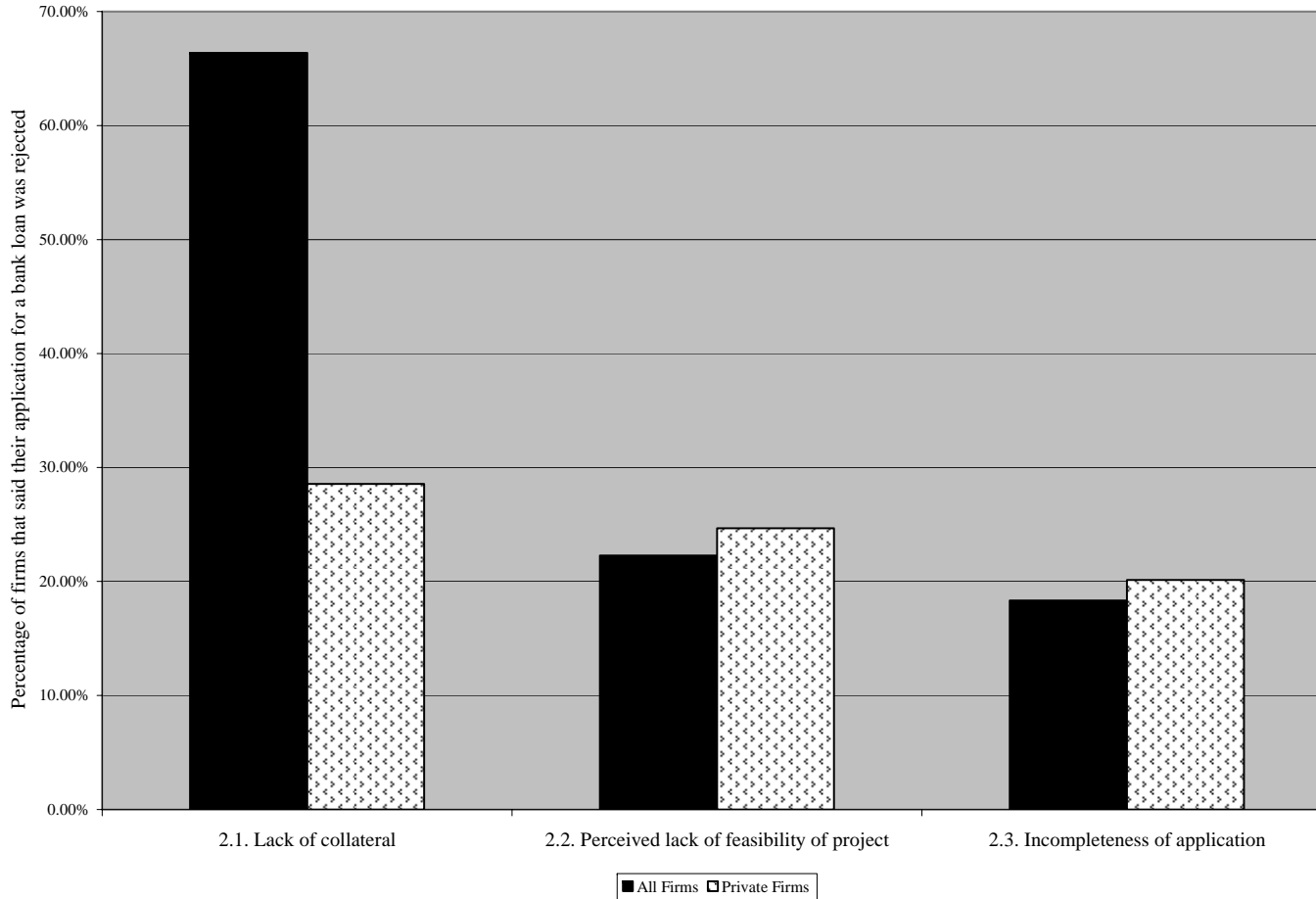


Table 1: Financing Patterns in Developing Countries

This table presents financing patterns across seven developing countries, geographic regions and country income groups across the world. In Panel A, Retained Earnings, Local Commercial Banks, Foreign Owned Commercial Banks, Equity, Operations Finance, Investment Funds, Loans from Family and Friends, Informal (eg: moneylender) and Other are financing proportions that stand for the proportion of new investments financed by each of these sources. Operations Finance consists of financing from leasing, trade credit and credit cards. Investment Funds includes funds from investment funds, development bank and other state services. In Panel B, we present two sets of aggregate financing patterns. The first set consists of Internal financing (Retained Earnings, Loans from Family and Friends and Other sources); Bank Financing (Local commercial banks and Foreign Owned commercial banks); Informal (informal sources such as moneylender or informal bank); Equity Financing, Operations Finance and Investment Funds. The second set consists of Bank Financing; and Self Fund Raising (100-Bank Financing) as defined in Allen et al. (2005) to represent the proportion of new investments financed by all other sources except Bank Financing. The financing proportions are in percentages.

Panel A: Individual Financing Patterns

	Number of countries	Number of firms	Retained Earnings	Local Commercial Banks	Foreign Owned Commercial Bank	Operations Finance	Investment Funds	Loans from Family and Friends	Equity	Informal Sources	Other
Bangladesh		892	59.92	28.41	1.22	4.55	0.26	4.27	0.38	0.35	0.64
Brazil		1351	56.32	13.09	1.21	12.12	8.45	1.21	4.29	1.04	2.27
China		1342	15.24	20.24	0.12	1.03	0.55	5.89	12.39	1.84	42.70
India*		92	43.84	30.73	2.75	0.43	9.52	3.56	4.33	0.75	4.09
Indonesia		291	41.89	13.21	3.13	5.49	1.67	17.73	1.34	6.74	8.80
Nigeria		145	63.94	29.76	0.00	1.07	1.55	0.74	2.59	0.34	0.00
Russian Federation		701	82.47	5.57	0.36	5.87	0.73	1.74	0.36	1.02	1.87
Across Regions											
Africa	15	2708	66.02	18.14	1.05	6.15	0.98	1.88	1.36	0.48	3.95
East Asia and Pacific (excluding China)	8	5307	31.19	30.77	1.10	3.30	1.37	7.08	21.38	1.23	2.57
East Europe and Central Asia	36	15489	68.53	11.38	1.48	7.87	1.01	2.94	4.20	0.71	1.88
Latin America and Caribbean	10	4001	53.96	19.36	1.86	10.79	3.63	2.89	3.13	0.76	3.62
Middle East and North Africa	5	2103	74.52	12.37	0.69	5.25	0.28	2.46	1.70	0.15	2.57
South Asia	5	1572	58.63	21.95	0.86	4.76	1.00	4.59	3.23	0.68	4.29
Across Income Groups											
Low Income	26	6913	59.22	16.32	1.10	3.23	1.30	5.47	10.43	0.94	1.99
Middle Income	45	21062	59.26	16.12	1.40	7.29	1.43	3.26	4.89	0.82	5.53
High Income OECD	7	3020	58.22	19.74	1.04	12.81	0.62	1.09	5.29	0.10	1.09

Panel B: Aggregate Financing Patterns

Aggregate Financing Patterns									Allen et al. (2005)'s Categorization	
	Number of countries	Number of firms	Internal	Bank Financing	Informal	Operations Finance	Equity	Investment Funds	Bank Financing	Self Fund Raising
Bangladesh		892	64.84	29.64	0.35	4.55	0.38	0.26	29.64	70.36
Brazil		1351	59.80	14.30	1.04	12.12	4.29	8.45	14.30	85.70
China		1342	63.82	20.37	1.84	1.03	12.39	0.55	20.37	79.63
India		92	51.49	33.48	0.75	0.43	4.33	9.52	33.48	66.52
Indonesia		291	68.42	16.34	6.74	5.49	1.34	1.67	16.34	83.66
Nigeria		145	64.69	29.76	0.34	1.07	2.59	1.55	29.76	70.24
Russian Federation		701	86.08	5.93	1.02	5.87	0.36	0.73	5.93	94.07
Across Regions										
Africa	15	2708	71.84	19.19	0.48	6.15	1.36	0.98	19.19	80.81
East Asia and Pacific (excluding China)	8	5307	40.84	31.87	1.23	3.30	21.38	1.37	31.87	68.13
East Europe and Central Asia	36	15489	73.34	12.86	0.71	7.87	4.20	1.01	12.86	87.14
Latin America and Caribbean	10	4001	60.47	21.22	0.76	10.79	3.13	3.63	21.22	78.78
Middle East and North Africa	5	2103	79.55	13.07	0.15	5.25	1.70	0.28	13.07	86.93
South Asia	5	1572	67.51	22.82	0.68	4.76	3.23	1.00	22.82	77.18
Across Income Groups										
Low Income	26	6913	66.67	17.42	0.94	3.23	10.43	1.30	17.42	82.58
Middle Income	45	21062	68.05	17.52	0.82	7.29	4.89	1.43	17.52	82.48
High Income OECD	7	3020	60.40	20.78	0.10	12.81	5.29	0.62	20.78	79.22

Table 2: Financing Patterns in China

This table presents financing patterns across different cities and regions in China and across different types of firms. In Panel A, Retained Earnings, Local Commercial Banks, Foreign Owned Commercial Banks, Equity, Operations Finance, Investment Funds, Loans from Family and Friends, Informal (eg: moneylender) and Other are financing proportions that stand for the proportion of new investments financed by each of these sources. Operations Finance consists of financing from leasing, trade credit and credit cards. Investment Funds includes funds from investment funds, development bank and other state services. In Panel B, we present two sets of aggregate financing patterns. The first set consists of Internal financing (Retained Earnings, Loans from Family and Friends and Other sources); Bank Financing (Local commercial banks and Foreign Owned commercial banks); Informal (informal sources such as moneylender or informal bank); Equity Financing, Operations Finance and Investment Funds. The second set consists of Bank Financing and Self Fund Raising (100-Bank Financing) as defined in Allen et al. (2005) to represent the proportion of new investments financed by all other sources except Bank Financing. The financing proportions are in percentages.

