July 2001

Very preliminary
Not for circulation

THE REAL EFFECTS OF LOCAL FINANCIAL DEVELOPMENT

Luigi Guiso
University of Sassari, Ente "Luigi Einaudi" & CEPR

Paola Sapienza
Northwestern University & CEPR

Luigi Zingales
University of Chicago, NBER, & CEPR

Abstract

We construct a new indicator of financial development by estimating a regional effect on the probability that, ceteris paribus, a household is shut off from the credit market. By using this indicator we show that the level of local financial development enhances the probability an individual starts his own business, increases the creation of new firms and the level of competition, eases liquidity constraints, and promotes growth of firms. As predicted by theory, these effects are stronger for smaller firms than for larger ones, which can more easily raise funds outside of the local area. Overall, the results suggest *local* financial development is an important determinant of the economic success of an area.

JEL Classification:

Keywords:.

According to national account statistics the valued added (the sum of the wages and profits) of the U.S. financial sector in 1997 was $443 billion.[1] The financial sector's real contribution, however, is more difficult to quantify or even to identify. In fact, there is a large and still growing literature, which goes back at least to Goldsmith (1969), that attempts to identify this contribution. Recent studies, for instance, suggest that financial development does advance economic growth. In a study of 80 countries over the period 1960-1989, King and Levine (1993) find that beginning-of-decade measures of a country's financial development are strongly related to the country's economic growth, capital accumulation, and productivity growth over the subsequent decade. Using the de-regulation of banking in different states of the United States between 1972 and 1991 as a proxy for a quantum jump in financial development, Jayaratne and Strahan (1996) find that annual growth rates in a state increased by 0.51 to 1.19 percentage points a year after de-regulation. Rajan and Zingales (1998a) find that the development of a country's financial markets and institutions dramatically increases the growth of industries, such as Computers or Pharmaceuticals, which need long-term external finance.

While all this evidence suggests that the financial system is not just a veil, but it has real economic effects, the skeptics still have reasons to doubt. To begin with, the level of development of a financial system is measured rather imprecisely. Theoretically, the right measure is the ease with which companies and individuals in need of external funds can access them and the premium they have to pay for these funds. Data limitations, however, engendered the practice to measure financial development with a

[1] From US Census: http://factfinder.census.gov/java_prod/dads.ui.homePage.HomePage and the economic report of the President.

ratio of the value of key financial instruments outstanding (deposits, stock, etc.) and some measure of the size of the economy. Unfortunately, the link between the theoretically founded measures and the ones used empirically is at best weak, leaving room for doubting the causal interpretation of the observed correlations.

These doubts are further strengthened by the common practice of exploiting cross-country variations in financial development to identify its effects on real economic activity.[2] As Mankiw (1995) points out, cross-country regressions are plagued by a multicollinearity problem. There are too many differences across countries, all of which highly correlated, and too few countries to enable us to disentangle the effect of financial development from that of other institutional variables.

Finally, the skeptics find reasons to doubt because most of the evidence correlates financial development with its ultimate consequence: economic growth, ignoring all the intermediate steps, which could substantiate the causal interpretation.[3]

This paper probes deeper into the real effects of financial development by trying to address all these three problems. By using a micro dataset, we derive an indicator of local financial development that closely matches the theoretical definition. We measure financial development as the ease individuals have in accessing external funds, after controlling for individual characteristics. Thus, it is a direct measure of the availability of funds.

Second, we use within country variations in the level of financial development to minimize the impact of other institutional differences. In particular, we use differences

[2] As aforementioned, a noticeable exception is Jayaratna and Strahan (1996), which exploit differences across the U.S. states.

across different areas of Italy, since Guiso, Sapienza, and Zingales (2001) (GPZ henceforth) have shown that the use and availability of financial instruments differ remarkably across them.

Third, we focus on the mechanisms through which financial development potentially affects economic activity, both at a micro level, e.g., the probability an individual becomes an entrepreneur, and at a macro level, e.g. the rate of creation of new firms. More importantly, we try to link the two explicitly. If financial development affects economic growth by facilitating the creation of new firms, it must be the case that in more financially developed areas it is easier for an individual to become an entrepreneur and, at the same time, these areas should experience a higher rate of new firms' creation.

We find this to be the case. Ceteris paribus, an individual's odds of becoming an entrepreneur doubles if he moves from the least financially developed region to the most financially developed one. Similarly, the rate of firm's creation in the most financially developed provinces is three percentage point higher than in the least financially developed, and the number of firms divided by population 50% higher. We also find that firms in more financially developed regions rely less on trade credit, more on equity financing, and are more likely to raise funds from outsiders. Finally, in more financially developed regions firms exceed the rate of growth that can be financed internally 75% more than in the least financially developed ones. Interestingly, this effect is entirely concentrated among small firms (less than 250 employees). This is consistent with the view that larger firms can easily raise funds outside of the area they are located in.

---

[3] Two exceptions are Rajan and Zingales (1998), who focus on the role of financial development in facilitating the reallocation of funds, and Wurgler (2001), who look at the role of financial development on

On the one hand, these results seem to confirm and strengthen the body of evidence that financial development matters, even beyond what previous literature has found, for example we identify an effect of financial development on the degree of local competition. On the other hand, they uncover some new evidence on the effects of *local* financial development. With a few exceptions (e.g., Jayaratne and Strahan (1996)) financial development has been studied as a country-wide characteristic. By contrast, this paper documents that even differences of financial development within a country can have important effects on the level of welfare. For example, the entire difference in per capita income between Milan and Rome could be explained by their difference in the level of financial development. Of course, many other factors play a role. Nevertheless, this paper suggests that local financial development is an important variable policy makers should look at if they want to reduce welfare differences across regions.

1. Data Description

Data Used

We use four datasets. The first one, containing information about households, is the Survey of Households Income and Wealth (SHIW). This survey, which is conducted by the Bank of Italy on a representative sample of about 8,000 households, collects detailed information on Italian household income, consumption, and wealth as well as their portfolio allocation across financial instruments and their access to formal and informal credit. For each household, the data also contain information on characteristics of the households' head, such as education, age, place of birth, and residence.

---

the speed at which funds are reallocated.

An interesting characteristic of this dataset is that each household is asked the following two questions: "During the year did you or a member of the household apply for a loan or a mortgage from a bank or other financial intermediary and your application was turned down?" and "During the year did you or a member of the household think of applying for a loan or a mortgage to a bank or other financial intermediary, but then changed your mind on the expectation that the application would have been turned down?". Therefore, this dataset contains information about people who asked for credit and got denied and even people who got discouraged from applying by the prospect of being rejected.

The second dataset, containing information on the number of existing firms, their rate of formation, and the incidence of bankruptcy by province, was collected by us from a yearly edition of "Il Sole 24 Ore", a financial newspaper. These are the newspapers' elaboration of data coming from the Italian Statistical Institute (ISTAT).

