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Does it pay off to be formal?

How different financing choices affect the performance of Chinese private firms

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Abstract

This thesis studies the link between private firm performance and access to finance from a formal financial institution in China. Using firm level data collected by the World Bank from 2700 private Chinese firms in the period December 2011 to February 2013, this paper finds a positive connection between the use of formal finance and private firm performance. This paper also finds a positive relationship between firm performance and the use of informal finance when used to finance the firm's working capital. Other factors can also be shown to affect both performance and the loan giving. These findings show that firm size and province are important factors that help explain both. Large firms have easier access to formal finance, whereas small and medium sized (SME) firms have a harder time obtaining formal finance.

Firms located in provinces that have a higher degree of marketization are shown to perform better and have easier access to formal finance.

The empirical findings suggest that more needs to be done in helping SMEs access the formal financial system and that overall market reforms are needed in those provinces that are less developed.

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Many thanks,

Claus Eduard Petræus

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1. Introduction

Most of the empirical literature finds that increased financial development is associated with higher economic growth. A number of studies support a positive relationship between well functioning financial markets, firm-level development and overall economic growth (King and Levine 1993, Levine 1997, Beck et al. 2005, Ayyagari et al, 2006).

A well functioning financial sector can help mitigate information and transaction costs, which will increase the efficient allocation of resources to those firms that have the highest performance and the most need for finance (Levine, 1997). Schumpeter argued that financial markets are important to ensure the investment in research and development by companies, which in turn is important for economic growth in a country (Schumpeter, 1911).

It has also been shown that in those countries with more developed financial markets their industrial sectors grow faster than in those countries with less developed financial markets. This is due to the fact that many firms in the industrial sectors have a higher demand for external finance, and will therefore grow less rapidly if they are lacking proper financing choices (Rajan and Zingales, 1998).

This is also true on a firm level. Firms with more access to finance grow relatively faster. Therefore a well-developed financial system is important for the economic performance of individual firms and the economy as a whole (Cooley & Quandrini, 2001).

In China firms with access to bank loans have been shown to reinvest more, which in turn might increase their economic performance (Cull & Xu, 2005).

Other evidence point to the fact that lack of access to proper financing can hamper a firm's development (Ayyagari et al, 2008). This means that those firms with proper access to finance might have a competitive edge over those firms with less access to finance, because they are able to invest and grow more.

This paper follows previous studies that look at the link between finance and firm performance. In this paper World Bank data from 2013 is used to analyze the link between finance and private firm performance in China.

Private firms are important drivers of economic growth and development in any economy, so if their growth suffers due to an underdeveloped financial system then it can hurt the economic

development of the entire country. Therefore it is relevant to look at the impact of financial access on firm performance.

This is particular relevant when looking at China. From the start of the reform period in 1978 in China private firms have been discriminated against by the government and by the formal financial system (Firth et al, 2009). The rules and regulations in the banking system were created with the goal of promoting growth in state owned enterprises (SOE) (Nee & Opper, 2012). Up until 1997 banks were not allowed to give loans to private firms (Cheng and Wu, 2015). This has meant that private firms have largely been ignored by the formal financial system and that lending practices in the financial system were not focused on helping private firms grow.

This is a problem because private firms have been shown to operate more efficiently and profitably then SOE (Boardman & Vining, 1989). In theory private firms should have easier access to loans and credit, because lenders will have less risk of the loans going bad and a higher possible return when lending to private firms that on average are more profitable.

Therefore it is a puzzle how China, with its weak financial sector, has managed to remain the world's fastest growing economy for so many years when taking in to account its big private sector. Output from private firms represents a large part of total output of the country. The private sector accounted for 65% of Chinas GDP and 70-80% of its growth in 2008 (Cousin, 2011). And private firms accounted for almost 72% of all firms in China in 2010 (China Statistical Yearbook, 2011). In regards to loan and credit access, private firms only accounted for 4.85% of total short-term bank loans in 2009 (Cheng and Wu, 2015) and 20% of total bank lending in 2008 (Cousin, 2011). In the banking system it happens that medium and large sized private firms are denied loan or credit access from commercial banks, even though these firms might be able to post collateral for the loans (Nee & Opper, 2012). If a firm cannot get access to loans or credit, this will affect that firms growth opportunities (Firth et al, 2009).

Therefore China is often seen as a counterexample to the findings that formal financial institutions are essential for growth (Allen et al, 2002).

In China much lending to private firms happen in the informal financial sector through different kinds of loan setups like relationship-based lending, credit clubs, money houses and more (Nee & Opper, 2012)(Cheng and Wu, 2015). Low-interest loans are more normal in relationship-lending between family and friends, but using the informal financial system might be more expensive when

using private moneylenders and money houses and the enforcement for the repayment of the loans might lead to coercion and violence (Ayyagari et al, 2008).
The government has tried to change the lending practices so that it will be easier for private firms to get a loan or a line of credit through the formal financial system.
New rules were put in place in 2002 with the Law on Promotion of Small and Medium-sized Enterprises to help with local financial support, but the law was not probably enforced (Nee & Opper, 2012).

Because proper financing opportunities are so important for firms and the economy as a whole, it is relevant to investigate if private firms are still discriminated against. Therefore it is important to look at what factors that influence loan giving for private firms, and how it affect the performance of Chinese firms when using formal, informal and/or internal finance.
The data used in this paper is from a World Bank Enterprise Survey with firm level data from 2700 private firms in China. This paper examines the type of financing, being formal, informal or internal finance, used to finance a firm's working capital and new investments and how it affects its performance. Finally it examines the factors that influence loan giving from a formal financial institution in China.

This paper finds that the performance, as measured in sales growth, is strongest for those firms using a combination of formal, informal and internal finance and weakest for those firms only relying only on internal finance to finance their working capital and new investments. Productivity growth is strongest for those firms using informal and internal finance to finance their working capital.
This paper also finds that firms that rely on internal finance and still invest perform well, although lower then those using formal finance, over the period 2009-2011. This means that there is a group of self-relying firms that perform well even without the help of formal or informal financial institutions.
The results also show that large firms have easier access to formal finance, and that the specific province is important when seeking access to formal finance. In provinces that have a higher degree of marketization, like Zhejiang and Guangdong, it is easier to get access to formal finance.

The rest of this paper is structured as follows: Section 2 presents a literature review of relevant studies looking at the importance of financial access. Section 3 gives an overview of the relevant theoretical concepts about the financial system and its functions and describes the Chinese formal and informal financial system in more detail. Section 4 describes the data and variables used in the empirical model and the descriptive statistics. Section 5 shows the empirical analysis and the discussion of the results. Section 6 contains the conclusion of the paper.

2. Literature review

Access to finance is important for any firm in regards to financing their working capital and/or their new investments. Access to finance refers to the type of financial products available to firms and how easy they are to obtain, the financing costs and the quality of financial services (Ayyagari et al, 2006).

It is important that access to finance is reliable and flexible. Firms need to be able to obtain finance when they need it and it should not be too expensive or inconvenient to get it (Morduch, 1999).