Panel A: Individual Financing Patterns

	Region	Province	Number of Firms	Retained Earnings	Local Commercial Banks	Foreign Owned Commercial Bank	Operations Finance	Family and Friends	Informal Sources	Equity	Investment Funds	Other
Across Cities in China												
Benxi	Northeast	Liaoning	89	7.96	33.81	0.00	0.00	9.56	5.43	14.03	1.12	28.09
Changchun	Northeast	Jilin	104	26.85	13.71	0.00	0.19	1.92	0.96	10.74	0.10	45.53
Changsha	Central	Hunan	55	15.56	29.91	0.36	0.00	4.84	4.55	6.96	0.64	37.18
Chongqing	Southwest	Chongqing	95	17.63	29.99	0.00	3.29	1.94	2.47	8.26	0.00	36.41
Dalian	Northeast	Liaoning	51	1.00	16.12	0.00	3.92	1.67	0.02	13.73	1.96	61.59
Guiyang	Southwest	Guizhou	57	8.93	30.12	0.00	0.09	0.61	0.00	9.54	0.32	50.39
Haerbin	Northeast	Heilongjiang	52	7.88	3.98	0.00	0.58	2.88	0.00	12.88	1.92	69.87
Hangzhou	Coastal	Zhejiang	78	24.96	25.53	0.19	1.03	1.41	0.00	22.91	0.00	23.97
Jiangmen	Coastal	Guangdong	70	4.29	35.13	1.57	2.26	5.13	1.14	8.31	1.86	40.31
Kunming	Southwest	Yunan	58	19.57	27.74	0.00	1.72	9.83	1.72	17.45	0.00	21.97
Lanzhou	Northwest	Gansu	27	11.85	15.11	0.00	0.00	11.48	1.48	16.67	0.00	43.41
Nanchang	Central	Jiangxi	135	18.01	15.39	0.00	0.89	8.22	1.07	10.64	0.19	45.59
Nanning	Southwest	Guangxi	48	15.23	9.92	0.00	0.83	11.15	4.85	28.23	0.00	29.79
Shenzhen	Coastal	Guangdong	78	12.49	9.59	0.00	1.92	0.00	0.00	5.71	0.00	70.29
Wenzhou	Coastal	Zhejiang	39	21.15	24.31	0.00	0.00	11.03	0.26	39.87	0.00	3.38
Wuhan	Central	Hubei	85	15.74	26.01	0.00	0.00	5.94	5.65	4.65	0.00	42.01
Xian	Northwest	Shaanxi	62	13.60	13.73	0.00	1.61	4.03	1.90	9.13	1.15	54.85
Zhengzhou	Central	Henan	104	16.08	9.20	0.00	0.10	9.69	0.96	8.83	0.05	55.10
Across Regions in China												
Central			379	16.61	18.18	0.05	0.34	7.62	2.57	8.26	0.17	46.18
Coastal			265	15.27	23.19	0.47	1.46	3.39	0.34	16.49	0.49	38.89
Northeast			296	13.38	18.46	0.00	0.84	4.34	1.97	12.62	1.05	47.33
Northwest			89	13.07	14.15	0.00	1.12	6.29	1.78	11.42	0.80	51.38
Southwest			258	15.70	25.78	0.00	1.78	5.13	2.20	14.33	0.07	35.02

	Region	Province	Number of Firms	Retained Earnings	Local Commercial Banks	Foreign Owned Commercial Bank	Operations Finance	Family and Friends	Informal Sources	Equity	Investment Funds	Other
<i>Across All Firms</i>			1287	15.16	20.52	0.11	1.03	5.41	1.85	12.39	0.46	43.07
<i>Across Firm Sizes</i>												
			250	11.41	15.06	0.00	0.48	13.54	2.58	12.78	0.84	43.31
			249	14.20	14.82	0.04	1.14	6.70	1.59	13.97	0.10	47.45
			249	16.50	21.89	0.46	0.60	4.62	1.49	11.14	0.94	42.36
			249	17.04	21.35	0.00	1.10	2.79	1.99	12.14	0.14	43.45
			249	17.02	30.13	0.08	1.61	0.08	1.81	11.25	0.29	37.73
<i>Legal Status</i>												
			37	9.00	33.32	0.00	0.00	0.00	0.00	36.11	0.00	21.57
			490	18.11	20.54	0.03	0.98	10.00	2.21	14.14	0.26	33.75
			165	15.92	17.59	0.00	0.55	5.33	0.99	10.65	0.06	48.92
<i>Across Firm Ownership (>50%)</i>												
			288	11.69	25.90	0.00	0.02	0.79	1.47	6.36	0.59	53.18
			901	16.23	19.60	0.14	1.10	7.30	2.00	14.16	0.36	39.12
			108	16.19	14.56	0.19	3.36	1.67	1.39	13.64	0.93	48.08
<i>Age</i>												
			262	14.83	20.53	0.00	0.73	10.29	2.61	16.33	0.52	34.18
			735	16.67	18.16	0.20	1.45	4.85	1.52	13.53	0.62	43.01
			290	11.67	26.51	0.00	0.24	2.40	1.99	5.96	0.00	51.23

Panel B: Aggregate Financing Patterns

Aggregate Financing Patterns										Allen et al. (2005)'s Categorization	
Region	Province	Number of firms	Internal	Bank Financing	Informal	Operations Finance	Equity	Investment Funds	Bank Financing	Self Fund Raising	
Across Cities in China											
Benxi	Northeast	Liaoning	89	45.61	33.81	5.43	0.00	14.03	1.12	33.81	66.19
Changchun	Northeast	Jilin	104	74.30	13.71	0.96	0.19	10.74	0.10	13.71	86.29
Changsha	Central	Hunan	55	57.58	30.27	4.55	0.00	6.96	0.64	30.27	69.73
Chongqing	Southwest	Chongqing	95	55.98	29.99	2.47	3.29	8.26	0.00	29.99	70.01
Dalian	Northeast	Liaoning	51	64.25	16.12	0.02	3.92	13.73	1.96	16.12	83.88
Guiyang	Southwest	Guizhou	57	59.93	30.12	0.00	0.09	9.54	0.32	30.12	69.88
Haerbin	Northeast	Heilongjiang	52	80.63	3.98	0.00	0.58	12.88	1.92	3.98	96.02
Hangzhou	Coastal	Zhejiang	78	50.35	25.72	0.00	1.03	22.91	0.00	25.72	74.28
Jiangmen	Coastal	Guangdong	70	49.73	36.70	1.14	2.26	8.31	1.86	36.70	63.30
Kunming	Southwest	Yunan	58	51.36	27.74	1.72	1.72	17.45	0.00	27.74	72.26
Lanzhou	Northwest	Gansu	27	66.74	15.11	1.48	0.00	16.67	0.00	15.11	84.89
Nanchang	Central	Jiangxi	135	71.82	15.39	1.07	0.89	10.64	0.19	15.39	84.61
Nanning	Southwest	Guangxi	48	56.17	9.92	4.85	0.83	28.23	0.00	9.92	90.08
Shenzhen	Coastal	Guangdong	78	82.78	9.59	0.00	1.92	5.71	0.00	9.59	90.41
Wenzhou	Coastal	Zhejiang	39	35.56	24.31	0.26	0.00	39.87	0.00	24.31	75.69
Wuhan	Central	Hubei	85	63.69	26.01	5.65	0.00	4.65	0.00	26.01	73.99
Xian	Northwest	Shaanxi	62	72.48	13.73	1.90	1.61	9.13	1.15	13.73	86.27
Zhengzhou	Central	Henan	104	80.87	9.20	0.96	0.10	8.83	0.05	9.20	90.80
Across Regions in China											
Central			379	70.41	18.23	2.57	0.34	8.26	0.17	18.23	81.77
Coastal			265	57.55	23.66	0.34	1.46	16.49	0.49	23.66	76.34
Northeast			296	65.05	18.46	1.97	0.84	12.62	1.05	18.46	81.54
Northwest			89	70.74	14.15	1.78	1.12	11.42	0.80	14.15	85.85
Southwest			258	55.85	25.78	2.20	1.78	14.33	0.07	25.78	74.22
Across All Firms											
			1287	63.64	20.63	1.85	1.03	12.39	0.46	20.63	79.37
Across Firm Sizes											
Micro			250	68.27	15.06	2.58	0.48	12.78	0.84	15.06	84.94
Small			249	68.35	14.86	1.59	1.14	13.97	0.10	14.86	85.14
Medium			249	63.47	22.35	1.49	0.60	11.14	0.94	22.35	77.65
Large			249	63.27	21.35	1.99	1.10	12.14	0.14	21.35	78.65
Very Large			249	54.84	30.21	1.81	1.61	11.25	0.29	30.21	69.79
Legal Status											
Publicly Listed Company			37	30.57	33.32	0.00	0.00	36.11	0.00	33.32	66.68
Privately held Company			490	61.86	20.57	2.21	0.98	14.14	0.26	20.57	79.43
Cooperatives			165	70.16	17.59	0.99	0.55	10.65	0.06	17.59	82.41