The third dataset regards firms and is from *Centrale dei Bilanci* (CB), which provides standardized data on the balance sheets and income statements of about 30,000 Italian non-financial firms. Data, available since 1982, are collected by a consortium of banks interested in pooling information about their clients. A firm is included in the sample if it borrows from at least one of the banks in the consortium. The database is highly representative of the Italian non-financial sector: a recent report (Centrale dei Bilanci (1992)), based on a sample of 12,528 companies drawn from the database (including only the companies continuously present in 1982-90 and with sales in excess of 1 billion Lire in 1990), states that this sample covers 57 percent of the sales

reported in national accounting data. In particular, this dataset contains a lot of small (less than 50 employees) and medium (between 50 and 250) firms.

Also the fourth dataset regards firms, but it is a smaller sample for which we have detailed ownership information (which is not available in the CB dataset). This is from the 1994 Survey of Manufacturing Firms (SMF) conducted by Mediocredito Centrale (an investment bank) on a random sample of over 4,400 small and medium-sized (mostly privately held) manufacturing firms with at least 10 employees. Excluding firms for which balance sheet data is not available results in a reference sample of 3,539 firms whose characteristics, in terms of the distribution of firms by size, location, and sector are very similar to those of the whole sample. The Appendix reports a description of the content and sampling properties of the SMF together with a description of the variables used in the estimates.

Summary Statistics

Table 1a reports summary statistics for the SHIW data in the household sample. "Discouraged or turned down" is an indicator variable equal to one if a household responds positively to at least one of the two questions reported above. 2% of the sample households were discouraged from borrowing (i.e. answered yes to the first question), while 1% of the sample households were turned down (i.e. answered yes to the second question).

The SHIW data also contains information on all the individuals contained in the household sample. Since the SHIW has also information on intergenerational transfers, we use it to estimate the probability of becoming an entrepreneur and relate it to

financial development. Table 1b reports summary statistics for the individuals in the SHIW household sample. Since the sample is stratified by households and not by individuals, when we sample by individuals certain groups are represented. For example, more people live in the South mote in this sample than in the household sample, reflecting the fact that the average family size is larger in the south. The age is smaller than the household sample age, because we deliberately truncated age at 60. About 12% of the individuals in the sample were entrepreneurs and the same percentage had received a transfer from their parents.

Table 1c reports summary statistics for the data at the provincial level. Our measure of financial development exhibits wide variation across provinces, ranging from 0 to 73. The GDP per capita released by the National Institute of Statistics (ISTAT), exhibits wide variations, with values ranging from 11 million liras to 55 million liras (between $6,000 and $27,800 per capita (at an exchange rate of $ 1 = Lit 1,800.) The inefficiency of law enforcement is the average number of years it takes to complete a first-degree trial in the courts located in the province (see GSZ, 2001). This measure is computed using data on the length of trials released by the Ministry of Justice. As Table 1c indicates, there is wide variation in this measure, ranging from 1.4 to 8.3 years, with a mean of 3.8 and a standard deviation of 1.38.

Finally, as instruments of financial development we use the three proxies of social capital that GPZ (2001) find correlated with the use and availability of financial contracts: electoral participation, voluntary blood donation, and Putnam's incidence of cooperatives before 1914. We measure voter turnout for all the referenda occurred in Italy between 1946 and 1989. For voluntary blood donations, we use the number of blood

bags per inhabitant in the province collected in 1995, the only year for which we have complete data at the province level from AVIS, the Italian association of voluntary blood donors. Finally, Putnam's (1993) incidence of cooperatives per capita is a factor score summarizing the regional number of cooperatives, standardized by population, in 1889, 1901, 1910, and 1915. This variable is measured only at the regional level.

Table 1d reports summary statistics for the firm level data. The overall sample used in estimation includes over 326,000 firm-year observations and runs from 1984 to 1996. In each single cross-section the number of firms is about 30,000 and 13% of them are located in the South. Although this sample includes some large businesses, it mainly comprises relatively small firms; average number of employees is 103 and the median is 32. There is however considerable sample variation in size with 98% of the distribution varying between 2 and 970 employees. Over the sample period (1984-1996) average annual nominal sales' growth is 7.4 percent with a large standard deviation of 25%, indicating considerable differences in performance across firm-years. The return on sales is 5.8 percent, somewhat smaller than the return on assets (7.8%), and the distribution across firms is relatively symmetric as the small difference between the mean and the median shows. The assets-to-sales ratio is around 1 on average and half of external finance is debt while the mean collection is 129 days period, with considerable differences across observations.

Table 1e reports summary statistics for the smaller subset of firms for which we have ownership information. This sample refers to a cross section of 4,419 incorporated firms

interviewed in 1995 and reports information as of 1994. For some variables, retrospective information for the past three years (1992, 1993 and 1994) was also asked. The average firm size of this sample is 231 employees, twice as larger then in the previous firms sample and, consistent with this feature, only 9.3% of the firms are located in the South (where average firm size is smaller). Over 15% of the firms are owned by a shareholder with 100% of the shares and on average are 26 years old. Average nominal sales growth over the three years period over which retrospective information is available is 8.9% annual.

2. Our Indicator of Financial Development

Methodology

One of the main roles of the financial system is to transfer funds from agents with a surplus of resources to agents whose investment opportunities exceed their current resources. Hence, if we equate the development of a financial system with its degree of efficiency, a natural way to measure development is by estimating how well it performs this task. In principle, one can measure the ease with which individuals in need of external funds can access them and the premium they have to pay for these funds. In practice, both avenues are quite difficult. We do not normally observe when individuals or firms are shut off from the credit market, but only whether they borrow or not. Similarly, we do not normally have information on the rate at which they borrow, let

alone the rate at which they should have borrowed in absence of any friction. For all these reasons, all the studies of the effects of financial development (e.g., King and Levine (1993), Jayaratne and Strahan (1996), Rajan and Zingales (1998a)) have used alternative measures.

Fortunately, the Italian Survey of Households Income and Wealth does contain information on the individuals who have been involuntarily shut off from the credit market. Furthermore, unlike the U.S. Consumer Expenditure Survey, the SHIW contains precise information on the location of the respondents. Controlling for individual characteristics, it is possible, thus, to obtain a local indicator of how more likely an individual is to obtain credit in one area of the country, rather than in a different one. This indicator measures how easy it is for an individual to borrow at a local level.

Does the Local Market Matter?

One could object that such indicator of financial development is not very useful in so much as it measure a *local* condition of the credit market. If individuals and firms can tap markets other than the local one, local market conditions become irrelevant.

There is a growing literature, however, documenting that distance matters in the provisions of funds, especially for small firms. Petersen and Rajan (2000), for instance, documents the importance of distance in the provision of bank credit to small firms. They also argue that such importance has been decreasing in recent years, thanks to the availability of more information. Since Italy lags behind the United States in this dimension, we expect distance to still be important. Similarly, Lerner (1995) documents the importance of distance in the venture capital market.