Private firms in China rely on a number of different financial sources like banks, the stock market, foreign investments, relationship lending, trade credit and more (Beck et. al, 2008). Larger private firms have easier access to bank loans in China whereas small and medium sized private firms (SME) rely heavily on informal finance, relationship lending, trade credit and internal finance (Hale and Long, 2010). This is due to the difficulties of getting a loan from the mainly state controlled formal financial system. Collatoral requirements for a bank loan are high and the loan application process complex, which exclude many smaller firms. Even when private firms get a bank loan it is often at a higher interest rate than those offered to SOEs (Nee & Opper, 2012). This means that many of the firms in China are constrained in their access to finance from the formal financial system. This is a problem because of the higher performance of private firms compared to SOEs. Private firms have overall a better performance than SOEs and can help generate higher economic growth for a country. Therefor any country should work to change its institutional environment to benefit private firm development (Boardman & Vining, 1989). Lack of access to proper financing can be a growth constraint for SMEs. Studies show that the lack of proper financing can have an influence on the size of the SMEs and keep them small compared to larger

firms. This might in turn lower the impact of the growth from SMEs on overall economic growth in the economy (Beck & Demirgüc-Kunt, 2006).

The informal financial system is also important when looking at China. In China the informal and formal financial sector operate alongside one another fulfilling different needs. The informal financial sector often works well for short-term financing needs, because there is less administrative hurtles when obtaining a loan, whereas the formal financial sector works better for long-term projects that need financing.
One issue though with informal lending is the higher costs endured when obtaining a loan from the informal financial system, which will increase the overall financing costs for the firm and therefore require higher growth rates to stay profitable (Nee & Opper, 2012).
This leads to the following hypothesis for this paper.

Main-Hypothesis: *Access to formal finance is associated with higher performance among Chinese private firms.*
Therefore firms using a combination of formal, informal and internal finance will have a higher performance than those firms using only informal finance and/or internal finance.

Sub-Hypothesis: *When applying for a loan from a formal financial institution, ownership type, province, firm size and industry all play a role in the success of getting a loan.*
Ownership type, province, firm size and industry all affect performance. They are therefore also expected to influence loan giving.

3. Financial theory and the Chinese financial system

A well functioning financial system is characterized by a high degree of financial intermediation and an efficient allocation of funds. Poor financial intermediation can be a result of information asymmetries, poor monitoring behavior, lack of enforcement mechanisms for contracts, loans rationing and more (Cousin, 2011). The financial system consists of both the formal and informal financial sectors.

There are different ways for firms to get formal financing for investment projects. One way is to use financial intermediaries that collect the savings of people and firms and channel them to those that need a loan to make an investment. This includes banks, which both raise money for firms by selling securities and take deposits to lend out to borrowers (Blanchard et al, 2010). Another way of raising capital is to raise money through the stock market or by issuing debt instruments like bonds. The firm can also retain profits and finance investment projects internally.
If the firm chooses external financing it must choose between debt and equity financing. Debt financing includes bank loans and bonds, and equity financing includes shares/stocks and warrants. In most countries bank loans are the most common type of external financing (Hillier et al, 2011). This is also the case in China, where banks accounted for around 80% of funds transferred through the formal financial system during the 2000s. In comparison bonds only accounted for 1% of raised funds until 2005 and stocks accounted for less then 4% raised funds in 2003 (Naughton, 2006). The banks in China are highly liquid due to the vast amount of personal savings available from the Chinese consumers; therefore there should be enough loan capital available to both the private sector and SOEs (Cousin, 2011).

Financial development can be measured by how broad and how deep the financial system is. Financial deepening happens when the ratio of financial assets to GDP increases. This measures how well the financial intermediaries turn savings into investment. Financial broadening refers to an increase in the different types of financial institutions and financial instruments. Financial broadening will lead to better choice for savers to invest their savings. Chinas financial system is characterized by being deep but narrow.
The financial system in China has remained dominated by the banking system and capital markets are relatively underdeveloped. This is partly due to the fact that policymakers are reliant on the banking sector for funding their policies. If new financial innovations draw funds away from the banking sector, this will limit the amount of savings available to them. Therefore they have been careful to keep control over the overall financial system (Naughton, 2006). Most state owned banks are commercially oriented but they also give loans on the basis of the government's policies and have been tended to favor SOE and co-owned firms in the past (Nee & Opper, 2012).

The informal financial sector consists of all nonbank financing activities outside the official financial supervision and management system. It includes relationship lending, trade credit, money houses, pawnbrokers and more. It has financial institutions similar to banks, credit associations, insurance organizations and so on. It does not have legal rules, and it often finds flexible and innovative solutions to help support private sector development. Therefore it is often used by SMEs in developing countries that are constrained in their access to formal finance (Li & Hsu, 2009).

3.1 The financial system in China

Bank's are a central part of the financial intermediaries in China. At the start of the reforms in 1978 China had a monobank system with the People's Bank of China (PBOC) serving as a central bank and bank for loans to SOEs **(**Xiaochi & Zhang, 2006). This changed in the 1980's when the PBOC was split up, and 4 new big commercial banks were created.

Henceforth the PBOC would operate as a central bank, and the new four big banks would have their own specific commercial focus. The four banks had a monopoly on giving out commercial loans for firms in the economy (Elliott & Yan, 2013).

The banks were: the Industrial and Commercial Bank of China (ICBC), the Agricultural Bank of China (ABC), the China Construction Bank (CCB) and the Bank of China (BOC) (Naughton, 2006).

Since then more reforms of the financial system have been introduced and now there exist a number of different types of banks, both private, co-owned banks and fully state owned. The different types of banks include State-owned commercial banks, Joint-stock commercial banks, City commercial banks, State-owned policy banks, Rural credit cooperatives, Rural commercial banks and more. But overall the state still dominates the banking system and loan giving in China (Elliott & Yan, 2013).

At the end of 2017 the whole Chinese banking system exceeded more than 35 trillion dollars in assets, which makes it the biggest in the world (Cerutti & Zhou, 2018).

The capital markets in China have limited capacity and development. They were initially created in the 1990s with the intend of partially privatizing SOEs by selling minority stakes. The stock markets has mostly been a way to reform SOE and not been a normal funding channel for private firms (Naughton, 2006).

As mentioned earlier the private sector accounted for 65% of Chinas GDP but only for 20% of formal bank loans in 2008. Lending to private firms are seen as being more risky because of information opacity and lack of collatoral. Often the bank only accepts land or buildings as collatoral, which might be a problem for smaller firms.

The issue with hidden information is a challenge for formal banks when giving loans to private firms. Credit monitoring and controls are under-developed in China, which might make loans to private firms seem more risky. Other issues might be a political bias against the private sector, lending policies of banks that do not differentiate between industries and borrowers, incentives of bank managers to pick loans that pay a stable interest income and to avoid bad loans. This means that SOEs are often prioritized over private firms when allocating loans (Cousin, 2011).

Private firms might also simply choose not to apply for a loan, because they think it might be too difficult to obtain one. In the World Bank survey 11% didn't apply for a loan because the application procedures were complex, 10% said that interest rates were not favorable, 8,5% said that collateral requirements were too high and 4,27% didn't apply because they did not think it would be approved (World bank, 2013).

Therefore many private firms rely on self-financing, informal lending, trade credit and more. Data from 2004 showed that Chinese private firms used 70% internal finance, 10% bank financing, 6% informal financing, 2,5% trade credit and 8,5% equity, leasing and more. In comparison US firms used 53% internal finance, 22,5% bank financing, 3% informal financing, 6,5% trade credit and 16% equity, leasing and more (Cousin, 2011). In the World bank survey firms financed their working capital with 88,50% internal finance, 7% bank financing, 1,5% informal financing and 3% trade credit, and for new investments the numbers were 89,50% internal finance, 5% bank financing, 1% informal financing, 1% trade credit and 3,50% issuance of new shares or owners contribution.