Aggregate Financing Patterns									Allen et al. (2005)'s Categorization	
Region	Province	Number of firms	Internal	Bank Financing	Informal	Operations Finance	Equity	Investment Funds	Bank Financing	Self Fund Raising
<i>Across Firm Ownership (>50%)</i>										
		288	65.66	25.90	1.47	0.02	6.36	0.59	25.90	74.10
		901	62.65	19.74	2.00	1.10	14.16	0.36	19.74	80.26
		108	65.94	14.75	1.39	3.36	13.64	0.93	14.75	85.25
<i>Age</i>										
		262	59.29	20.53	2.61	0.73	6.36	0.59	20.53	79.47
		735	64.53	18.35	1.52	1.45	14.16	0.36	18.35	81.65
		290	65.30	26.51	1.99	0.24	13.64	0.93	26.51	73.49

Table 3: Summary Statistics and Correlations

Panel A presents summary statistics. Panel B presents the correlations between the financing variables and firm performance. Bank Dummy takes the value 1 if the firm said it had a loan from a bank or financial institution and 0 if the firm said it had no bank loan and had no overdraft facility or line of credit. Access Dummy is a dummy variable that takes the value 1 if the firm had access to a bank loan in any year prior from 1990-2001 and 0 otherwise. Bank Financing takes the value 0 if (the firm said it had no loan from a bank or financial institution OR said it had no overdraft facility or line of credit) AND (bank financing of new investments was equal to 0% AND bank financing of working capital was equal to 0%). Self Financing1 takes the value 1 if the sum of informal financing and other financing of new investments was greater than 50% OR the sum of informal financing and other financing of working capital was greater than 50%. Self Financing1 takes the value 0 if the sum of informal and other financing of new investments is equal to 0 % AND the sum of informal and other financing of working capital is equal to 0%. Self Financing2 takes the value 1 if the sum of informal, family, and other financing of new investments was greater than 50% OR the sum of informal, family and other financing of working capital was greater than 50%. Self Financing2 takes the value 0 if the sum of informal, family and other financing of new investments is equal to 0 % AND the sum of informal, family and other financing of working capital is equal to 0%. Sales Growth is defined as the log change in total sales and is computed from 2001 to 2002 and from 1999 to 2002. Productivity Growth is defined as the log change in productivity where productivity is (Sales-Total Material Costs)/Total Number of Workers. Productivity Growth is computed from 2001 to 2002 and from 1999 to 2002. Reinvestment Rate is the share of net profits re-invested in the establishment in 2002. Firm Size Dummies are quintiles of total firm sales in 1999. Age is the age of the company in 2003. Corporation Dummy takes the value 1 if the firm is organized as a corporation (public or private) and 0 otherwise. Cooperatives/Collectives Dummy takes the value 1 if the firm is organized as a Cooperative or a Collective. State Ownership Dummy takes the value 1 if the state owns more than 50% of the company. Competition takes values 1 to 5 for 1-3 competitors, 4- 6 competitors, 7- 15 competitors, 16-100 competitors and over 100 competitors respectively for the number of competitors in its main business line in the domestic Market.

Panel A: Summary Statistics

Variable	N	Mean	Standard Deviation	Minimum	Maximum
Financing					
Bank Dummy	2326	0.2309	0.4215	0	1
Access Dummy	2400	0.2858	0.4519	0	1
Bank Financing	1777	0.2060	0.4045	0	1
Self Financing1	2176	0.4003	0.4901	0	1
Self Financing2	2141	0.4521	0.4978	0	1
Firm Performance					
Sales Growth [2001-2002]	2370	0.0563	0.7072	-7.44	7.13
Reinvestment Rate [2001]	2115	0.1761	0.3230	0	1
Sales Growth [1999-2002]	2559	0.1349	0.3890	-2.36	2.71
Productivity Growth [2001-2002]	1558	0.0045	0.8132	-6.68	8.02
Productivity Growth [1999-2002]	1486	0.0810	0.3397	-1.97	3.28
Firm Characteristics					
Size Dummies	2283	2.9991	1.4145	1	5
Age	2400	15.9862	14.3902	3	53
Corporation Dummy	2400	0.4046	0.4909	0	1
Cooperatives Dummy	2400	0.1612	0.3678	0	1
State Ownership Dummy	2399	0.2213	0.4152	0	1
Competition Dummies	2326	3.8224	1.3535	1	5

Panel B: Correlations between Financing and Firm Performance

	Sales Growth [2001-2002]	Reinvestment Rate	Productivity Growth [2001- 2002]	Sales Growth [1999-2002]	Productivity Growth [1999- 2002]	Bank Dummy	Access Dummy	Bank Financing	Self Financing1
Reinvestment Rate	0.074 ^a								
Productivity Growth [2001-2002]	0.6536 ^a	-0.0111							
Sales Growth [1999-2002]	0.5072 ^a	0.1171 ^a	0.2982 ^a						
Productivity Growth [1999-2002]	0.4238 ^a	0.0488 ^c	0.4682 ^a	0.7298 ^a					
Bank Dummy	0.037 ^c	0.132 ^a	0.0058	0.0671 ^a	0.0573 ^b				
Access Dummy	0.0003	-0.0076	-0.0332	-0.0613 ^a	-0.0601 ^b	0.0914 ^a			
Bank Financing	0.0366	0.1664 ^a	0.0279	0.074 ^a	0.0878 ^a	1 ^a	0.0767 ^a		
Self Financing1	-0.0077	-0.0923 ^a	0.0639 ^b	-0.0491 ^b	0.0016	-0.1174 ^a	-0.0854 ^a	-0.1762 ^a	
Self Financing2	0.0009	-0.0672 ^a	0.0746 ^a	-0.0229	0.0111	-0.1281 ^a	-0.0801 ^a	-0.1861 ^a	0.9303 ^a

^c significant at 10%; ^b significant at 5%; ^a significant at 1%

Table 4: Bank Financing and Firm Performance – Partial Correlations

The estimated model is: Sales Growth/Reinvestment Rate/Productivity Growth = $\alpha + \beta_1$ BankDummy+ β_2 Small + β_3 Medium + β_4 Large + β_5 Very Large + β_6 Mid-Age + β_7 Old + β_8 Corporations + β_9 Collectives + β_{10} State Ownership + β_{11} Competition Dummies + β_{12} City Dummies. Sales Growth is defined as the log change in total sales and is computed from 2001 to 2002 and from 1999 to 2002. Productivity Growth is defined as the log change in productivity where productivity is (Sales-Total Material Costs)/Total Number of Workers. Productivity Growth is computed from 2001 to 2002 and from 1999 to 2002. Reinvestment Rate is the share of net profits re-invested in the establishment in 2002. Bank Dummy takes the value 1 if the firm said it had a loan from a bank or financial institution and 0 if the firm said it had no bank loan and had no overdraft facility or line of credit. Firm Size Dummies are quintiles of total firm sales in 1999. Small, Medium, Large and Very Large dummies take the value 1 if the firm is in the second, third, fourth or fifth quintile respectively of firm sales. Mid-Age is a dummy variable that takes the value 1 if the firm is between 5 and 20 years of age and Old is a dummy variable that takes the value 1 if the firm is greater than 20 years old. The omitted age dummy is less than 5 years. Corporation Dummy takes the value 1 if the firm is organized as a corporation (public or private) and 0 otherwise. Cooperatives/Collectives Dummy takes the value 1 if the firm is organized as a Cooperative or a Collective. State Ownership Dummy takes the value 1 if the state owns more than 50% of the company. 4 to 6 Competitors, 7 to 15 Competitors, 16 to 100 Competitors and Over 100 Competitors are dummy variables that take the value 1 if the firm has the corresponding number of competitors in its main business line in the domestic market. The omitted category is 1 to 3 Competitors. Columns 1 to 5 present results for the full sample and columns 6 to 10 present results for a sample of firms that don't include firms registered as publicly traded firms and state owned enterprises. We use OLS regressions with robust standard errors.