That distance is an important barrier to lending is very much consistent also with the practitioners' view. The president of the Italian Association of Bankers (ABI) declared in a conference that the banker's rule of thumb is to never lend to a client located more than three miles from his office.

Overall, this discussion suggests that distance may segment local markets. Whether it does in practice is ultimately an empirical matter. If local market conditions do not matter, then the geographical dummies should not have a statistically significant impact on the probability of being denied a loan, a proposition we will test. Similarly, if markets are not segmented our measure of local financial development should have no impact on any real variable, another proposition we will test.

Finally, the above discussion provides an additional testable implication. If local market conditions matter, they should matter the most for small firms, that have difficulty in raising funds at a distance, than for large firms. Thus, segmenting the effect of our indicator by size classes will help test whether the effect we find is spurious or not.

What Is the Relevant Local Market?

Italy is divided in 20 regions and 103 provinces. What is the relevant local market? According to the Italian Antitrust authority the "relevant market" in banking for antitrust purposes is the province, a geographic entity very similar to a US county. Furthermore, until 1990 banks could not open new branches without a Central Bank's permission. New authorizations were granted province by province, on the basis of an evaluation of the total number of branches already operating in each province. Thus, from an economic point of view the natural unit of analysis is the province.

There are, however, some statistical considerations. Since we need to estimate the probability of rejection, which is a fairly rare event (3% of the sample), we need a sufficiently large number of observations in each local market. If we divide the 39,827 observations by province, we have *on average* only 387 observations per province and less than 200 observations in almost a third of the provinces. Therefore, we will be estimating each indicator on the basis of very few denials (on average 12). This casts doubt on the statistical reliability of the indicator. In fact, when we estimate the indicator at the provincial level 22% of the provincial indicators are not statistically significant. More importantly, when we divide the sample into two and estimate the provincial effect on the probability of being shut off the credit market prior and after 1994, the correlation between the indicators estimated in the first period and that estimated in the second period is only 0.14 and it is not statistically significant. As a result, we focus on the results at the regional level.

Description of our results

For ease of interpretation of our indicator we estimate a linear probability model of the likelihood a household is shut off from the credit market. We classify a household as shut off if it reveals it has been rejected for a loan application or discouraged from applying. As control variables we use several household's characteristics: household income, household wealth (linear and squared), household head's age, his/her education (number of years of schooling), the number of people belonging to the household, the number of kids, and indicator variables for whether the head is married, is a male, for the industry in which he/she works, and for the level of job he/she has. In addition we have calendar year dummies and a dummy for every region.

Table 2 reports the coefficient estimates of these regional dummies in ascending order. In all regions but one the dummy is positive and statistically significant at the 1% level. The magnitude of these coefficients, however, covers a wide range. The region with the lowest conditional rate of rejection (Val d'Aosta) has a rejection rate which is 60% lower than the national average. The region with the highest rate, Lazio, has 2.3 times the national average of rejections. This implies that moving from Lazio to Val d'Aosta a household sees its rate of rejection drop by 73%.

As one can see from Table 2, financially underdeveloped regions tend to be in the South. Nevertheless, the correlation is not very high (0.27). This will allow us to separate the effect of a pure South dummy from the effect of financial underdevelopment. This might be overcontrolling, because the backwardness of the South, we will argue, can at least in part be attributed to its financial underdevelopment. Nevertheless, it is useful to show that the effects we find are not entirely explained by a South dummy.

We will use this conditional probability of being rejected as a measure of financial underdevelopment. For ease of interpretation, however, we transform this variable, so that becomes an indicator of financial development, not underdevelopment. Therefore, we compute

1 – Conditional Probability of Rejection/ Max{Conditional Probability of Rejection}.

This normalized measure of financial development, which we will use in the rest of the paper, is reported in the third column of Table 2.

Reality check of the results

Before we use this indicator, we need to show it is sensible. We do so in three ways. First, we show that it is very stable over time. Second, we show that it is highly correlated with likely determinants of the level of financial development. Finally, we show that it is correlated with commonly used measures of financial developments. Notice that in this last case we do not expect the correlation to be too high. If it were, then our new methodology to estimate financial development would not be adding very much. These last correlations should be seen both as a validation of our measure and as an assessment of the quality of existing measures.

To test the stability over time we divide the sample in two and we re-estimate the same regression over the period 1989-93 and 1995-98. Since in each of the estimation we use only half of the observations, these estimates are significantly more noisy than the ones we use in the rest of the paper. Nevertheless, the correlation between the regional

indicators of financial development obtained in the first period and the second one is very high (0.73), significant at the 0.03% level.

Our indicator is also highly correlated with likely determinants of financial development. It is negatively correlated with court inefficiency (-0.55), significant at the 2% level. It is also positively correlated with all the measures of social capital that, as GPZ (2000) show, affects the local availability and use of financial contracts: 0.46 with electoral turnout (significant at the 5% level), 0.67 with blood donation (significant at the 0.1% level), 0.34 with the incidence of cooperatives (significant only at the 18% level).

Our indicator is also correlated with other traditional indicators of financial development. Its correlation with number of bank branches divided by population is positive (0.49) and statistically significant at the 4% level. Similarly, it is negatively correlated with the spread between lending rates and borrowing rates (-0.55), significant at the 1% level. The only puzzling correlation is the one with the ratio of loans to GDP, which is negative (-0.22), albeit not statistically significant. We think this reflects the shortcomings of the traditional measure, rather than of our new indicators. Nevertheless, to ascertain this fact we make use of two other novel indicators of financial development, which are available for Italy.

The first one is the within firm variability of interest rates on the lines of credit granted by different banks, as computed by Sapienza (2001). Since in Italy firms borrow from multiple banks, the within firm variability of interest rates is a measure of how severe is the difference of information about the same client across different lenders. The more severe the asymmetry of information is, the worse the credit market will function. Thus, we expect this variable, which Sapienza (2001) computes at the provincial level

and we aggregate at the regional level, to be negatively correlated with our indicator of financial development. This is indeed the case. The correlation is –0.55, significant at the 1% level.

Finally, as an alternative measure of financial development we use an indicator of the importance of usury. Usury, which is a direct consequence of financial underdevelopment, is an endemic problem in Italy. A special Parliamentary commission has done an inquiry on the topic and has produced an indicator of how important the phenomenon is in different provinces. This indicator is computed using 17 variables, including the number of police reports, arrests for usury etc. As expected, the importance of usury is negatively correlated with our indicator of financial development (-0.53), statistically significant at the 2% level.

In sum, all the evidence seems to suggest that our indicator of financial development captures significant differences in the efficiency of the financial market at the local level.

Possible Objections

While our indicator of financial development tries to implement the theoretically correct measure and produce economically sensible estimates, it is not immune from potential criticisms. Here we try to confront the major ones.