In the survey 19% answered that access to finance is a major obstacle to current operations (World bank, 2013). Overall this shows that the banking system is still not allocating funds well enough to private firms.

The informal financial sector in China is large and important (Cheng and Wu, 2015).
One estimate suggests that informal finance accounted for 8% of GDP. Informal finance also accounted for over 70% of lending in rural areas, 60-70% of SME financing in underdeveloped areas and 30% of SME financing in developed areas. Informal finance is a way to secure funds quickly, but also at a markup over lending from formal banks. A survey from Nanjing and Shanghai from 2006 showed that rates ranged from 8,4% by relatives up to 15,3% by private lenders (Cousin, 2011).
The informal sector has a competitive advantage over the formal financial sector, because of better access to information. Often the lenders have a better relationship with the people borrowing the money. This allows lenders to screen and monitor clients more efficiently. This minimizes the risks of default and non-performing-loans. Social norms make sure that loans are repaid due to the reputation effects of not repaying. Gossip will quickly spread in the community and it will be hard to get a loan again in the future.
Due to its local nature the informal financial sector is unable to scale up and substitute the formal financial sector, because it is hard to use word-of-mouth monitoring and reputational enforcement mechanisms when you are not near the borrower (Nee & Opper, 2012).

4. Data, variables and the empirical model

In this section the data collection process is described. All relevant variables used in this paper is defined and discussed, which then leads to the model specification and the descriptive statistics.

4.1 Data collection

The data is from a World Bank questionnaire. It is a cross-sectional dataset containing firm-level data from 2012, and firm performance data from 2009 and 2012. It is firm-level data collected in the period between December 2011 and February 2013 and the survey is called “China - Enterprise Survey: Manufacturing Module (2012)”. The data collection was done by face-to-face interviews, where Chinese firms were asked a series of questions regarding the business environment facing the firm. The survey includes 2848 firms, where 2700 are private enterprises and 148 are state owned enterprises. Only the 2700 private firms are included in this paper because this paper investigates the link between formal finance and private firm performance.

The survey gives information about the characteristics of the establishment, infrastructure, sales and supplies, competition and innovation, capacity, land and permits, security (crime), finance, business-government relations, labor, performance and business environment. The primary sampling unit is an establishment. In this paper an establishment is a physical location where business is carried out and where industrial operations take place or services are provided. To count, as an establishment the firm must be able to make its own financial decisions, have its own financial statements, have its own management and control over its payroll.

The firms in this survey are located in twenty-five metro areas in China. In this paper the different cities has been grouped into the provinces that they are a part of.

The survey focuses on firms in the manufacturing and service sectors. The firms in this survey have a different number of employees. A small firm is defined by having 5-19 employees, a medium firm 20-99 employees and a large firm 100 or more employees (World bank, 2013).

4.2 Variables

For a firm to grow and stay competitive it needs to perform well. There are different ways to measure performance. In this paper performance is measured using sales growth and productivity growth per employee. As stated in the main-hypothesis the goal of this paper is to investigate if formal finance is associated with higher private firm performance.

The variables chosen as control variables are all variables that might influence a firm's performance. They include province, firm size, industry, level of competition, the age of the firm and top managers experience. Also this paper tries to uncover what factors that might influence loan giving. Here having a loan from a bank is regressed against a number of variables like ownership type, having an external audit and the control variables mentioned above.

The main variables used in the regression models will be presented and discussed below, and the control variables are presented below and defined in more detail in the appendix.

Dependent variables:

Sales growth: Sales growth measures the increase in sales of all products and services of a firm over a period of time.

A firm will need finance to increase its production capabilities, invest in new product development, and expand to new areas or markets, things that are all related to the ability to increase a firm's sales. Therefore it is relevant to look at the effect of a firm's financing choices and its sales growth.

Sales growth is an important performance indicator because it is directly related to a firm's ability to grow. If a firm does not grow it will be at risk of stagnating or getting overtaken by competitors Taking the difference between current sales and previous year's sales volumes and then dividing it by previous year's sales volume gives you the sales growth.
The finale result was winsorized at 2% because of extreme outliers due to missing data.
Question D2 (2011 sales figures) and N3 (2009 sales figures) were used here.

Question D2 "In fiscal year 2011, what were this establishment's total annual sales for ALL products and services?"
Question N3 "In fiscal year 2009, three fiscal years ago, what were total annual sales for this establishment?"

Productivity growth per employee: Productivity per employee takes into account a firm's annual sales in relation to its total employees. The productivity of labour can be used to assess how efficiently a firm uses its labor inputs and it indicates how expensive a company is to run. Companies with a higher productivity per employee can generate a higher revenue pr. employee, which might lead to higher profits.
It can be measured by the ratio of sales to the number of workers employed in each year. Taking the difference between current productivity and previous year's productivity and then dividing it by previous year's productivity results gives you the productivity growth per employee.
The finale result was winsorized at 2% because of extreme outliers due to missing data.
Question D2 (2011 sales figures), L1 (2011 Labor figures), N3 (2009 sales figures), L2 (2009 Labor figures), were used here.

Question D2 "In fiscal year 2011, what were this establishment's total annual sales for ALL products and services?"
Question L1 "At the end of fiscal year 2011, how many permanent, full-time individuals worked in this establishment? Please include all employees and managers (Permanent, full-time employees are defined as all paid employees that are contracted for a term of one or more fiscal years and/or have a guaranteed renewal of their employment contract and that work a full shift)"

Question N3 "In fiscal year 2009, three fiscal years ago, what were total annual sales for this establishment?"
Question L2 "Three fiscal years ago, at the end of fiscal year 2009, how many permanent, full-time individuals work in this establishment? Please include all employees and managers"

Credit and loan from a formal financial institution: Access to loan capital and credit is important when you are running a business. You need this for new investments and the day to day running of the company. If you lack access to finance, this might affect your growth opportunities. Question K.8 was used here.

Question K.8 "At this time, does this establishment have a line of credit or a loan from a financial institution?" The possible answers were Yes, No and Don't know. The answer Don't know is excluded.

Explanatory variables:

Type of financing used for working capital: Working capital is the difference between a company's current assets and its current liabilities. Working capital is used to pay for day-to-day operations (World Bank, 2013).

This paper divides the firms into three separate groups on how they finance their working capital. The first group consists of those firms using only internal funds or retained earnings, which will just be lapelled as internal finance from now on.

The second group is those firms using both informal and internal finance.

The third group is those firms using a combination of formal, informal and internal finance.

Question K3 was used here. "Over fiscal year 2011, please estimate the proportion of this establishment's working capital that was financed from each of the following sources?"
1. Internal funds or retained earnings=%
2. Borrowed from banks(private and state-owned)=%
3. Borrowed from non-bank financial institutions which include microfinance

institutions, credit cooperatives, credit unions, or finance companies=%
4. Purchases on credit from suppliers and advances from customers=%
5. Other, moneylenders, friends, relatives, etc.=%

Type of financing used for new investments in fixed assets: This variable is divided in the same way as the one above with the first group using only internal finance, the second group using informal and internal finance and the third group using formal, informal and internal finance.

Question K5 was used here. "Over fiscal year 2011, please estimate the proportion of this establishment's total purchase of fixed assets that was financed from each of the following sources:"
1. Internal funds or retained earnings=%
2. Owners‟ contribution or issued new equity shares=%
3. Borrowed from banks(private and state-owned)=%
4. Borrowed from non-bank financial institutions which include microfinance institutions, credit cooperatives, credit unions, or finance companies=%
5. Purchases on credit from suppliers and advances from customers=%
6. Other, moneylenders, friends, relatives, etc.=%

Control variables used in the analysis:

The control variables are defined in the appendix. They include the following variables.