	1	2	3	4	5	6	7	8	9	10
	Full Sample					Drop Public Corporations and State Owned Companies				
	Sales Growth [2001-2002]	Profit Reinvestment rate in 2002	Productivity Growth [2001-2002]	Sales Growth [1999-2002]	Productivity Growth [1999-2002]	Sales Growth [2001-2002]	Profit Reinvestment rate in 2002	Productivity Growth [2001-2002]	Sales Growth [1999-2002]	Productivity Growth [1999-2002]
Bank Dummy	0.075 ^b [0.034]	0.078 ^a [0.020]	-0.002 [0.051]	0.115 ^a [0.019]	0.058 ^a [0.022]	0.068 ^c [0.040]	0.086 ^a [0.024]	-0.004 [0.056]	0.120 ^a [0.024]	0.066 ^b [0.026]
Small	-0.121 ^b [0.057]	0.057 ^b [0.023]	-0.064 [0.079]	-0.195 ^a [0.031]	-0.085 ^b [0.038]	-0.126 ^c [0.064]	0.077 ^a [0.026]	-0.09 [0.084]	-0.205 ^a [0.034]	-0.097 ^b [0.043]
Medium	-0.136 ^b [0.056]	0.071 ^a [0.024]	0.007 [0.080]	-0.258 ^a [0.031]	-0.136 ^a [0.038]	-0.146 ^b [0.065]	0.086 ^a [0.028]	-0.007 [0.087]	-0.289 ^a [0.035]	-0.168 ^a [0.043]
Large	-0.160 ^a [0.057]	0.047 ^b [0.023]	-0.088 [0.081]	-0.298 ^a [0.032]	-0.187 ^a [0.040]	-0.169 ^a [0.065]	0.058 ^b [0.027]	-0.123 [0.089]	-0.319 ^a [0.037]	-0.202 ^a [0.046]
Very Large	-0.230 ^a [0.072]	0.075 ^a [0.026]	-0.086 [0.087]	-0.359 ^a [0.036]	-0.184 ^a [0.043]	-0.221 ^b [0.093]	0.107 ^a [0.034]	-0.087 [0.100]	-0.398 ^a [0.044]	-0.221 ^a [0.053]
Mid-Age	0.001 [0.041]	-0.007 [0.021]	-0.038 [0.059]	-0.143 ^a [0.024]	-0.090 ^a [0.029]	-0.006 [0.047]	-0.027 [0.024]	-0.04 [0.063]	-0.163 ^a [0.026]	-0.098 ^a [0.032]
Old	-0.064 [0.049]	-0.048 ^b [0.024]	0.03 [0.075]	-0.208 ^a [0.027]	-0.046 [0.035]	-0.035 [0.065]	-0.088 ^a [0.031]	0.062 [0.085]	-0.209 ^a [0.035]	-0.062 [0.041]
Corporations	-0.03 [0.035]	0.083 ^a [0.019]	-0.027 [0.057]	-0.012 [0.018]	-0.038 ^c [0.022]	-0.067 [0.043]	0.107 ^a [0.022]	-0.047 [0.069]	-0.045 ^b [0.021]	-0.041 [0.026]
Cooperative	-0.116 ^b [0.053]	0.033 [0.022]	-0.024 [0.068]	-0.143 ^a [0.025]	-0.098 ^a [0.027]	-0.170 ^a [0.064]	0.056 ^c [0.028]	-0.051 [0.081]	-0.184 ^a [0.030]	-0.100 ^a [0.032]
State	-0.01 [0.041]	-0.022 [0.019]	0.053 [0.062]	-0.037 ^c [0.020]	-0.033 [0.026]					
4 to 6 Competitors	0.012 [0.055]	0.053 [0.033]	-0.049 [0.086]	0.011 [0.033]	-0.029 [0.038]	-0.017 [0.070]	0.092 ^b [0.039]	-0.004 [0.104]	0.021 [0.043]	-0.02 [0.047]
7 to 15 Competitors	0.015 [0.062]	0.004 [0.029]	0.011 [0.097]	-0.031 [0.034]	-0.03 [0.042]	0.019 [0.080]	0.033 [0.035]	0.074 [0.123]	-0.007 [0.043]	0 [0.053]
16 to 100 Competitors	-0.053 [0.049]	0.022 [0.027]	-0.043 [0.078]	-0.063 ^b [0.029]	-0.077 ^b [0.036]	-0.051 [0.063]	0.063 ^c [0.032]	-0.023 [0.095]	-0.06 [0.038]	-0.074 ^c [0.045]

	1	2	3	4	5	6	7	8	9	10
	Full Sample					Drop Public Corporations and State Owned Companies				
	Sales Growth [2001-2002]	Profit Reinvestment rate in 2002	Productivity Growth [2001-2002]	Sales Growth [1999-2002]	Productivity Growth [1999-2002]	Sales Growth [2001-2002]	Profit Reinvestment rate in 2002	Productivity Growth [2001-2002]	Sales Growth [1999-2002]	Productivity Growth [1999-2002]
Over 100 Competitors	-0.125 ^b [0.050]	0.02 [0.025]	-0.073 [0.075]	-0.091 ^a [0.027]	-0.081 ^b [0.034]	-0.106 ^c [0.061]	0.046 [0.029]	-0.029 [0.090]	-0.083 ^b [0.036]	-0.073 ^c [0.043]
Changchun	-0.024 [0.091]	0.178 ^a [0.039]	-0.03 [0.144]	0.149 ^a [0.049]	0.059 [0.053]	-0.05 [0.125]	0.185 ^a [0.052]	-0.004 [0.156]	0.159 ^b [0.064]	0.134 ^b [0.064]
Changsha	-0.024 [0.089]	0.083 ^b [0.032]	-0.083 [0.130]	0.048 [0.044]	-0.034 [0.046]	-0.08 [0.121]	0.096 ^b [0.045]	-0.213 [0.153]	0.07 [0.055]	0.017 [0.055]
Chongqing	0.034 [0.086]	0.089 ^b [0.038]	0.12 [0.125]	0.093 ^b [0.044]	0.077 ^c [0.046]	-0.022 [0.118]	0.056 [0.048]	0.002 [0.138]	0.121 ^b [0.057]	0.100 ^c [0.056]
Dalian	-0.108 [0.124]	0.031 [0.038]	0.023 [0.130]	0.043 [0.058]	0.035 [0.054]	-0.127 [0.123]	0.032 [0.052]	-0.13 [0.144]	0.088 [0.069]	0.074 [0.066]
Guiyang	0.031 [0.108]	0.064 ^c [0.037]	-0.049 [0.129]	0.069 [0.054]	-0.008 [0.053]	0.115 [0.154]	0.089 ^c [0.054]	-0.19 [0.159]	0.159 ^b [0.073]	0.029 [0.062]
Haerbin	-0.146 [0.096]	0.081 ^b [0.038]	-0.156 [0.135]	0.054 [0.055]	-0.039 [0.055]	-0.122 [0.124]	0.095 ^b [0.048]	-0.201 [0.150]	0.076 [0.066]	0.014 [0.066]
Hangzhou	0.06 [0.105]	0.118 ^a [0.044]	-0.034 [0.164]	0.147 ^a [0.051]	0.052 [0.059]	0.036 [0.134]	0.131 ^b [0.056]	-0.07 [0.155]	0.184 ^a [0.063]	0.151 ^b [0.062]
Jiangmen	0.061 [0.106]	0.094 ^b [0.040]	-0.031 [0.145]	0.045 [0.048]	-0.042 [0.056]	0.002 [0.141]	0.088 ^c [0.048]	-0.117 [0.159]	0.047 [0.060]	0.016 [0.065]
Kunming	0.003 [0.099]	0.112 ^a [0.036]	0.047 [0.121]	0.005 [0.048]	-0.022 [0.048]	-0.078 [0.134]	0.122 ^b [0.048]	-0.088 [0.144]	0.007 [0.063]	0.017 [0.060]
Lanzhou	0.011 [0.101]	0.089 ^a [0.035]	-0.092 [0.147]	0.003 [0.050]	-0.065 [0.054]	-0.06 [0.129]	0.077 ^c [0.047]	-0.182 [0.175]	-0.012 [0.065]	-0.047 [0.073]
Nanchang	0.114 [0.091]	0.191 ^a [0.038]	-0.08 [0.143]	0.113 ^b [0.047]	0.042 [0.056]	0.068 [0.128]	0.227 ^a [0.053]	-0.184 [0.173]	0.136 ^b [0.064]	0.087 [0.074]
Nanning	-0.113 [0.116]	0.076 ^b [0.036]	-0.161 [0.144]	0.025 [0.056]	-0.086 [0.054]	-0.148 [0.158]	0.088 ^c [0.051]	-0.327 ^c [0.168]	0.073 [0.074]	-0.035 [0.067]
Shenzhen	0.223 ^c [0.131]	0.048 [0.042]	0.151 [0.236]	0.185 ^a [0.057]	0.116 [0.084]	0.215 [0.183]	0.051 [0.057]	0.034 [0.294]	0.234 ^a [0.077]	0.174 [0.114]
Wenzhou	0.108 [0.104]	0.123 ^a [0.046]	-0.107 [0.156]	0.155 ^a [0.052]	0.031 [0.058]	0.068 [0.131]	0.102 ^b [0.051]	-0.185 [0.169]	0.192 ^a [0.063]	0.074 [0.064]
Wuhan	-0.181 ^c [0.097]	0.081 ^b [0.033]	-0.182 [0.137]	0.027 [0.045]	-0.001 [0.051]	-0.261 ^c [0.134]	0.06 [0.045]	-0.317 ^c [0.162]	0.026 [0.059]	0.029 [0.066]
Xian	-0.008 [0.108]	0.085 ^b [0.033]	-0.044 [0.155]	0.067 [0.050]	0.035 [0.047]	-0.061 [0.148]	0.103 ^b [0.046]	-0.236 [0.183]	0.099 [0.064]	0.087 [0.059]
Zhengzhou	-0.011 [0.085]	0.144 ^a [0.039]	0.037 [0.118]	0.027 [0.046]	-0.045 [0.051]	-0.061 [0.116]	0.127 ^a [0.047]	-0.076 [0.136]	0.019 [0.059]	-0.024 [0.061]
Constant	0.288 ^a [0.099]	-0.022 [0.036]	0.151 [0.144]	0.489 ^a [0.052]	0.349 ^a [0.061]	0.360 ^a [0.136]	-0.072 [0.048]	0.245 [0.166]	0.520 ^a [0.067]	0.318 ^a [0.074]
Observations	2145	1905	1456	2135	1423	1535	1363	1099	1528	1072
R-squared	0.036	0.072	0.017	0.175	0.071	0.038	0.087	0.023	0.195	0.083