By construction our financial development indicator picks up all geographical characteristics that are correlated with the probability a household is denied a loan or is discouraged from applying. For example, GPZ (2000) show that Italian provinces differ greatly in their level of judicial efficiency and social capital. Thus, our measure of

financial development also captures these local characteristics as they affect the supply of credit.

Yet, we do not regard this as a problem. In this paper we are not concerned about the causes of financial development (or lack of there of), but about its effects. If, for instance, the inefficiency of courts affect the availability of credit, we do want to measure this effect as well and the estimated coefficient of the regional dummy does precisely that: summarize all the local variable to the extent they affect the credit market. Of course, when we estimate the effects of financial development we might want to control for some of these variables as well, because we do not want to attribute to financial development some *direct* effects that the inefficiency of courts might have on our variable of interest. For example, it is well possible that courts inefficiency might have a direct negative effect on creation of firms, beyond its indirect effect via the credit market.

A regional dummy might also capture any geographical clustering of individual characteristics that makes somebody a good or a bad borrower. Let's assume, for instance, that households in Catania are on average more dishonest than those in Padua. Then, for given individual characteristics a banker will be less willing to lend to a household in Catania than in Padua. Do we want to interpret this difference as a difference in financial development?

Our answer is positive, as long as this discrimination is based on individual characteristics that are unobservable both to the econometrician and to the banker, and are presumed on the basis of geographical attribute. Under this assumption, an individual with the same characteristics (including unobservable honesty) will receive more credit in

Padua than in Catania. Thus, ceteris paribus access to credit in Catania is worse and, thus, according to our definition Catania's level of financial development is lower.

On the other hand, the answer would be negative if the discrimination is based on individual characteristics that are unobservable to the econometrician but observed by the banker. Consider, for instance, the case that Catania's inhabitants are on average less spunky than Padua's and such a difference is visible to the banker. In such a case we would record that Catania's inhabitants receive less credit simply because they are on average less spunky and we, as econometricians, are unable to record the difference. In fact, two individuals with the same characteristics (including spunk) will receive the same amount of credit in Padua than in Catania. In such a case, we would not like to use the fact that for given observable characteristics more households get denied credit in Catania as evidence that Catania's financial market is less developed, especially because this approach might incorrectly attribute to financial development some effects it does not have. For example, less spunky individuals are less likely to become entrepreneur, regardless of their access to credit. By using our geographical indicator of financial development, the effect of spunk on entrepreneurship might appear as an effect of "financial development" on entrepreneurship.

To avoid this problem we will instrument our measure of financial development with its determinants, such as the level of social capital. Since our measures of social capital (electoral turnout, level of blood donation, and historical level of cooperatives) capture the willingness to cooperate for a common good, rather than the level of spunk or other local characteristics, we think they represent good instruments.

2. Effects of financial development on firms' creations

In this section we explore what are the effects of local financial development on the creation of firms. We start from a very micro level: how does the degree of financial development affect the probability an individual starts his own business? We then complement this evidence with more aggregate data on the rate of firms' creation in a province. Finally, we look at whether differences in the ease of entry have also impact on the degree of competition. Since in all these regressions our main variable of interest (financial development) varies only at the regional level, we correct the standard errors for the possible dependence of the residuals within regional clusters.

Effects on the probability of starting a business

The SHIW contains information about people's occupation. In particular, it identifies individuals who are self-employed. This is a broad category that includes bona fide entrepreneurs, both in the industrial and the retail sectors, professionals (doctors and lawyers), artisans, plumbers, electricians, etc. While the financing needs of these different occupations differ wildly, it is safe to say that all of them require access to financing more than working as an employee. For this reason we analyze how local financial market conditions affect the probability an individual becomes self employed. We exclude from the population "at risk" students and pre-school children, retirees (people older than 60), people unable to work because invalid, and military.

As control variables we use a combination of both individuals' characteristics and regional characteristics. As individual characteristics we use a person's age, his level of education, his sex, and a dummy equal to one if he received any transfer from his

parents.[4] Since self-employed people tend to be richer, we do not insert household's wealth as explanatory variable: it could be a consequence rather than a cause.[5]

As regional characteristics we insert the level of court inefficiency as a measure of the bureaucratic obstacles to start a firm, and the level of per capita GDP, as a measure of economic development of the area. Since higher level of per capita income is also associated with higher level of per capita capital, this latter variable can also be interpreted in the context of Lucas' (1978) model of occupational choice and size of firms. Higher level of per capita capital boosts the productivity of employees, making it relatively more attractive for an individual to be employed. Thus, we expect the sign of per capital GDP to be negative.

Table 3 reports the results. Column I reports the probit estimates of the impact of these variables on the probability an individual is self employed. In more financially developed regions the probability a person becomes self employed is indeed higher, and this effect is statistically different from zero at the 1% level. The effect is also economically significant. Moving from Lazio (the most financially underdeveloped region according to our indicator) to Val d'Aosta (the most financially developed) increases a person's probability to start his own business by 6 percentage points, equal to 50% of the sample mean.

The individual characteristics have mostly the expected effect. Older people are more likely to start their own business and so are male. Not surprisingly, receiving a transfer also significantly raises the probability of starting a business. More surprising is

[4] This information is available only in the 1991 and 1993 survey. This reduces the number of observations to 13,787.

[5] Nevertheless, as a robustness check in an unreported regression we did control for household wealth and the results were similar.

the negative and statistically significant impact of education. This result, however, is coherent with what Jovanovic and Evans (1989) find for the United States. The other regional variables are not statistically significant, suggesting there is not a clear regional pattern in the probability of starting one's own business.

Column II re-estimates the same specification inserting a dummy equal to one for regions located in the South of Italy. While this is overcontrolling (part of what is different about the South is the lower level of financial development), it is important to ascertain the effect we found is not simply a North-South difference. And column II shows it is not. Individuals located in the South are significantly less likely to start their own business (a 3% drop in the probability, equal to 25% of the sample mean). This effect only minimally impacts the size of the coefficient of financial development, while it increases somewhat the standard error (the level of significance drops to 6%).

Column III reports the instrumental variable estimates of the same specification, where financial development is instrumented by our three measures of social capital: electoral participation, blood donation, and incidence of cooperatives. For ease of comparison, column IV reports the corresponding OLS estimates. The effect of financial development is still positive and statistically significant and, if anything, the use of instruments tends to increase the magnitude of the coefficient. Thus, the effect of our indicator of financial development does not seem to be spurious.

Effects on the entry on new firms

If financial development increase the likelihood an individual start a business, it should also increase the aggregate rate of firms' formation and, overall, the number of existing firms. Table 4 tests these predictions.

Table 4A analyzes the rate of formation of new firms. The dependent variable is the fraction of the new firms registered in a province during a year over the total number of registered firms. It is an average for the period 1992-98. The explanatory variables are: our indicator of financial development in the region, the level of court inefficiency in the province, and the per capita GDP in the province. As column 1 shows, financial development favors the formation of new firms and this effect is statistically significant at the 5% level. Moving from the most financially underdeveloped region to the most financially developed increases the rate of firm' creation by 2.4 percentage points, equal to one standard deviation increase in this rate.