Ownership type	**Industry**
Private firms	**Level of competition**
Co-owned firms	**Age of firm**
Foreign invested firms	**Top managers experience**
Province	**External audit**
Firm size	

4.3 Model specification

Model 1 and 2 are tested using an OLS regression model, where it is tested if Sales growth and Productivity growth are affected by the type of financing used when the firms finances their working capital and new investments in fixed assets.

Model 3 is tested using a probit regression model, where it is tested if ownership type, province and other variables have an effect on access to loans or lines of credit from the formal financial system.

- Model 1a: *Y (Sales growth)* = $\beta_0(constant)$
$+\beta_1 * type\ of\ financing\ used\ for\ working\ capital + \beta_2 *$
$control\ variables\ (province, industy, firm\ size, level\ of\ competition, age\ of firm\ and$
$top\ managers\ experience) + residuals, \mu$

- Model 1b: *Y (Productivity growth per employee)* = $\beta_0(constant)$
$+\beta_1 * type\ of\ financing\ used\ for\ working\ capital + \beta_2$
$* control\ variables\ (province, industy, firm\ size, level\ of\ competition, age\ of firm\ and$
$top\ managers\ experience) + residuals, \mu$

- Model 2a: *Y (Sales growth)* = $\beta_0(constant)$
$+\beta_1 * type\ of\ financing\ used\ for$ new investments in fixed assets $+ \beta_2$
$* control\ variables\ (province, industy, firm\ size, level\ of\ competition, age\ of firm\ and$
$top\ managers\ experience) + residuals, \mu$

- Model 2b: *Y (Productivity growth per employee)* = $\beta_0(constant)$
$+\beta_1 * type\ of\ financing\ used\ for$ new investments in fixed assets $+ \beta_2$
$* control\ variables\ (province, industy, firm\ size, level\ of\ competition, age\ of firm\ and$
$top\ managers\ experience) + residuals, \mu$

- Model 3: *Y (Having credit and loan from a formal financial institution)*= $\beta_0(constant) +$
$\beta_1 * ownership\ type + \beta_2 * province + \beta_3 * industry + \beta_4 * firm\ size + \beta_5 *$
$control\ variables\ (external\ audit, level\ of\ competition,$
$age\ of firm\ and\ top\ managers\ experience) + residuals, \mu$

4.4 Descriptive statistics

See table 1 in the appendix.

The mean of sales growth and productivity per employee are 30% and 10% respectively. This shows us that on average firms in China are growing. There are some firms though that are performing poorly. It is relevant to see if there is a link between lack of access to formal finance and the bad performance of firms in China. It is also clear that most of the firms in the sample use only internal finance when financing their working capital and new investments, fewer use formal finance and informal finance is the choice of finance used by the least number of firms.

Most firms don't have access to formal finance and they have answered that they don't have a loan or a line of credit from a bank.

Firms in the sample are predominantly private firms owned by Chinese owners, and only few firms are foreign invested firms or co-owned firms.

They are also mostly manufacturing firms and they face a high level of competition, defined as having more than 10 competitors. There are a slightly larger number of medium and large sized firms then small sized firms, and the largest number of firms started operations in period 2001-2008 after the WHO entry in 2001.

5. Empirical results

Model 1a and 1b: Sales growth & Productivity growth for firms financing their working capital

For working capital, firms that use a combination of formal, informal and internal finance has the highest performance measured in sales growth. But a combination of informal finance and internal finance has the highest affect on productivity growth. Those firms that use internal finance for their working capital perform worse than the other two groups.

From the correlation table 1 and 2 in the appendix it shows the firms that have access to formal finance tend to be larger firms, they are manufacturing firms and firms that face less competition. They also tend to be located in Zhejiang and Guangdong province, which are known to be friendlier to private firms measured by the level of marketization (Fan et al, NERI index, 2011). A large firm facing little competition will be able to generate higher sales, which again will increase

the likelihood of having a formal bank loan, due to good economic performance. This is also backed up by other literature that also finds that larger firms have easier access to formal finance than SMEs (Hale & Long, 2010).

Informal finance is associated with the highest productivity increases. Using informal finance is correlated with being located in Guangdong, being a small firm and with operating in the service sector. Firm size and industry might be the reason why they are not able to get a formal loan, since these firms have fewer assets to post as collatoral. Province might be a reason why they perform well, because the level of marketization is high in Guangdong, and therefore firms can operate more efficiently. The result indicates that there is a selection effect going on in the informal financial sector since they can pick the firms that perform well. This can help to explain why the private sector is doing so well in China even though it is hard to obtain formal financing for private firms.

The firms relying solely on internal finance are the firms that perform the worst looking at both performance indicators. Using internal finance is correlated with being located in Henan, Anhui and Sichuan, the provinces in the paper scoring lowest on the level of marketization. They also tend to be small and face a high degree of competition. Small firms can post less collatoral; also their performance might be hampered because of high competition, which is worsened by being located in a province where the private business climate is not fully evolved. All of these factors will have a negative effect on the probability of having a loan from a bank. Other findings have shown that there is a connection between lower firm performance and financial constraints (Beck et al, 2005). This is the same for our sample, but they suffer poor performance due to other factors then just financial constraints. Bad business environment in the specific province, high competition and other factors might also play a part in affecting the firm's performance.

Overall the empirical results from model 1a and 1b are partly in line with our hypothesis. Formal finance is associated with higher performance then full internal finance. But it also shows that the firms using informal finance can still perform well.

Table 2: Model 1a and 1b- Sales growth & Productivity growth for firms using the following means of financing their working capital

Working capital financed through	**Model 1a Sales Growth %**	**Model 1b Productivity growth %**
Internal finance	-12%*** (0.02)	-7%*** (0.02)
Informal and internal finance	3% (0.04)	8%* (0.04)
Formal, informal and internal finance	10%*** (0.02)	6%*** (0.02)
Control variables		
Province		
Zhejiang	-0.06 (0.04)	-0.02 (0.03)
Guangdong	-0.001 (0.03)	0.04 (0.02)
Henan	-0.11*** (0.02)	-0.12*** (0.02)
Anhui	-0.14*** (0.04)	-0.02 (0.04)
Sichuan	0.15*** (0.06)	-0.004 (0.04)
Firm size		
Small firm	0.03 (0.03)	0.03 (0.03)
Large firm	0.002 (0.02)	-0.01 (0.02)
Industry		
Manufacturing	0.04 (0.03)	0.04 (0.03)
Level of competition		
High level of competition	-0.10*** (0.03)	-0.07*** (0.03)
Age of firm		
2001-2008	0.06** (0.03)	-0.01 (0.03)
1992-2000	0.06* (0.02)	-0.002 (0.03)
Top managers experience	0.01 (0.02)	0.04* (0.02)
Constant	0.35	0.06
Number of observations	2491	2465
R-squared	0.04	0.02

*, **, *** indicate statistical significance at 10%, 5%, and 1% levels respectively.