^c significant at 10%; ^b significant at 5%; ^a significant at 1%

Table 5: Bank Financing and Firm Performance – Selection Model

A two-step selection model is used to estimate the effect of the endogenous Bank Dummy (binary treatment) on Firm Performance.

In Panel A: The first step is: Bank Dummy = $\alpha_0 + \beta_1$ Collateral + β_2 Small + β_3 Medium + β_4 Large + β_5 Very Large + β_6 Mid-Age + β_7 Old + β_8 Corporations + β_9 Collectives + β_{10} State Ownership + β_{11} Competition Dummies + β_{12} City Dummies. The second step is: Sales/Reinvestment Rate/Productivity Growth = $\alpha_1 + \gamma_1$ Bank Dummy + γ_2 Small + γ_3 Medium + γ_4 Large + γ_5 Very Large + γ_6 Mid-Age + γ_7 Old + γ_8 Corporations + γ_9 Collectives + γ_{10} State Ownership + γ_{11} Competition Dummies + γ_{12} City Dummies.

Sales Growth is defined as the log change in total sales and is computed from 2001 to 2002. Productivity Growth is defined as the log change in productivity where productivity is (Sales-Total Material Costs)/Total Number of Workers. Productivity Growth is computed from 2001 to 2002. Reinvestment Rate is the share of net profits re-invested in the establishment in 2002. Bank Dummy takes the value 1 if the firm said it had a loan from a bank or financial institution and 0 if the firm said it had no bank loan and had no overdraft facility or line of credit. The identifying variable is Collateral which is a dummy variable that takes the value 1 if the financing required a collateral or a deposit and 0 if the financing did not require collateral or if the firm did not apply for a loan because of stringent collateral requirements or if the firm was rejected for a loan because of the lack of collateral. Firm Size Dummies are quintiles of total firm sales in 1999. Small, Medium, Large and Very Large dummies take the value 1 if the firm is in the second, third, fourth or fifth quintile respectively of firm sales. Mid-age is a dummy variable that takes the value 1 if the firm is between 5 and 20 years of age and Old is a dummy variable that takes the value 1 if the firm is greater than 20 years old. The omitted age dummy is less than 5 years. Corporation Dummy takes the value 1 if the firm is organized as a corporation (public or private) and 0 otherwise. Cooperatives/Collectives Dummy takes the value 1 if the firm is organized as a Cooperative or a Collective. State Ownership Dummy takes the value 1 if the state owns more than 50% of the company. 4 to 6 Competitors, 7 to 15 Competitors, 16 to 100 Competitors and Over 100 Competitors are dummy variables that take the value 1 if the firm has the corresponding number of competitors in its main business line in the domestic market. The omitted category is 1 to 3 Competitors. Columns 1 to 6 present results for the full sample and columns 7 to 12 present results for a sample of firms that don't include firms registered as publicly traded firms and state owned enterprises. Hazard Lambdas are reported for each of the second stages.

	1	2	3	4	5	6	7	8	9	10	11	12
	Full Sample						Drop Public Corporations and State Owned Companies					
	Sales Growth [2001-2002]	Selection Equation	Profit Reinvestment rate in 2002	Selection Equation	Productivity Growth [2001-2002]	Selection Equation	Sales Growth [2001-2002]	Selection Equation	Profit Reinvestment rate in 2002	Selection Equation	Productivity Growth [2001-2002]	Selection Equation
Bank Dummy	0.310 ^a [0.116]		0.183 ^a [0.058]		0.116 [0.147]		0.244 ^b [0.124]		0.156 ^b [0.063]		0.068 [0.143]	
Collateral		0.968 ^a [0.076]		0.964 ^a [0.080]		0.941 ^a [0.089]		1.120 ^a [0.095]		1.102 ^a [0.099]		1.103 ^a [0.107]
Small	-0.229 ^a [0.062]	0.101 [0.147]	0.075 ^b [0.031]	0.081 [0.154]	-0.101 [0.088]	-0.044 [0.182]	-0.219 ^a [0.067]	0.01 [0.163]	0.093 ^a [0.034]	-0.018 [0.171]	-0.129 [0.089]	-0.131 [0.199]
Medium	-0.274 ^a [0.062]	0.240 ^c [0.141]	0.065 ^b [0.031]	0.224 [0.147]	-0.062 [0.085]	0.101 [0.171]	-0.276 ^a [0.069]	0.139 [0.159]	0.082 ^b [0.035]	0.142 [0.167]	-0.11 [0.087]	0.01 [0.187]
Large	-0.289 ^a [0.065]	0.401 ^a [0.140]	0.03 [0.032]	0.363 ^b [0.146]	-0.147 ^c [0.086]	0.215 [0.168]	-0.284 ^a [0.073]	0.281 ^c [0.161]	0.06 [0.037]	0.262 [0.167]	-0.190 ^b [0.088]	0.085 [0.186]
Very Large	-0.420 ^a [0.076]	0.850 ^a [0.144]	0.042 [0.038]	0.860 ^a [0.150]	-0.12 [0.099]	0.700 ^a [0.173]	-0.386 ^a [0.089]	0.742 ^a [0.173]	0.080 ^c [0.045]	0.714 ^a [0.181]	-0.116 [0.105]	0.610 ^a [0.200]
Mid Age	-0.001 [0.049]	-0.042 [0.104]	-0.007 [0.024]	-0.06 [0.108]	-0.097 [0.065]	-0.15 [0.123]	-0.022 [0.054]	-0.051 [0.117]	-0.014 [0.027]	-0.059 [0.122]	-0.1 [0.066]	-0.129 [0.137]
Old	-0.033 [0.061]	-0.02 [0.129]	-0.061 ^b [0.030]	-0.075 [0.135]	-0.052 [0.080]	-0.177 [0.154]	-0.018 [0.077]	-0.184 [0.169]	-0.105 ^a [0.039]	-0.173 [0.174]	0.024 [0.092]	-0.314 [0.194]
Corporations	-0.036 [0.044]	0.170 ^c [0.089]	0.070 ^a [0.022]	0.139 [0.094]	-0.06 [0.055]	0.147 [0.102]	-0.065 [0.050]	-0.026 [0.108]	0.111 ^a [0.025]	-0.023 [0.113]	-0.084 [0.060]	-0.064 [0.123]