Interestingly, unlike the result of the micro regression the effect of per capita GDP is negative and highly statistically significant, as predicted by Lucas's (1978) model. Court inefficiency has a negative effect on firm creation, but this is not statistically different from zero.

Inserting the South dummy (column II) does not alter the results. The dummy itself has a positive, but insignificant coefficient. On the other hand, the negative impact of court inefficiency is now statistically significant at the 5% level.

Finally, in column III we instrument our indicator of financial development with the three proxies for social capital. The magnitude of the coefficient of financial development tripies and remains highly statistically significant. Once again this finding

should reassure us that the effect of our indicator of financial development is not spurious.

Table 4B analyzes the number of firms present in a province per 100 people living in the same area. Our dependent variable is an average of this indicator for the period 1996-98. As column I shows, less financially developed areas have fewer firms, albeit this effect is not statistically significant at conventional levels. The difference in financial development can explain a difference of 2.3 firms per 100 people, equal to one and a half time the standard deviation in numbers of registered firms.

Column II inserts a dummy for the Southern regions. This dummy has a negative and statistically significant impact on the level of firms. Once we account for Southern regions, the impact of financial development becomes statistically significant. The result is confirmed if we instrument financial development with our measures of social capital (column III).

Effects on the competition in the local market

Thus far, we have shown that in financially developed regions people can more easily start a business and this leads to a higher rate of entry of new firms and also a higher number of firms overall. Does this have any major economic consequence? The obvious place to look at is profit margins. Does this higher rate of entry lead to lower profit margins?

To answer this question we use our third dataset, containing firms' balance sheets information. Since we have information only where a firm is located and not where it sells its product, we need to assume that there is some degree of correlation between its

location and the market it operates in. This assumption is fairly realistic given we are mostly talking about small firms.

We measure the mark up as earnings before interest, taxes, depreciation and amortization divided by output . We regress this measure on our indicator of financial development and a series of control variables. To control for industry specific characteristics we insert eighteen industry dummies. Then, we control for firm size, calendar year dummies, per capita GDP, and level of court inefficiency. The results are contained in Table 5.

As column I shows, firms in more financially developed regions have a smaller mark up. According to this estimates, firms in the most financially developed region have a mark up 1.9 percentage points lower than in the least financially developed region, i.,e., 33% below the sample mean. Thus the effect is both statistically and economically significant. This effect is robust to inserting a dummy for Southern regions, and to instrumenting financial development with our proxies for social capital.

In sum, the degree of local financial development seems to have an important effect on entry and ultimately on the degree of competition of the local market.

3. Effects of financial development on firms' characteristics

In the previous section we have seen that the degree of financial development has effects on firms' entry. Now, we want to explore whether it has also effect on the characteristics of firms that did enter.

Size

We start by exploring the impact of financial development on size. The theoretical argument here is ambiguous. While a more developed financial market facilitates firms' growth, it also facilitates new entry of small firms. Whether at any moment in time, the first effect dominates the second it is an empirical question we explore in Table 6.

We measure size as the logarithm of sales. We regress it on our indicator of financial development, eighteen industry dummies, calendar year dummies, per capita GDP, and level of court inefficiency, and firms' profitability. This latter variable is obviously endogenous. Removing it, however, does not change our results.

Beside profitability, the only variable which seems to affect size in a consistent way is court inefficiency. Areas where courts are more inefficient have smaller firms. This effect is consistent with what Kumar, Rajan and Zingales (2000) find in a cross section of countries. Financial development, however, does not seem to have a clear effect (the coefficient is negative, but indistinguishable from zero).

Trade Credit

Another dimension of a firms' business where financial development may have an impact is the extension of trade credit. Since the manufacturing firms that are in our sample on average extend credit to their clients, it is interesting to test whether they are more likely to do so in less financially developed areas. Theoretically, the argument hinges on the question of whether the degree of rationing of clients of the firms in our sample worsens more than the degree of rationing of the firms themselves. This is probably the case, since firms get in our sample when they have a credit relationship, thus are relatively more established than their clients, which are mostly in the retail sector.

Table 7 explores this dimension. The dependent variable is the average collection period, defined as the average level of account receivables, divided by sales, multiplied by 365. We regress it on our indicator of financial development, eighteen industry dummies, calendar year dummies, per capita GDP, the level of court inefficiency, firm's profitability, and firm's size.

As column I shows, the average collection period is shorter in more financially developed areas, and this effect is statistically significant at the 1% level. The difference between the most and the least developed area is of 40 days, equal to 31% the sample average. This effect is robust to the insertion of a dummy for Southern regions (column II), which by itself has a strong positive effect on the average collection period, and to the instrumenting of our measure of financial development (column III).

The results on trade credit suggest an additional reason why starting a business might be more difficult in financially underdeveloped regions. Not only is access to credit more difficult in these regions, but new firms have to finance more assets per unit of sales, making self financing more difficult. To verify this is indeed the case, we also regress the ratio of assets to sales on the same set of variables.

As Table 8 shows, firms in more financially developed areas operate with a lower ratio of assets over sales. This is true even when we control for the South dummy (column II) and when we instrument our indicator of financial development (column III).

Profitability

In section 2 we documented that in less financially developed regions mark-ups (i.e. profits per unit of output) are larger. Why firms do not try to arbitrage them away? Even if local markets were segmented by transportation costs and alike, it must be the

case that at the margin an entrepreneur with one unit of capital must be indifferent between starting a business in a financially developed area (where he can more easily obtain additional financing, but mark ups are lower) and in a financially underdeveloped one. The results in Table 8 suggests a possible explanation. In less financially developed areas, firms should operate with a higher ratio of assets to sales. Thus, while profits to sales are higher, profits to assets might not be.

Table 9 explores this aspect. The dependent variable is return on assets, measured as earnings before interest, taxes, depreciation and amortization divided by total assets. The set of explanatory variables is the same we used in the previous regressions.

Financial development does not seem to have any impact on return on assets (column I)). This is true even when we control for Southern regions (column II) and when we instrument financial development (column III). This result suggests a fairly consistent picture. In financially underdeveloped regions competition is less intense and financing needs are greater. The two facts compensate each other so to leave indifferent an entrepreneur to invest in one region versus another.

Leverage

Thus far we have only looked at the asset side of a firm's balance sheets. The degree of financial development can obviously have effects also on the liability side. These effects, however, are not so clear-cut. On the one hand, better access to credit should make possible to firms to borrow more. On the other hand, better access to credit is probably associated also with better access to equity capital. Thus, it is not obvious what the overall impact on leverage should be.

Table 10 explores this issue. The dependent variable is book value of leverage, defined as debt over debt plus equity. The set of explanatory variables is the same we used in the previous regressions.