Model 2a and 2b: Sales growth & Productivity growth for firms financing their new investments in fixed assets:

For new investments in fixed assets it can be shown that a combination of formal, informal and internal finance has the highest effect on sales growth. But we can also see that firms using only internal finance have positive sales growth from 2009 to 2011. This makes sense, since it is normally only well performing firms that can afford to invest in new assets. Therefore this variable can be used by formal financial institutions to find well performing firms. These firms might benefit if they could obtain a loan from the formal financial system, because they might be able to grow even more. It is also interesting to see, that both formal finance and internal finance are correlated with being a large firm as seen in correlation table 3 in the appendix. It would be expected that the firms using internal finance should be better able to obtain a bank loan, because they are large. But the firms using formal finance are located in Zhejiang and Guangdong province. Whereas those firms using only internal finance are located in Henan and Sichuan. This might be the reason why they can't get a bank loan. They perform well and they are large, but they are located in a province with a low level of marketization. The banks should be able to select the best performing firms and let them be able to grow, since these firms will have the best chance of growing in a competitive market and thereby paying higher returns to the banks. But the selection mechanisms are not fully functioning in some of the less developed provinces. This is also what our results indicate.

It is not possible to say something about productivity growth since those results were not significant.

But overall it is the firms that use a combination of formal, informal and internal finance that perform best. This is in line with the hypothesis.

Table 3: Model 2a and 2b: Sales growth & Productivity growth for firms using the following means of financing their new investments in fixed assets:

New investments in fixed assets financed through	Model 2a Sales Growth %	Model 2b Productivity growth %
Internal finance	4%** (0.02)	1% (0.02)
Informal and internal finance	9% (0.06)	-2% (0.05)
Formal, informal and internal finance	13%*** (0.03)	1% (0.03)
Control variables		
Province		
Zhejiang	-0.002 (0.03)	0.01 (0.03)
Guangdong	0.01 (0.03)	0.05 (0.02)
Henan	-0.15*** (0.02)	-0.14*** (0.02)
Anhui	-0.15*** (0.04)	-0.03 (0.04)
Sichuan	0.13** (0.06)	-0.02 (0.04)
Firm size		
Small firm	0.03 (0.03)	0.03 (0.03)
Large firm	0.001 (0.02)	-0.004 (0.02)
Industry		
Manufacturing	0.03 (0.03)	0.04 (0.03)
Level of competition		
High level of competition	-0.11*** (0.03)	-0.08*** (0.03)
Age of firm		
2001-2008	0.07** (0.03)	-0.01 (0.03)
1992-2000	0.06** (0.03)	0.004 (0.03)
Top managers experience	0.01 (0.02)	0.04* (0.02)
Constant	0.22	-0.01
Number of observations	2491	2465
R-squared	0.03	0.02

*, **, *** indicate statistical significance at 10%, 5%, and 1% levels respectively.

Model 3: Factors affecting loan giving from banks

Collatoral is highly correlated with the variable of having a loan or a line of credit from a bank, and it is affecting the model results. Therefor it is not included in the probit regression model. But collatoral can be shown to be an important factor, when obtaining a loan. This is also in line with previous findings from other literature (Beck et al, 2005).

Correlation between having a loan and line of credit from the formal financial system and giving collatoral for obtaining a loan:

	Credit and loan giving	Collatoral
Credit and loan giving	1	0.81
Collatoral	0.81	1

From table 4 it shows that being a private firm has a negative effect on the likelihood of having a loan or a line of credit from a formal financial institution. The marginal effect is -5%. The profitability of individual private firms in the sample are not know, and it is not clear if this might have had an effect on them not getting a loan. But as seen in correlation table 5 in the appendix being a private firm is negative correlated with high competition, which should make it easier to perform well. Also apparent from correlation table 5 is that being a private firm is correlated with being a small firm. This might be the reason that they have a harder time getting a loan, because they can't post enough collateral. This might be an indication of SMEs still having a harder time getting access to formal finance from a bank.

Table 4 shows that co-owned firms have an even harder time getting a loan, with a marginal effect of -16%. This is interesting because political capital and connections were expected to increase the likelihood of getting a loan. We can't say anything about the profitability of the co-owned firms, but as mentioned earlier co-owned firms have been shown to be less profitable then private firms (Boardman & Vining, 1989). The negative result might indicate, that political connections don't outweigh economic consideration when giving a loan or a line of credit. This is a good thing.

Table 4 shows that foreign invested firms have an easier time getting a loan, with a marginal effect of 8%. This was expected since foreign invested firms might be able to obtain loans from abroad.

Overall it is easier to get a loan in a province with a high degree of marketization then in those with a lower degree of marketization. This was also expected. The easiest place to obtain a loan is in Zhejiang province and the hardest is in Anhui. This makes sense, because provinces with a high level of marketization might be more economically devolved than other parts of China, and have a more positive view on private business in regards to creating economic growth.
Firm size affects loan giving. The small sized firms have fewer assets to guarantee loans and they therefore have restricted access to a bank loan. It is easier for a large firm to obtain a loan then it is for a small firm. This makes sense since large firms can post more collatoral.
Having an external audit to check the firm's financial statements has a positive effect on getting a loan. This is because it can increase trust in the firm, which might help when obtaining a loan or a line of credit.
Top manager's experience has a positive effect on getting a loan or a line of credit. This was expected, because the top manager is important for strategic decisions and the future profitability of the firm. An experienced top manager might also have more connections, which can help when applying for a loan.

The overall picture that emerges is that ownership does have an effect on the possibility of getting a loan or a line of credit. Private firms have a harder time, so does co-owned firms, unexpectedly, and foreign invested firms have no issues. But province, size, top manager's experience and external audit all have an effect on getting a loan. So if you are a large private firm that has yearly external audits and an experienced top manager and is located in the Zhejiang or Guangdong province, you will have an easier time getting a loan then if your were located in Anhui or Sichuan province. This is in line with other findings that show that region and industry has an effect on loan giving for private firms (Firth et al, 2009).
Overall the results are in line with the hypothesis the factors such as ownership, firm size and province all affect the probability of having a loan.

Table 4: Model 3: Factors affecting loan giving

Factors affecting loan giving	Marginal effects
Type of ownership	
Private firm	-5%**
	(0.03)
Co-owned firm	-16%***
	(0.05)
Foreign-invested firm	8%**
	(0.04)
Province	
Zhejiang	40%***
	(0.03)
Guangdong	10%***
	(0.02)
Henan	-17%***
	(0.04)
Anhui	-30%***
	(0.06)
Sichuan	-22%***
	(0.05)
Firm size	
Small firm	-18%***
	(0.03)
Large firm	8%***
	(0.02)
Industry	
Manufacturing	2%
	(0.03)
External audit	11%***
	(0.02)
Level of competition	
High level of competition	-2%
	(0.02)
Age of firm	
2001-2008	3%
	(0.03)
1992-2000	4%
	(0.03)
Top managers experience	9%***
	(0.02)
Constant	-1.6
Number of observations	2640
Pseudo R-squared	0.16

*, **, *** indicate statistical significance at 10%, 5%, and 1% levels respectively.

5.1 Statistical tests

Robustness check: To ensure that the results are based on homoscedacity both the OLS and the probit regression models were calculated using robust standard errors.

Correlation between the variables: It is important to check if the variables are correlated, because this will affect the results, and make them less reliable. In the appendix it can be seen that the variables were not correlated enough to have an impact on the models and the results.

OLS regressions:

Multicollinearity

To test for multicollinearity the Variance Inflation Factor (VIF) test is used. A VIF factor of over 10 is an issue. This would indicate that information included in one variable is also included in another variable, which makes it hard to figure out which of the variables explains the variation in the dependent variable. No single variable had a higher VIF score then 3 and the mean VIF score is also low.

VIF	**Mean VIF**
Model 1a	1.52
Model 1b	1.53
Model 2a	1.51
Model 2b	1.52

Ramsey RESET test for model 1a, 1b, 2a, & 2b

The Ramsey RESET test is a misspecification test that can be used to check if the models suffer from omitted variables bias. As can be seen in the table none of the models have omitted variables.