	1	2	3	4	5	6	7	8	9	10	11	12
	Full Sample						Drop Public Corporations and State Owned Companies					
	Sales Growth [2001- 2002]	Selection Equation	Profit Reinvestment rate in 2002	Selection Equation	Productivity Growth [2001- 2002]	Selection Equation	Sales Growth [2001- 2002]	Selection Equation	Profit Reinvestment rate in 2002	Selection Equation	Productivity Growth [2001- 2002]	Selection Equation
Cooperative	-0.150 ^a [0.056]	-0.02 [0.124]	0.024 [0.028]	0.003 [0.130]	-0.01 [0.072]	0.05 [0.144]	-0.207 ^a [0.066]	-0.063 [0.148]	0.061 ^c [0.034]	-0.046 [0.154]	-0.044 [0.079]	-0.052 [0.166]
State	-0.032 [0.049]	0.062 [0.102]	-0.01 [0.025]	0.102 [0.108]	0.066 [0.067]	0.097 [0.126]						
4 to 6 Competitors	0.015 [0.080]	0.446 ^a [0.161]	0.032 [0.040]	0.462 ^a [0.170]	-0.079 [0.099]	0.412 ^b [0.182]	-0.021 [0.095]	0.554 ^a [0.200]	0.062 [0.048]	0.545 ^a [0.207]	-0.059 [0.109]	0.610 ^a [0.220]
7 to 15 Competitors	-0.011 [0.074]	0.203 [0.155]	-0.004 [0.037]	0.236 [0.163]	-0.097 [0.092]	0.245 [0.175]	-0.034 [0.090]	0.276 [0.198]	0.014 [0.045]	0.317 [0.204]	-0.072 [0.104]	0.392 ^c [0.217]
16 to 100 Competitors	-0.055 [0.068]	0.232 [0.145]	0.003 [0.034]	0.269 ^c [0.153]	-0.1 [0.085]	0.201 [0.164]	-0.059 [0.082]	0.291 [0.185]	0.041 [0.041]	0.249 [0.190]	-0.122 [0.093]	0.297 [0.201]
Over 100 Competitors	-0.146 ^b [0.064]	0.141 [0.140]	0.007 [0.032]	0.155 [0.147]	-0.153 ^c [0.083]	0.173 [0.161]	-0.134 ^c [0.078]	0.237 [0.177]	0.02 [0.039]	0.231 [0.183]	-0.143 [0.091]	0.308 [0.197]
Hazard Lambda	-0.146 ^b [0.072]		-0.068 ^c [0.036]		-0.095 [0.092]		-0.122 [0.078]		-0.042 [0.039]		-0.059 [0.090]	
Observations	1549	1549	1397	1397	1089	1089	1110	1110	1004	1004	819	819

^c significant at 10%; ^b significant at 5%; ^a significant at 1%

Table 6: Bank Financing and Firm Performance – Selection Model Robustness

A two-step selection effects model is used to estimate the effect of the endogenous Bank Dummy (binary treatment) on Firm Performance.

In Panel A: The first step is: Bank Dummy = $\alpha_0 + \beta_1$ Collateral + β_2 Small + β_3 Medium + β_4 Large + β_5 Very Large + β_6 Middle-Age + β_7 Old + β_8 Corporations + β_9 Collectives + β_{10} State Ownership + β_{11} Competition Dummies + β_{12} City Dummies + β_{13} Bank Corruption + β_{14} Government Help dummy + β_{15} Loan from Group or Holding Company + β_{16} Loan Guarantee Program + β_{17} Located in Export Processing Zone+ β_{18} Property Rights + β_{19} Dispute Resolution in Courts + β_{20} CEO Education Level + β_{21} Politically Connected CEO. The second step is: Sales/Reinvestment Rate/Productivity Growth = $\alpha_1 + \gamma_1$ BankDummy+ γ_2 Small + γ_3 Medium + γ_4 Large + γ_5 Very Large + γ_6 Middle-Age + γ_7 Old + γ_8 Corporations + γ_9 Collectives + γ_{10} State Ownership + γ_{11} Competition Dummies + γ_{12} City Dummies + γ_{13} Bank Corruption + γ_{14} Government Help dummy + γ_{15} Loan from Group or Holding Company + γ_{16} Loan Guarantee Program + γ_{17} Located in Export Processing Zone+ γ_{18} Property Rights + γ_{19} Dispute Resolution in Courts + γ_{20} CEO Education Level + γ_{21} Politically Connected CEO.

In Panel B: The first step is: Access Dummy = $\alpha_0 + \beta_1$ Collateral + β_2 Small + β_3 Medium + β_4 Large + β_5 Very Large + β_6 Middle-Age + β_7 Old + β_8 Corporations + β_9 Collectives + β_{10} State Ownership + β_{11} Competition Dummies + β_{12} City Dummies. The second step is: Sales/Reinvestment Rate/Productivity Growth = $\alpha_1 + \gamma_1$ Access Dummy+ γ_2 Small + γ_3 Medium + γ_4 Large + γ_5 Very Large + γ_6 Middle-Age + γ_7 Old + γ_8 Corporations + γ_9 Collectives + γ_{10} State Ownership + γ_{11} Competition Dummies + γ_{12} City Dummies.

Sales Growth is defined as the log change in total sales and is computed from 2001 to 2002. Productivity Growth is defined as the log change in productivity where productivity is (Sales-Total Material Costs)/Total Number of Workers. Productivity Growth is computed from 2001 to 2002. Reinvestment Rate is the share of net profits re-invested in the establishment in 2002. Bank Dummy takes the value 1 if the firm said it had a loan from a bank or financial institution and 0 if the firm said it had no bank loan and had no overdraft facility or line of credit. Access Dummy is a dummy variable that takes the value 1 if the firm had access to a bank loan in any year prior from 1990-2001 and 0 otherwise. The identifying variable is Collateral which is a dummy variable that takes the value 1 if the financing required a collateral or a deposit and 0 if the financing did not require collateral or if the firm did not apply for a loan because of stringent collateral requirements or if the firm was rejected for a loan because of the lack of collateral. Firm Size Dummies are quintiles of total firm sales in 1999. Small, Medium, Large and Very Large dummies take the value 1 if the firm is in the second, third, fourth or fifth quintile respectively of firm sales. Middle-age is a dummy variable that takes the value 1 if the firm is between 5 and 20 years of age and Old is a dummy variable that takes the value 1 if the firm is greater than 20 years old. Corporation Dummy takes the value 1 if the firm is organized as a corporation (public or private) and 0 otherwise. Cooperatives/Collectives Dummy takes the value 1 if the firm is organized as a Cooperative or a Collective. State Ownership Dummy takes the value 1 if the state owns more than 50% of the company. 4 to 6 Competitors, 7 to 15 Competitors, 16 to 100 Competitors and Over 100 Competitors are dummy variables that take the value 1 if the firm has the corresponding number of competitors in its main business line in the domestic market. The omitted category is 1 to 3 Competitors. Bank Corruption is a dummy variable that takes the value 1 if the firm reported that a gift or informal payment was expected in its dealing with bank officials and loan officers and 0 otherwise. Government Help dummy takes the value 1 if a government agency or official assisted the firm in obtaining bank financing. Loan from Group or Holding Company takes the value 1 if the firm was a member of a group or a holding company that provided loan to the firm and 0 otherwise. Loan Guarantee Program takes the value 1 if the firm benefited from a loan guarantee program offered by loan guarantee companies. Located in Export Processing Zone takes the value 1 if the firm is located in an industrial park, science park or export processing zone and 0 otherwise. Property Rights Protection is the likelihood that the legal system will uphold the firm’s contract and property rights in business disputes. CEO Education Level takes the values 1 to 4, 1 if the CEO had no education, 2 if the CEO had high-school, secondary school or primary school education, 3 if the CEO had an undergraduate education at home or abroad and 4 if the CEO had postgraduate education at home or abroad. Politically Connected CEO takes the value 1 if the CEO was a party secretary, deputy party secretary, party committee member or executive member or a party member and 0 if the CEO is not a party member. Columns 1 to 6 present results for the full sample and columns 7 to 12 present. Hazard Lambdas are reported for each of the second stages.

Panel A: Expanded Selection Model

	1	2	3	4	5	6	7	8
	Sales Growth [2001-2002]	Selection Equation	Sales Growth [2001-2002]	Selection Equation	Profit Reinvestment rate in 2002	Selection Equation	Productivity Growth [2001-2002]	Selection Equation
Bank Dummy	0.278 ^c [0.145]		0.328 ^b [0.144]		0.242 ^a [0.075]		0.073 [0.191]	
Collateral		0.869 ^a [0.088]		0.860 ^a [0.089]		0.849 ^a [0.092]		0.827 ^a [0.104]
Sales Growth [1999-2001]			-0.278 ^a [0.045]	0.368 ^a [0.098]				
Bank Corruption	-0.058 [0.066]	-0.199 [0.144]	-0.066 [0.065]	-0.182 [0.145]	0.017 [0.034]	-0.204 [0.150]	0.087 [0.082]	-0.07 [0.163]