Financial development seems to have some negative effect on leverage. In the most financially developed region leverage is 6 percentage points lower than in the least financially developed one. This effect is robust to the insertion of a dummy for Southern regions (column II), but not to the use of instrumental variables. When we instrument financial development the size of the coefficient drops to a third and loses all statistical significance. Thus, we have to conclude that the effect of financial development on leverage is ambiguous.

Ownership structure

One of the reasons for this ambiguity, we claim, is the easier access to external equity financing in more financially developed regions. In a small subset of firms we can test this prediction by looking at the ownership structure. If it is easier to raise external equity in financially developed regions, then in these regions entrepreneurs should be less likely to retain 100% of the equity.

We test this prediction in Table 11. The dependent variable is an indicator variable equal to 1 if a firm is 100% owned by one shareholder (zero otherwise). The set of explanatory variables includes our basic set of environmental variables, plus some firm' characteristics such as size, age of the firm (both level and squared), and its recent rate of growth.

As column I shows, financial development decreases the probability a firm is 100% owned, i.e., increases the probability it raises some outside equity. The difference between the most and the least financially developed region is 13 percentage points, equal to 85% of the sample mean. This effect is robust to the insertion of a dummy for Southern regions (column II), and to the use of instrumental variables (column III).

In sum, this section shows that the degree of financial development of a region not only affects whether a firm is started, but also how it is started. In particular, we find it increases the need to extend trade credit and it facilitates the raising of external equity.

4. The effects of financial development on firms' growth

Finally, in this section we explore whether the local level of financial development affects firms' rate of growth. Existing firms can, at least in part, finance growth via internally generated cash. Thus, we expect financial development to have an impact only on the growth in excess of the one that could be internally financed. Thus, following Demirguc-Kunt and Maksimovic (1998), we compute the maximum rate of internally financed growth and then use it as a control variable in the regression. This rate is obtained following the "percentage of sales" approach to financial planning (Higgins, 1977). Under reasonable assumptions, the maximum rate of growth internally financed is:

$$\text{Max } g = \text{ROA} / (1 - \text{ROA})$$

where ROA is the return on assets.[5]

[5] The assumptions are: i) the ratio of assets used in production to sales is constant; ii) the firm's profit rate for unit of sales is constant; iii) the economic deprecation of assets equals that reported in the financial statements; iv) all the profits are reinvested.

The dependent variable is the annual nominal rate of growth in sales. Besides the maximum rate of growth that could be internally financed, our explanatory variables include: firm's size, a dummy for the industry a firm belongs to, the level of court inefficiency, the GDP per capita in the province and, of course, our regional indicator of financial development. A full set of calendar year dummies account for any aggregate shock to nominal sales growth, including inflation.

As column I shows, local financial development has a positive and statistically significant effect on firm's growth. Ceteris paribus, a firm located in the most financially developed region grows 6 percentage points faster than a firm located in the least financially developed region, i.e. 75% faster than the average firm. Thus, the effect is very sizeable also from an economic point of view. This effect is robust to the insertion of a dummy for Southern regions (column II) and to the use of instrumental variable estimation (column III).

Not all existing firms should be affected by local financial development. Larger firms can more easily tap markets far from their main headquarters. Therefore, we expect the effect of local financial development to be mostly concentrated among small firms. To test this proposition we divide the sample in three. The first group is composed of small firms, with less than 67 employees. We chose this cut off because it represents the 75^{th} percentile of firm's distribution. The second group is composed of what in Italy we would call medium firms, with a number of employees between 67 and 275 (the 95^{th} percentile of the distribution). Finally, the last group is formed by large firms, those with more than 275 employees.

The estimates of the basic specification in the three subsamples are reported in Table 13. Not surprisingly, small firms, which represent 75% of the sample, behave as the sample as a whole (column I). More interestingly, also medium firms exhibit the same pattern, in fact the magnitude of the coefficient of financial development (column II) is virtually identical to the one estimated for small firms. Large firms, however, are quite different. The coefficient of financial development is less than half what it is for the rest of the firms and is also less statistically significant

This result is interesting for two reasons. First, that the effect of financial development varies as theory predicts strengthen the confidence that our results are not spurious. Second, it suggests that the effects of *local* financial development are limited to small firms. This is important from a political economy point of view (see Rajan and Zingales, 2001). Large and established firms do not get any benefit from local financial development, in fact they are hurt, because it increases the competition at the local level. Thus, they are not very likely to push for it. The real beneficiaries are small firms and would be entrepreneurs, a group who is hardly very influential at the political level.

5. Conclusions

On the one hand, our results can be seen to confirm and strengthen the body of evidence that financial development matters, even beyond what previous literature has found. For example we identify an effect of financial development on the degree of competition. On the other hand, they uncover some new evidence. Not only does financial development matter at the country level, but also at the *local* level. Even

differences of financial development within a country can have important effects on the level of welfare.

While we do not think that financial development is the only source of regional difference, it is an important one, which has received very little attention in the development literature. To assess the potential important of this factor we regress the level of per capita GDP in a province on the local level of financial development, instrumented with our measures of social capital. Not only local financial development has a positive and statistically significant effect, its magnitude is also economically very relevant. The entire difference in per capita income between Milan and Rome – about 50% - could be explained by the difference in their local levels of financial development. Of course, many other factors play a role. Nevertheless, this paper suggests that local financial development is an important variable policy makers should worry about if they want to reduce welfare differences across regions.

REFERENCES

Allen, F. and D. Gale (2000), *Comparing Financial Systems,* M.I.T. Press, Cambridge MA.

Bencivenga, Valerie and Bruce Smith, 1991, ``Financial Intermediation and endogenous growth", Review of Economic Studies, 58(2), pp 195-209.

Centrale dei Bilanci, 1992, " ",

Demirguc-Kunt, A. and V. Maksimovic, 1998, "Law, Finance, and Firm Growth", Journal of Finance, 53, 2107-2138.

Goldsmith, R., 1969, *Financial Structure and Development*, Yale University Press, New Haven.

Higgins, 1977, " How much growth can a firm afford?", Financial Management, 6: 3-16.

Jayaratne, Jith and Philip E. Strahan, 1996, ``The Finance-Growth Nexus: Evidence from Bank Branch Deregulation," Quarterly Journal of Economics, CXI, 639-671.

Jovanovic & Evans, 1989, "An Estimated Model of Entrepreneurial Choice under Liquidity Constraints", Journal of Political Economy; 97(4): 808-27.,

Levine, R. And S. Zervos, 1998, "Stock Markets, Banks, and Economic Growth", *American Economic Review,* vol 88, no 3, 537-558.

Lucas, Robert J. 1978, "On the Size Distribution of Business Firms", Bell Journal of Economics; 9(2): 508-2 .

Rajan, R. and L. Zingales, 1998a, "Financial Dependence and Growth". *The American Economic Review,* (1998), 88: 559-586.