Ramsey RESET test	**F-value**	**P-value**	**H0: model has no omitted variables**
Model 1a	2.04	0.11	No omitted variables
Model 1b	0.59	0.62	No omitted variables
Model 2a	2.27	0.12	No omitted variables
Model 2b	1.39	0.24	No omitted variables

Probit model:

Linktest of model 3

The Linktest is used to check for misspecification. The results show that the model 3 is not misspecified.

	Coefficient	Standard errors	P-value
Hat	1.04	0.07	0.00
Hatsquared	0.05	0.06	0.34
Constant	-0.01	0.04	0.80

6. Conclusion

The focus of the paper was based on the hypothesis that access to formal finance for Chinese private firms are associated with a higher performance. Sales growth was shown to be highest for those firms that used formal finance to pay for their working capital and new investments. But productivity growth was highest for those firms using informal finance to pay for their working capital.

Sales growth increased with 10% from 2009-2011 for those firms using formal finance to pay for their working capital. But productivity growth was strongest in those firms using informal finance to pay for their working capital with a 8% increase in the same period.

The firms that used internal finance had the lowest performance. Sales growth was -12% and productivity growth -7% for those firms that used internal finance to finance their working capital. For those firms using formal finance to finance their new investment in fixed assets sales growth was 13% and firms that used internal finance experienced 4% sales growth in the same period.

Overall there is evidence to support the hypothesis that formal finance is associated with higher performance. But the informal financial sector can also pick the winning firms. This shows that both the formal and informal financial sector has a role to play in their effort to provide finance to Chinese firms.

But there were also other factors affect performance than just the financing choices of firms. And the same factors affecting performance might also affect the probability of getting a loan from the formal financial system.

This was also shown in model 3 where province and firms size were shown to be important factors in the allocation of loans from banks, the same characteristics that might affect performance. The firms located in a province with a higher degree of marketization were shown to be having higher performance and easier access to formal finance. This is an important fact. Chinas development has been geographically unequally spread, with the coastal cities enjoying a higher degree of development than the western and inner parts of China. This might indicate that it is general market reforms that are needed and not only financial reforms.

The analysis showed that access to formal finance is still a problem for SMEs. Financial reforms and institutional improvements have been shown to help small firms the most in their access to formal finance (Beck et al, 2005), therefore this should be a priority for policy makers. Also banks should change how they assess the profitability of firms relying more in cash-flow analysis and

accept other forms of collatoral such as movable assets and inventories. Banks, where the bank manager was responsible for his/hers own units profitability, have been shown to discriminate less against SMEs. This incentive structure could be copied to more banks (Cousin, 2011).

There are some limitations to this paper. This is partly because the data was a cross- sectional dataset, which only give information for a single period of time. The results would be even more robust if it was possible to test the effect of formal finances on firm performance over a longer period of time using at time series dataset. This could be a topic for future research. Another limitation is the fact that the data is from 2012. It could be relevant to obtain data from the present to see how the situation is today in China.

Chinas development has been a story of top down macro reforms and bottom-up development of private firms that relied on each other for finance, networks and more (Nee & Opper, 2012). Over the reform period different provinces in China have developed more than others. This is also visible in the data, where firms from provinces with a higher level of marketization had a higher performance and easier access to formal finance. Reforms are needed in those areas that still lack market development. Any constrains on private firm growth will keep overall growth in the economy lower then it might need to be. A better allocation of capital would benefit the Chinese economy on a whole and bring more firms in to the formal economy, with all the benefits that would bring.

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Appendix

Control variables used in the regression models:

Private firms: Private firms have been shown to have a harder time obtaining a loan from a formal financial institution. They represent the biggest group of firms in China. If private firms are still discriminated against when applying for a loan then it can limit their growth potential, which would have serious consequences for the Chinese economy now and in the future. Therefore it is included here in the analysis.

Question B.2a was used here. "What percentage of this firm is owned by private domestic individuals, companies or organizations?". The possible answers were % of ownership and Don't know. The answer Don't know is excluded. The % of ownership is then divided into two categories. This makes it into a dummy variable.
1. Private firm (PE)= 100% private domestic ownership
2. Other ownership type= 0-99% private domestic ownership

Co-owned firms: It is expected that even partial ownership by the state might increase the access to credit and loans from the formal financial system because of political connections and political capital. This is partly due to the fact that the financial system is mostly dominated by the state. But another reason is that political capital might help when dealing with regulatory problems, they might increase access to resources that are not effectively allocated in the marketplace and help when dealing with property rights issues. All of this might increase the trust in the firm and the possible profitability of the firm, which might increase the likelihood of getting a loan (Cheng and Wu, 2015).

Question B.2b will be used: "What percentage of this firm is owned by Government or State?" The possible answers were % of ownership and Don't know. The answer Don't know is excluded. The % of ownership is then divided into two categories. This makes it into a dummy variable. The dataset does not include state owned enterprises. Therefore the percent cant go higher then 99% state or government ownership.
1. Co-owned firm= 1-99% state or government ownership

2. Other ownership type = 0% state or government ownership

Foreign invested firms: Foreign capital has been show to help Chinese private firms that might not be able to get a loan in the formal financial system. This is due to the fact that foreign invested firms can rely on capital markets abroad or intra-firm financial transfers (Poncet et al, 2010).

Question B.2c will be used: "What percentage of this firm is owned by Private foreign individuals, companies or organizations" The possible answers were % of ownership and Don't know. The answer Don't know is excluded. Also the 100% foreign ownership will be excluded, because then it is not a Chinese firm, and therefor not relevant for the research question. The % of ownership is then divided into two categories. This makes it into a dummy variable.
1. Foreign invested firm= 1-99% foreign ownership
2. Other ownership type = 0% foreign ownership

Province: The specific province is a relevant variable to control for because of the development track China has followed since the reform and opening up process since 1978. The provinces have been chosen due to the level of marketization in the given province. This is measured by the NERI index, which is a Marketization Index for China's Provinces. The following provinces have been chosen ranking from having the best to worst degrees of marketization: Zhejiang, Guangdong, Henan, Anhui and Sichuan (Fan et al, NERI index, 2011).

Question A.3a "Screener Region" was used here.

Industry: Industry is relevant to control for, because different industries have different needs for credit and loans. The firms are divided into service and manufacturing firms.

Question A.4b " Screener sector" was used here.

Firm size: The size of the firm might affect the possibility of getting a line of credit or a loan, because size is a factor when putting up collateral for a loan. Larger firms have more assets to back up the loan.

Question A.6b "Screener Size" was used here.

The firms have been divided into the following group based on number of employees.
1. Small firm: 5-19 employees
2. Medium firm: 20-99 employees
3. Large firm: 100 and more employees

Level of competition: The level of competition in a specific industry will affect the level of profits possible for firms. As competition increase profits are squished and firms have to increase efficiency to stay competitive. Therefore the level of competition is directly related to sales growth and productivity growth per employee. If the firm faces more than 10 competitors in its industry it will be defined as a high level a competition.

Question E.2 was used here. "In fiscal year 2011, for the main market in which this establishment sold its main product, how many competitors did this establishment's main product face?". The possible answers were 1. Number of competitors, 2. Too many to count, 3. Don't know.

Age of firm: Firms that started operation in 2009-2012 are excluded because it is not possible to calculate sales growth and productivity growth for these firms. Also firms established pre-1978 are excluded, because we are interested in firm that have begun operations after the reform process started in 1978.