	1	2	3	4	5	6	7	8
	Sales Growth [2001-2002]	Selection Equation	Sales Growth [2001-2002]	Selection Equation	Profit Reinvestment rate in 2002	Selection Equation	Productivity Growth [2001-2002]	Selection Equation
Government Help Dummy	0.003 [0.054]	0.324 ^a [0.100]	0.016 [0.053]	0.307 ^a [0.101]	0.04 [0.027]	0.311 ^a [0.104]	-0.026 [0.068]	0.393 ^a [0.114]
Loan from Group/Holding Co.	0.013 [0.076]	0.272 ^c [0.147]	0.04 [0.075]	0.243 [0.148]	-0.086 ^b [0.039]	0.282 ^c [0.157]	0.028 [0.099]	0.309 ^c [0.175]
Loan Guarantee Program	-0.024 [0.054]	0.127 [0.111]	-0.019 [0.053]	0.112 [0.112]	-0.013 [0.027]	0.105 [0.116]	0.017 [0.067]	0.059 [0.129]
Located in an Export Processing	-0.036 [0.048]	0.237 ^b [0.100]	-0.01 [0.048]	0.193 ^c [0.101]	0.039 [0.025]	0.219 ^b [0.104]	-0.077 [0.061]	0.299 ^a [0.114]
Property Rights Protection	0 [0.001]	0 [0.001]	0 [0.001]	0 [0.001]	0 [0.000]	0 [0.001]	0 [0.001]	0.002 [0.001]
CEO Education Level	0.012 [0.036]	0.047 [0.077]	0.036 [0.036]	0.017 [0.078]	-0.005 [0.019]	0.065 [0.082]	-0.054 [0.048]	0.04 [0.093]
Politically Connected CEO	-0.051 [0.045]	0.1 [0.100]	-0.046 [0.045]	0.099 [0.101]	0.029 [0.023]	0.086 [0.104]	0.016 [0.058]	0.098 [0.115]
Small	-0.187 ^a [0.071]	0.148 [0.176]	-0.294 ^a [0.073]	0.293 [0.185]	0.056 [0.036]	0.109 [0.181]	-0.105 [0.102]	0.047 [0.225]
Medium	-0.229 ^a [0.071]	0.261 [0.170]	-0.356 ^a [0.074]	0.450 ^b [0.182]	0.044 [0.036]	0.229 [0.174]	-0.027 [0.098]	0.212 [0.210]
Large	-0.235 ^a [0.076]	0.481 ^a [0.169]	-0.385 ^a [0.081]	0.692 ^a [0.184]	0.011 [0.038]	0.442 ^b [0.173]	-0.071 [0.101]	0.338 [0.206]
Very Large	-0.386 ^a [0.087]	0.818 ^a [0.176]	-0.566 ^a [0.095]	1.060 ^a [0.193]	0.022 [0.045]	0.803 ^a [0.180]	-0.092 [0.116]	0.728 ^a [0.216]
Medium	0.014 [0.053]	-0.053 [0.117]	-0.036 [0.053]	0.021 [0.120]	0.004 [0.027]	-0.047 [0.121]	-0.146 ^b [0.069]	-0.134 [0.139]
Old	-0.001 [0.068]	0.062 [0.148]	-0.067 [0.069]	0.145 [0.151]	-0.059 ^c [0.035]	0.055 [0.154]	-0.119 [0.089]	-0.001 [0.178]
Corporations	-0.031 [0.048]	0.146 [0.101]	-0.027 [0.047]	0.144 [0.101]	0.062 ^b [0.024]	0.123 [0.106]	-0.031 [0.061]	0.125 [0.116]
Cooperative	-0.179 ^a [0.063]	0.011 [0.143]	-0.215 ^a [0.062]	0.066 [0.145]	0.01 [0.032]	0.038 [0.148]	-0.012 [0.082]	0.155 [0.170]
State	-0.016 [0.055]	0.062 [0.117]	-0.032 [0.055]	0.084 [0.118]	-0.007 [0.029]	0.115 [0.124]	0.032 [0.074]	0.1 [0.144]
4 to 6 Competitors	0.07 [0.086]	0.433 ^b [0.180]	0.061 [0.085]	0.427 ^b [0.181]	0.052 [0.044]	0.471 ^b [0.189]	-0.144 [0.106]	0.438 ^b [0.203]
7 to 15 Competitors	-0.004 [0.081]	0.329 ^c [0.175]	-0.031 [0.081]	0.362 ^b [0.176]	0.021 [0.042]	0.368 ^b [0.183]	-0.154 [0.102]	0.448 ^b [0.199]
16 to 100 Competitors	-0.038 [0.074]	0.25 [0.162]	-0.071 [0.073]	0.278 ^c [0.163]	0.021 [0.038]	0.295 ^c [0.171]	-0.133 [0.092]	0.256 [0.186]

	1	2	3	4	5	6	7	8
	Sales Growth [2001-2002]	Selection Equation	Sales Growth [2001-2002]	Selection Equation	Profit Reinvestment rate in 2002	Selection Equation	Productivity Growth [2001-2002]	Selection Equation
Over 100 Competitors	-0.136 ^c [0.071]	0.236 [0.158]	-0.157 ^b [0.070]	0.256 [0.159]	0.026 [0.036]	0.247 [0.167]	-0.230 ^b [0.092]	0.322 ^c [0.185]
Hazard Lambda	-0.107 [0.089]		-0.028 [0.078]		-0.116 ^b [0.046]		-0.061 [0.117]	
Observations	1229	1229	1225	1225	1118	1118	874	874

^c significant at 10%; ^b significant at 5%; ^a significant at 1%

Panel B: Access to finance

	1	2	3	4	5	6
	Sales Growth [2001-2002]	Selection Equation	Profit Reinvestment rate in 2002	Selection Equation	Productivity Growth [2001-2002]	Selection Equation
Access Dummy	0.842 ^b [0.403]		0.652 ^b [0.262]		0.618 [0.455]	
Collateral		0.263 ^a [0.072]		0.221 ^a [0.076]		0.289 ^a [0.085]
Small	-0.172 ^b [0.073]	-0.165 [0.123]	0.120 ^a [0.045]	-0.185 [0.130]	-0.083 [0.094]	-0.06 [0.163]
Medium	-0.251 ^a [0.069]	-0.008 [0.122]	0.065 [0.042]	0.047 [0.128]	-0.078 [0.092]	0.068 [0.157]
Large	-0.226 ^a [0.070]	-0.086 [0.123]	0.064 [0.041]	-0.078 [0.129]	-0.127 [0.090]	-0.074 [0.157]
Very Large	-0.283 ^a [0.074]	-0.177 [0.129]	0.127 ^a [0.044]	-0.163 [0.136]	-0.064 [0.094]	-0.135 [0.164]
Medium	-0.087 [0.066]	0.290 ^a [0.098]	-0.063 [0.040]	0.287 ^a [0.102]	-0.171 ^b [0.080]	0.267 ^b [0.120]
Old	-0.136 [0.085]	0.363 ^a [0.120]	-0.133 ^a [0.051]	0.353 ^a [0.125]	-0.132 [0.098]	0.310 ^b [0.147]
Corporations	0.022 [0.050]	-0.132 [0.083]	0.109 ^a [0.030]	-0.136 [0.087]	-0.024 [0.060]	-0.147 [0.098]
Cooperative	-0.157 ^b [0.064]	0.04 [0.108]	0.012 [0.038]	0.045 [0.114]	-0.012 [0.077]	0.023 [0.129]
State	-0.042 [0.057]	0.048 [0.094]	-0.012 [0.034]	0.041 [0.100]	0.05 [0.074]	0.064 [0.119]

	1	2	3	4	5	6
	Sales Growth [2001-2002]	Selection Equation	Profit Reinvestment rate in 2002	Selection Equation	Productivity Growth [2001-2002]	Selection Equation
4 to 6 Competitors	0.108 [0.089]	-0.168 [0.151]	0.101 ^c [0.054]	-0.19 [0.158]	-0.04 [0.104]	-0.131 [0.174]
7 to 15 Competitors	0.013 [0.083]	-0.01 [0.142]	0.023 [0.050]	-0.068 [0.149]	-0.1 [0.099]	0.111 [0.163]
16 to 100 Competitors	-0.02 [0.076]	-0.042 [0.130]	0.036 [0.045]	-0.062 [0.137]	-0.082 [0.091]	-0.037 [0.152]
Over 100 Competitors	-0.096 [0.074]	-0.124 [0.124]	0.046 [0.044]	-0.138 [0.131]	-0.133 [0.089]	-0.049 [0.148]
Hazard Lambda	-0.523 ^b [0.244]		-0.4 ^b [0.158]		-0.413 [0.276]	
Observations	1566	1566	1413	1413	1102	1102

^c significant at 10%; ^b significant at 5%; ^a significant at 1%

**Table 7: Financing Proportions of New Investments and Working Capital –
Bank Financing versus Informal Financing**

The estimated model is: Sales Growth/Reinvestment Rate/Productivity Growth = $\alpha + \beta_1$ Bank Financing or Self Financing1 or Self Financing2 + β_2 Small + β_3 Medium + β_4 Large + β_5 Very Large + β_6 Mid-Age + β_7 Old + β_8 Corporations + β_9 Collectives + β_{10} State Ownership + β_{11} Competition Dummies + β_{12} City Dummies.