Rajan, R. and L. Zingales, 1998b, "Which Capitalism? Lessons From the East Asia Crisis," *Journal of Applied Corporate Finance.*

Rajan, R. and L. Zingales, 2001, "The Great Reversals: The Politics of Financial Development in the 20th Century" NBER WP.

Sapienza, Paola, 2001, What do State-owned banks Maximize? Evidence from the Italian Banks, mimeo, Northwestern University.

Table 1. Summary statistics for the samples used in estimation

The first panel reports summary statistics for the SHIW household sample; the second panel for the sample of individuals in the household sample of SHIW used to estimate the probability of becoming an entrepreneur. The third panel reports summary statistics for the controls and instrumental variables used at provincial level; the fourth panel for the firms balance sheet database and the fifth for the Survey of Manufacturing Firms.

A: Households sample

	Mean	Median	Standard deviation	1th / 99th percentiles
Credit rationed	.028	0	0.165	0/1
Age	53	53	15	25/86
Male	.774	1	0.418	0/1
Years of education	8.20	8	4.67	0/18
Net disposable income (million lire)	40.796	33.44	31.965	5.152/150.773
Resident in the South	.36	0	0.48	0/1
Number of observations	39,827	39,827	39,827	39,827

B: Individuals in the Household sample

	Mean [Median] (SD)	Median	Standard deviation	1th / 99th percentiles
Entrepreneurs	0.12	0	0.323	0/1
Age	39	39	11.90	16/59
Male	0.49	0	0.50	0/1
Years of education	9.41	8	4.21	0/18
Dummy if they have received transfers from their parents	0.12	0	0.328	0/1
Resident in the South	0.42	0	0.493	0/1
Number of observations	13,787	13,787	13,787	13,787

C: Provincial variables

	Mean [Median] (SD)	Median	Standard deviation	Min / Max
Financial development	0.315	0.322	0.157	0 / 0.730
GDP per capita (million lire)	24.4	23.5	9.6	11.4 / 54.8
Judicial inefficiency	3.78	3.51	1.38	1.44 / 8.32
Social capital (referenda turnout)	80.12	82.87	8.15	62.1 / 91.53
Blood donation	28.12	28.12	21.73	0/ 105.21
Number of coops	0.218	0.473	1.019	-1.11 / 2.34
Firms creation in 1995 (%)	12.43	10.12	8.070	5.63 / 59.35
Number of firms per 100 inhabitants in 1995	7.863	7.84	1.603	13.37 / 4.91
Usury diffusion index	938.16	747	448.26	2,010 / 173

D: Firm level data: Firms Balance Sheet Database

	Mean [Median] (SD)	Median	Standard deviation	1th / 99th percentiles
Number of employees	103.33	32	1,167	2 / 970
Average sales growth (nominal)	0.074	0.073	0.250	0.706 / -0.685
Assets/sales	1.086	0.768	1.430	0.164 / 15.40
Profits/sales (mark-up)	0.058	0.055	0.095	- 0.296 / 0.335
Return on assets	0.078	0.075	0.091	- 0.186 / 0.349
Debt/(equity+debt)	0.506	0.548	0.297	0 / 0.985
Average collection period	129.41	97.58	171.52	3.54 / 923.58
Located in the south	0.134	0	0.340	1 / 0
N. Observations	326,590	326,590	326,590	326,590

E: Firm level data: Survey of Manufacturing Firms (SIM)

	Mean [Median] (SD)	Median	Standard deviation	1th / 99th percentiles
100% owned by 1 shareholder	0.153	0	0.360	0 / 1
Number of employees	230.87	63	1,329.12	11 / 2,850
Average growth	0.089	0.075	0.227	-0.356 / 0.583
Firm's age	26.34	19	23.18	2 / 94
Located in the south	0.093	0	0.290	0 / 1
Number of firms	4,419	4,419	4,419	4,419

Table 2. The indicator of financial development

The table illustrates our indicator of financial development. The coefficient on the regional dummies is obtained from a OLS regression run on the household sample where the left end side variable is a dummy equal to 1 if the consumer is credit constrained (zero otherwise). Besides including a full set of regional dummies, the regression, includes a number of demographic characteristics to controls for individual effects that affect access to the credit market (age, gender, type of job, income, family size, number of income recipients in the household). The letter on the right on the name of the region defines whether a region is located in the North (N), in the Center (C) or in the South (S) of the country. The normalized measure is defined as 1 – Regional effect / Max{Regional effect } and is thus equal to zero in the region with the maximum value of the coefficient on the regional dummy – i.e. the region less financially developed, and varies between zero and 1.

Region		Coefficient on regional dummy	Normalized measure of financial development
Valle d'Aosta	(N)	0.0173	0.7302
Basilicata	(S)	0.0322	0.4978
Marche	(C)	0.0362	0.4348
Emilia Romagna	(N)	0.0376	0.4135
Piedmont	(N)	0.0392	0.3877
Abruzzi	(S)	0.0416	0.3499
Lombardy	(N)	0.0426	0.3397
Friuli Venezia Giulia	(N)	0.0426	0.3393
Umbria	(C)	0.0424	0.3378
Trentino Alto Adige	(N)	0.0440	0.3129
Veneto	(N)	0.0455	0.2891
Sicily	(S)	0.0460	0.2823
Sardinia	(S)	0.0468	0.2693
Apulia	(S)	0.0491	0.2331
Molise	(S)	0.0497	0.2247
Campania	(S)	0.0502	0.2170
Tuscany	(C)	0.0520	0.1884
Calabria	(C)	0.0638	0.0047
Lazio	(C)	0.0641	0

Table 3. Entrepreneurship and financial development

The left hand-side variable is a dummy equal to 1 if the individual is a self-employed. This includes entrepreneurs, both in the industrial and retail sectors, professionals (doctors and lawyers), and artisans. Probit regressions report marginal values. All regressions include the person age, years of education, a dummy variable if the individual is male, and a dummy equal to one if he received any transfer from his parents. All regressions also include per capita GDP, and the level of court inefficiency (measured as the number of years it takes to have a first degree judgment). Standard errors are adjusted for clustering at the regional level.

	Probit	Probit	IV estimate	Linear regression
Financial development	0.0821	0.0733	0.1608	.0820
	(0.030)	(0.0391)	(0.084)	(0.037)
South		-.0273	-0.0165	-.0249
		(0.010)	(0.0122)	(0.010)
Per capita GDP/1000	.3378	-.1706	.0477	-.1741
	(.336)	(0.319)	(0.303)	(0.316)
Judicial inefficiency	0.0029	.0072	0.0110	.0079
	(0.003)	(.003)	(0.005)	(0.003)
Intergenerational transfers	.0790	.0786	0.0870	.0871
	(.012)	(.012)	(0.014)	(0.013)
Male	.0911	0.0913	0.0919	.0932
	(.010)	(0.0107)	(0.011)	(0.010)
Years of education	-0.0074	-.0075	-.0079	-.0075
	(0.001)	(.001)	(0.001)	(0.001)
Age	0.0015	.0014	.0016	.0015
	(0.0003)	(.0003)	(0.0003)	(0.0003)
N. Obs.	13,787	13,787	12,403	13,787

Table 4. Firms creation and local financial development

In Panel A the dependent variable is the fraction of the new firms registered in a province during a year over the total number of registered firms. It is an average for the period 1992-98. In Panel B the dependent variable is the number of firms present in a province per 100 people living in the same area. It is an average for the period 1996-98. Standard errors, reported in brackets, are adjusted for regional clustering.