The age group of firms are divided into groups based on the reform process in China.

1: 1978-1991; 2: 1992-2000; 3: 2001-2008.

The first group of firms from 1978-1991 are established in the years from the opening up and reform process and until Deng Xiaoping's southern tour in 1992. The second group of firms from 1992-2000 are from the period where the economy was more liberalized and new reforms to SOEs, financial markets, property right and more were introduced. The third group of firms from 2001-2008 are established after China entered the WHO in 2001 and opened it self up to international trade rules and liberalizations (Naughton, 2006).

Question B5 was used here. "In what year did this establishment begin operations?".

Top Manager's experience: In business, network and reputation are important. Therefore a more experienced manager might have more of both things. Also a more experienced manager might make better financial and strategic decisions, which are important for firm performance in the future. All of these things might help when obtaining a line of credit or a loan.

> **Question B.7** will be used: "How many years of experience working in this sector does the Top Manager have?". The possible answers were number of years in sector, Less then a year and Don't know. The answer Don't know has been excluded. This variable has been logged.

External audit: Transparency is important in business and also when you want to get a loan or a line of credit. Getting an external auditor to check the financial statements might increase trust in the company and increase the possibility of getting a loan.

> **Question K.21** will be used: "In fiscal year 2011, did this establishment have its annual financial statements checked and certified by an external auditor?" The possible answers were Yes, No and Don't know. The answer Don't know is excluded.

Table 1: Descriptive statistics

Variable	Number of observations	Mean	Standard deviation	Min	Max
Performance					
Sales growth	2537	0.30	0.50	-0.33	2.67
Prod. growth pr. employee	2508	0.10	0.44	-0.50	2.2
Working capital					
Full internal finance	2646	1.68	0.47	1	2
Informal & internal finance	2633	1.08	0.27	1	2
Formal, informal & internal finance	2633	1.32	0.47	1	2
New investments					
Full internal finance	1349	1.73	0.44	1	2
Informal & internal finance	1344	1.10	0.30	1	2
Formal, informal & internal finance	1344	1.30	0.44	1	2
Credit and loan giving	2588	1.69	0.46	1	2
Ownership type					
Private firms	2690	1.90	0.33	1	2
Co-owned firms	2692	1.04	0.20	1	2
Foreign invested firms	2631	1.04	0.20	1	2
Province	2700	33.57	8.71	1	40
Firm size	2700	2.20	0.80	1	3
Industry	2700	1.37	0.48	1	2
Level of competition	1326	1.90	0.31	1	2
Age of firm	2537	2.50	0.62	1	3
Top managers experience	2640	2.70	0.49	0	4.01
External audit	2658	1.30	0.50	1	2

Correlation tables

Correlation table 1: Model 1a

	Percen..	FullRe~s	Retia~es	Formal~s	Zheiji~g	Guangd~g	Henan	Anhui	Chengd~n	SmallF	LargeF	manufac	Highcomp	ageYoung	ageMed~m	ManExp
PercentSal~r	1.0000															
FullRetain~s	-0.1177	1.0000														
RetianInfo~s	0.0302	-0.4026	1.0000													
FormalAndI~s	0.1017	-0.9583	0.4202	1.0000												
Zheijiang	0.0069	-0.2904	-0.0519	0.2336	1.0000											
Guangdong	0.0201	-0.0636	0.1619	0.0828	-0.1626	1.0000										
Henan	-0.0744	0.1502	-0.0745	-0.1488	-0.1124	-0.1415	1.0000									
Anhui	-0.0573	0.0873	-0.0471	-0.0799	-0.0769	-0.0967	-0.0669	1.0000								
ChengduSic~n	0.0635	0.0799	-0.0460	-0.0726	-0.0758	-0.0953	-0.0659	-0.0451	1.0000							
SmallF	0.0250	0.1245	0.0694	-0.1136	-0.0645	-0.0013	-0.0601	0.0032	-0.0082	1.0000						
LargeF	-0.0036	-0.1372	-0.0615	0.1342	0.0901	-0.0392	0.0394	0.0027	0.0117	-0.4319	1.0000					
manufac	-0.0450	-0.0283	-0.0420	0.0125	0.0349	0.0230	0.0043	0.0143	-0.0479	-0.2683	0.1483	1.0000				
Highcomp	-0.0877	0.0479	-0.0331	-0.0486	-0.0522	0.0229	-0.0265	-0.0150	-0.0258	-0.1547	0.0535	0.6771	1.0000			
ageYoung	0.0209	0.0290	0.0564	-0.0280	-0.0136	-0.0220	-0.0013	0.0266	-0.0227	0.1292	-0.1278	-0.0376	-0.0321	1.0000		
ageMedium	0.0052	-0.0452	-0.0270	0.0432	-0.0011	0.0621	0.0091	0.0012	-0.0147	-0.0951	0.0571	0.0054	0.0012	-0.7822	1.0000	
ManExp	-0.0037	-0.0710	-0.0133	0.0708	-0.0373	-0.1222	0.0535	0.0446	0.0007	-0.1491	0.1600	0.1078	0.0366	-0.2960	0.2007	1.0000

Correlation table 2: Model 1b

	Percen..	FullRe~s	Retia~es	Formal~s	Zheiji~g	Guangd~g	Henan	Anhui	Chengd~n	SmallF	LargeF	manufac	Highcomp	ageYoung	ageMed~m	ManExp
PercentPro~r	1.0000															
FullRetain~s	-0.0900	1.0000														
RetianInfo~s	0.0631	-0.4061	1.0000													
FormalAndI~s	0.0844	-0.9613	0.4224	1.0000												
Zheijiang	0.0106	-0.2868	-0.0516	0.2328	1.0000											
Guangdong	0.0467	-0.0653	0.1608	0.0832	-0.1629	1.0000										
Henan	-0.0876	0.1503	-0.0756	-0.1497	-0.1126	-0.1432	1.0000									
Anhui	-0.0092	0.0883	-0.0467	-0.0816	-0.0759	-0.0965	-0.0667	1.0000								
ChengduSic~n	-0.0044	0.0788	-0.0463	-0.0720	-0.0755	-0.0960	-0.0664	-0.0447	1.0000							
SmallF	0.0239	0.1234	0.0683	-0.1139	-0.0635	-0.0034	-0.0617	0.0006	-0.0081	1.0000						
LargeF	-0.0081	-0.1389	-0.0618	0.1363	0.0916	-0.0393	0.0397	-0.0004	0.0136	-0.4342	1.0000					
manufac	-0.0133	-0.0265	-0.0413	0.0112	0.0316	0.0244	0.0053	0.0107	-0.0492	-0.2693	0.1487	1.0000				
Highcomp	-0.0553	0.0488	-0.0330	-0.0508	-0.0519	0.0236	-0.0264	-0.0136	-0.0240	-0.1544	0.0516	0.6784	1.0000			
ageYoung	-0.0219	0.0253	0.0562	-0.0277	-0.0105	-0.0230	-0.0019	0.0248	-0.0253	0.1282	-0.1281	-0.0367	-0.0315	1.0000		
ageMedium	0.0192	-0.0449	-0.0278	0.0421	-0.0049	0.0614	0.0084	0.0054	-0.0138	-0.0962	0.0577	0.0068	0.0023	-0.7854	1.0000	
ManExp	0.0378	-0.0679	-0.0129	0.0721	-0.0400	-0.1225	0.0546	0.0472	-0.0002	-0.1493	0.1602	0.1102	0.0384	-0.3003	0.2017	1.0000