Sales Growth is defined as the log change in total sales and is computed from 2001 to 2002. Productivity Growth is defined as the log change in productivity where productivity is (Sales-Total Material Costs)/Total Number of Workers. Productivity Growth is computed from 2001 to 2002. Reinvestment Rate is the share of net profits re-invested in the establishment in 2002. Bank Financing Dummy takes the value 1 if the firm said it had a loan from a bank or financial institution AND (bank financing of new investments was greater than 50% OR bank financing of working capital was greater than 50%). Bank Financing takes the value 0 if (the firm said it had no loan from a bank or financial institution OR said it had no overdraft facility or line of credit) AND (bank financing of new investments was equal to 0% AND bank financing of working capital was equal to 0%). Self Financing1 takes the value 1 if the sum of informal financing and other financing of new investments was greater than 50% OR the sum of informal financing and other financing of working capital was greater than 50%. Self Financing1 takes the value 0 if the sum of informal and other financing of new investments is equal to 0% AND the sum of informal and other financing of working capital is equal to 0%. Self Financing2 takes the value 1 if the sum of informal, family, and other financing of new investments was greater than 50% OR the sum of informal, family and other financing of working capital was greater than 50%. Self Financing2 takes the value 0 if the sum of informal, family and other financing of new investments is equal to 0% AND the sum of informal, family and other financing of working capital is equal to 0%. Firm Size Dummies are quintiles of total firm sales in 1999. Small, Medium, Large and Very Large dummies take the value 1 if the firm is in the second, third, fourth or fifth quintile respectively of firm sales. Mid-age is a dummy variable that takes the value 1 if the firm is between 5 and 20 years of age and Old is a dummy variable that takes the value 1 if the firm is greater than 20 years old. Corporation Dummy takes the value 1 if the firm is organized as a corporation (public or private) and 0 otherwise. Cooperatives/Collectives Dummy takes the value 1 if the firm is organized as a Cooperative or a Collective. State Ownership Dummy takes the value 1 if the state owns more than 50% of the company. 4 to 6 Competitors, 7 to 15 Competitors, 16 to 100 Competitors and Over 100 Competitors are dummy variables that take the value 1 if the firm has the corresponding number of competitors in its main business line in the domestic market. The omitted category is 1 to 3 Competitors. We use OLS regressions with robust standard errors.

Panel A: Bank Financing

	1	2	3	4	5	6
	Full Sample			Drop Public Corporations and State Owned Companies		
	Sales Growth [2001-2002]	Profit Reinvestment rate in 2002	Productivity Growth [2001- 2002]	Sales Growth [2001-2002]	Profit Reinvestment rate in 2002	Productivity Growth [2001- 2002]
Bank Financing Dummy	0.083 ^c [0.044]	0.103 ^a [0.025]	0.053 [0.057]	0.085 ^c [0.050]	0.110 ^a [0.030]	0.071 [0.059]
Observations	1628	1441	1081	1188	1042	831
R-squared	0.035	0.091	0.022	0.036	0.109	0.032

^c significant at 10%; ^b significant at 5%; ^a significant at 1%

Panel B: Self Financing

	1	2	3	4	5	6	7	8	9	10	11	12
	Full Sample						Drop Public Corporations and State Owned Companies					
	Sales Growth [2001-2002]	Sales Growth [2001-2002]	Profit Reinvestment rate in 2002	Profit Reinvestment rate in 2002	Productivity Growth [2001-2002]	Productivity Growth [2001-2002]	Sales Growth [2001-2002]	Sales Growth [2001-2002]	Profit Reinvestment rate in 2002	Profit Reinvestment rate in 2002	Productivity Growth [2001-2002]	Productivity Growth [2001-2002]
Self Financing1	-0.02 [0.035]		-0.068 ^a [0.016]		0.095 ^c [0.051]		-0.026 [0.044]		-0.060 ^a [0.020]		0.072 [0.059]	
Self Financing2		-0.013 [0.034]		-0.057 ^a [0.016]		0.113 ^b [0.049]		-0.009 [0.043]		-0.042 ^b [0.020]		0.104 ^c [0.057]
Observations	1997	1963	1761	1727	1328	1300	1417	1385	1249	1217	992	966
R-squared	0.035	0.034	0.075	0.074	0.023	0.026	0.037	0.036	0.085	0.085	0.026	0.03

^c significant at 10%; ^b significant at 5%; ^a significant at 1%

Table 8: Bank Financing and Firm Performance – Robustness using Median Regressions

The estimated model is: Sales Growth/Productivity Growth = $\alpha + \beta_1$ BankDummy+ β_2 Small + β_3 Medium + β_4 Large + β_5 Very Large + β_6 Mid-Age + β_7 Old + β_8 Corporations + β_9 Collectives + β_{10} State Ownership + β_{11} Competition Dummies + β_{12} City Dummies.

Sales Growth is defined as the log change in total sales and is computed from 2001 to 2002 and from 1999 to 2002. Productivity Growth is defined as the log change in productivity where productivity is (Sales-Total Material Costs)/Total Number of Workers. Productivity Growth is computed from 2001 to 2002 and from 1999 to 2002. Bank Dummy takes the value 1 if the firm said it had a loan from a bank or financial institution and 0 if the firm said it had no bank loan and had no overdraft facility or line of credit. Firm Size Dummies are quintiles of total firm sales in 1999. Small, Medium, Large and Very Large dummies take the value 1 if the firm is in the second, third, fourth or fifth quintile respectively of firm sales. Mid-age is a dummy variable that takes the value 1 if the firm is between 5 and 20 years of age and Old is a dummy variable that takes the value 1 if the firm is greater than 20 years old. Corporation Dummy takes the value 1 if the firm is organized as a corporation (public or private) and 0 otherwise. Cooperatives/Collectives Dummy takes the value 1 if the firm is organized as a Cooperative or a Collective. State Ownership Dummy takes the value 1 if the state owns more than 50% of the company. 4 to 6 Competitors, 7 to 15 Competitors, 16 to 100 Competitors and Over 100 Competitors are dummy variables that take the value 1 if the firm has the corresponding number of competitors in its main business line in the domestic market. The omitted category is 1 to 3 Competitors. Columns 1 to 5 present results for the full sample and columns 6 to 10 present results for a sample of firms that don't include firms registered as publicly traded firms and state owned enterprises. We use median regressions.

	1	3	4	5	6	8	9	10
	Full Sample				Drop Public Corporations and State Owned Companies			
	Sales Growth [2001-2002]	Productivity Growth [2001-2002]	Sales Growth [1999-2002]	Productivity Growth [1999-2002]	Sales Growth [2001-2002]	Productivity Growth [2001-2002]	Sales Growth [1999-2002]	Productivity Growth [1999-2002]
Bank Dummy	0.063 ^a [0.020]	0.046 [0.032]	0.075 ^a [0.016]	0.03 [0.020]	0.065 ^b [0.029]	0.033 [0.034]	0.076 ^a [0.019]	0.017 [0.025]
Observations	2145	1456	2135	1423	1535	1099	1528	1072

^c significant at 10%; ^b significant at 5%; ^a significant at 1%

Table 9: Type of Collateral Posted and its determinants

In Panel A, we present the mean and median percentage shares of the type of collateral posted by firms.

Panel B documents the contribution of firm and city and provincial variables to the McKelvey and Zavoina(1975) R-square of the logistic regression model. The regression model in Panel B is $Collateral_{ij} = City\ Effect_i + Legal\ Environment\ Index_i + Firm\ Size_j + (or\ Fixed\ Asset_j) + (or\ Age_j) + (or\ Legal\ Status_j) + City-Firm\ Interaction\ Effect_{ij}$.

The City Effect is captured by city dummies. The Legal Environment Index is based on information from Fan and Wang (2004), capturing (1) the development of market intermediaries using the ratio of the number of lawyers and registered accountants to population; (2) protection of the legal rights of producers using the frequency of economic crimes normalized by GDP; (3) protection of property rights using the average number of patents applied per engineer and the average number of patents approved per engineer; and (3) protection of consumers using the number of consumer complaints received by the Consumer Association. The Legal Environment Index is at the province level. The firm variables are defined as follows: Firm Size Dummies are quintiles of total firm sales in 1999. Age Dummies take the values 1 to 3 for age<5 years, 5 - 20 years and greater than 20 years old. Legal Status Dummies take the value 1 for corporations, 2 for state owned enterprises, 3 for cooperatives and collectives and 4 for all other legal status. Fixed Asset Dummies are quintiles of fixed assets in the year 2000.

Panel A: Type of Collateral Posted

	Land and Buildings	Machinery	Intangible Assets (accounts receivable, inventory)	Personal Assets of owner/manager
Mean	63.11	17.87	4.89	10.3
Median	80	0	0	0

Panel B: Determinants of Collateral - ANOVA

	Size Dummies	Fixed Assets Dummies	Age Dummies	Legal Status Dummies
City Effect	6.4	6.4	6.4	6.4
Firm Effect	7.2	10	0.6	0.3
Interaction	27.1	45.7	3.9	4.6
<i>Total</i>	<i>40.7</i>	<i>62.1</i>	<i>10.9</i>	<i>11.3</i>
Legal Environment	5	5	5	5
Firm Effect	7.8	10.6	0.7	0.4
Interaction	27.3	37.5	4.3	3.7
<i>Total</i>	<i>40.1</i>	<i>53.1</i>	<i>10</i>	<i>9.1</i>