Correlation table 3: Model 2a

	Percen..	Inv~nYes	InvRet~s	Invest..	Zheiji~g	Guangd~g	Henan	Anhui	Chengd~n	SmallF	LargeF	manufac	Highcomp	ageYoung	ageMed~m	ManExp
PercentSal~r	1.0000															
InvestFull~s	0.0332	1.0000														
InvRetianI~s	0.0432	-0.1705	1.0000													
InvestForm~s	0.0976	-0.3027	0.5634	1.0000												
Zheijiang	0.0069	-0.1271	0.0437	0.1804	1.0000											
Guangdong	0.0201	-0.0315	0.0090	0.0413	-0.1626	1.0000										
Henan	-0.0744	0.2004	-0.0568	-0.0997	-0.1124	-0.1415	1.0000									
Anhui	-0.0573	-0.0773	-0.0295	-0.0450	-0.0769	-0.0967	-0.0669	1.0000								
ChengduSic~n	0.0635	0.0500	-0.0099	-0.0201	-0.0758	-0.0953	-0.0659	-0.0451	1.0000							
SmallF	0.0250	-0.1352	-0.0664	-0.1447	-0.0645	-0.0013	-0.0601	0.0032	-0.0082	1.0000						
LargeF	-0.0036	0.0921	0.0445	0.1351	0.0901	-0.0392	0.0394	0.0027	0.0117	-0.4319	1.0000					
manufac	-0.0450	0.0993	0.0397	0.0395	0.0349	0.0230	0.0043	0.0143	-0.0479	-0.2683	0.1483	1.0000				
Highcomp	-0.0877	0.0099	0.0179	-0.0028	-0.0522	0.0229	-0.0265	-0.0150	-0.0258	-0.1547	0.0535	0.6771	1.0000			
ageYoung	0.0209	-0.0118	0.0140	-0.0450	-0.0136	-0.0220	-0.0013	0.0266	-0.0227	0.1292	-0.1278	-0.0376	-0.0321	1.0000		
ageMedium	0.0052	-0.0056	0.0100	0.0582	-0.0011	0.0621	0.0091	0.0012	-0.0147	-0.0951	0.0571	0.0054	0.0012	-0.7822	1.0000	
ManExp	-0.0037	0.1169	0.0069	0.0486	-0.0373	-0.1222	0.0535	0.0446	0.0007	-0.1491	0.1600	0.1078	0.0366	-0.2960	0.2007	1.0000

Correlation table 4: Model 2b

	Percen..	Inv~nYes	InvRet~s	Invest..	Zheiji~g	Guangd~g	Henan	Anhui	Chengd~n	SmallF	LargeF	manufac	Highcomp	ageYoung	ageMed~m	ManExp
PercentPro~r	1.0000															
InvestFull~s	0.0006	1.0000														
InvRetianI~s	-0.0036	-0.1720	1.0000													
InvestForm~s	0.0200	-0.3055	0.5631	1.0000												
Zheijiang	0.0106	-0.1249	0.0446	0.1831	1.0000											
Guangdong	0.0467	-0.0330	0.0079	0.0395	-0.1629	1.0000										
Henan	-0.0876	0.2004	-0.0576	-0.1012	-0.1126	-0.1432	1.0000									
Anhui	-0.0092	-0.0790	-0.0291	-0.0442	-0.0759	-0.0965	-0.0667	1.0000								
ChengduSic~n	-0.0044	0.0472	-0.0100	-0.0203	-0.0755	-0.0960	-0.0664	-0.0447	1.0000							
SmallF	0.0239	-0.1369	-0.0675	-0.1469	-0.0635	-0.0034	-0.0617	0.0006	-0.0081	1.0000						
LargeF	-0.0081	0.0906	0.0448	0.1360	0.0916	-0.0393	0.0397	-0.0004	0.0136	-0.4342	1.0000					
manufac	-0.0133	0.1021	0.0405	0.0409	0.0316	0.0244	0.0053	0.0107	-0.0492	-0.2693	0.1487	1.0000				
Highcomp	-0.0553	0.0120	0.0183	-0.0024	-0.0519	0.0236	-0.0264	-0.0136	-0.0240	-0.1544	0.0516	0.6784	1.0000			
ageYoung	-0.0219	-0.0148	0.0137	-0.0460	-0.0105	-0.0230	-0.0019	0.0248	-0.0253	0.1282	-0.1281	-0.0367	-0.0315	1.0000		
ageMedium	0.0192	-0.0052	0.0095	0.0576	-0.0049	0.0614	0.0084	0.0054	-0.0138	-0.0962	0.0577	0.0068	0.0023	-0.7854	1.0000	
ManExp	0.0378	0.1183	0.0073	0.0498	-0.0400	-0.1225	0.0546	0.0472	-0.0002	-0.1493	0.1602	0.1102	0.0384	-0.3003	0.2017	1.0000

Correlation table 5: Model 3

	LoanYes	PE	SOE1	FOE	Zheiji~g	Guangd~g	Henan	Anhui	Chengd~n	manufac	SmallF	LargeF	ExAudYes	Highcomp	ageYoung	ageMed~m	ManExp
LoanYes	1.0000																
PE	-0.0678	1.0000															
SOE1	-0.0505	-0.5601	1.0000														
FOE	0.0565	-0.5305	-0.0119	1.0000													
Zheijiang	0.3127	0.0305	-0.0266	-0.0328	1.0000												
Guangdong	0.0401	-0.0584	-0.0675	0.0298	-0.1576	1.0000											
Henan	-0.1065	0.0140	-0.0026	0.0182	-0.1079	-0.1347	1.0000										
Anhui	-0.1015	0.0506	-0.0350	-0.0224	-0.0751	-0.0938	-0.0642	1.0000									
ChengduSic~n	-0.0843	0.0100	0.0027	-0.0122	-0.0748	-0.0934	-0.0639	-0.0445	1.0000								
manufac	0.0815	-0.0560	0.0153	0.0570	0.0326	0.0274	0.0062	0.0180	-0.0535	1.0000							
SmallF	-0.2024	0.0964	-0.0464	-0.0805	-0.0680	-0.0034	-0.0610	-0.0026	-0.0107	-0.2807	1.0000						
LargeF	0.1900	-0.0941	0.0492	0.1102	0.0867	-0.0410	0.0366	0.0114	0.0130	0.1617	-0.4369	1.0000					
ExAudYes	0.1053	-0.1043	0.1057	0.0061	-0.0391	-0.0311	-0.0627	0.0991	0.0738	0.0137	-0.1605	0.1491	1.0000				
Highcomp	0.0176	-0.0378	0.0498	0.0158	-0.0517	0.0284	-0.0226	-0.0142	-0.0278	0.6764	-0.1607	0.0597	0.0079	1.0000			
ageYoung	-0.0673	0.0548	-0.0230	-0.0458	-0.0158	-0.0231	0.0009	0.0258	-0.0210	-0.0476	0.1303	-0.1329	-0.0119	-0.0361	1.0000		
ageMedium	0.0600	-0.0700	0.0012	0.0673	0.0037	0.0633	0.0120	0.0022	-0.0120	0.0127	-0.0962	0.0589	-0.0095	0.0104	-0.7690	1.0000	
ManExp	0.0959	0.0516	-0.0632	0.0340	-0.0378	-0.1220	0.0542	0.0417	0.0017	0.1077	-0.1572	0.1614	-0.0341	0.0371	-0.2852	0.1917	1.0000