A: Entry of new firms

	OLS	OLS	IV
Financial development	3.245	3.203	9.498
	(1.255)	(1.280)	(3.198)
South		.7226	0.6871
		(0.530)	(0.838)
Per capita GDP/1000	-.110	-0.096	-0.103
	(0.02)	(0.030)	(0.038)
Judicial inefficiency	-.1860	-0.3048	-.1293
	(0.140)	(0.113)	(0.209)
N. Obs.	100	100	100

B: Number of firms per capita in the region

	OLS	OLS	IV
Financial development	3.114	3.207	5.092
	(1.932)	(1.353)	(2.317)
South	-	-1.578	-1.650
		(0.283)	(0.265)
Per capita GDP/1000	0.02	-.0110	-0.014
	(.03)	(0.020)	(0.020)
Judicial inefficiency	-0.2683	-0.0088	0.0408
	(0.134)	(0.120)	(0.113)
N. Obs.	100	100	100

Table 5. Firms market power and financial development

The left hand-side variable is a measure of the market power of the firm. Following Domowitz, Hubbard and Petersen [1986] we compute the firm's profit margin on unit price as (value added - labour costs)/(total income + change in stocks); for a price-setting firm with constant returns to scale, the lower the elasticity of demand the higher the margin and thus its market power. All regressions include a full set of time and industry dummies; firm size is measured with the number of employees. Standard errors, reported in brackets, are adjusted for regional clustering.

	OLS	OLS	IV
Financial development	-.0256	-0.0262	-.0256
	(0.0067)	(0.010)	(0.012)
South	-	0.0089	0.0078
		(0.002)	(0.002)
Per capita GDP/1000	-3.78e-06	7.23e-05 (4.51e-05)	4.14e-05
	(4.32e-05)		(4.02e-05)
Judicial inefficiency	.0011	-0.0004	-0.0005
	(0.0006)	(0.0005)	(0.0005)
Log(size)	-.0019 .00027	-.0019	-.0019
		(0.0003)	(0.0003)
N. Obs.	331,325	331,325	331,325

Table 6. The effect of financial development on firms' size

The left hand-side variable is the logarithm of sales. All regressions include time and industry dummies; profit is return on assets. Standard errors, reported in brackets, are adjusted for regional clustering.

	OLS	OLS	IV
Financial development	-0.102	-0.107	-0.847
	(0.643)	(0.642)	(0.513)
Per capita GDP/1000	1.94e-05	2.29e-05	1.31e-03
	(2.00e-05)	(1.94e-05)	(3.26e-03)
Judicial inefficiency	-0.072	-0.079	-0.134
	(0.025)	(0.030)	(0.044)
South		0.038	0.068
		(0.137)	(0.125)
Return on assets	0.410	0.412	0.443
	(0.041)	(0.035)	(0.054)
N. Obs.	394,638	394,638	394,638
Adj R-square	0.1140	0.1140	0.1095

Table 7. The effect of financial development on trade credit

The left hand-side variable is the average collection period, defined as the average level of account receivables (sum of beginning of period and end of period stock divided by 2) scaled by sales and multiplied by 365. All regressions include a full set of time and industry dummies; firm size is measured with the number of employees. Standard errors, reported in brackets, are adjusted for regional clustering.

	OLS	OLS	IV
Financial development	-54.925	-57.185	-91.018
	(18.181)	(26.053)	(36.453)
South		20.851	19.887
		(4.723)	(5.635)
Per capita GDP/1000	0.117	0.303	0.279
	(0.002)	(0.002)	(0.190)
Judicial inefficiency	1.7904	-1.877	-3.484
	(2.196)	(1.623)	(2.265)
Log(size)	-11.426	-11.472	-11.394
	(0.859)	(0.861)	(0.897)
Return on assets	-111.842	-110.640	-109.740
	(6.840)	(6.886)	(7.429)
N. Obs.	388,188	388,188	388,188

Table 8. Financial development and the assets to sales ratio

The left hand-side variable is assets over sales. All regressions include time and industry dummies; profit is return on assets; firm size is measured with the number of employees. Standard errors, reported in brackets, are adjusted for regional clustering.

	OLS	OLS	IV
Financial development	-0.313	-0.333	-0.464
	(0.089)	(0.169)	(0.199)
Per capita GDP/1000	-3.08e-05	-1.18e-05	-1.55e-05
	(1.01e-05)	(7.70e-06)	(6.26e-06)
Judicial inefficiency	0.043	0.005	-0.003
	(0.015)	(0.0098)	(0.010)
South		0.217	0.205
		(0.041)	(0.042)
Size	0.023	0.023	0.023
	(0.004)	(0.004)	(0.004)
Return on assets	-1.911	-1.887	-1.911
	(0.196)	(0.187)	(0.220)
N. Obs.	362,452	362,452	314,792
Adj. R-square	0.071	0.077	0.078

Table 9. Financial development and the rate of return on assets

The left hand-side variable is ratio of earnings before interest, taxes, depreciation and amortization to total assets. All regressions include a full set of time and industry dummies; firm size is measured with the number of employees. Standard errors, reported in brackets, are adjusted for regional clustering.

	OLS	OLS	IV
Financial development	0.0047	0.0056	0.0212
	(0.007)	(0.010)	(0.0213)
South		-.0102	
		(0.003)	
Per capita GDP/1000	2.32e-04	1.43e-04	2.32e-04
	(7.57e-05)	(4.76e-05)	(7.57e-05)
Judicial inefficiency	-.0021	-.0003	.0003
	(0.001)	(0.001)	(0.001)
Log(size)	-.0048	-.0048	-.0045
	(0.0004)	(0.0004)	(0.0005)
Constant			
N. Obs.	354,549	354,549	354,549

Table 10. Financial development and firms' leverage

The left hand-side variable is book value of leverage, defined as debt over debt plus equity. All regressions include a full set of time and industry dummies; firm size is measured with the number of employees. Standard errors, reported in brackets, are adjusted for regional clustering.

	OLS	OLS	IV
Financial development	-0.078	-0.075	-0.025
	(0.034)	(0.038)	(0.050)
Per capita GDP/1000	-7.79e-06	-9.76e-06	-9.56e-06
	(2.47e-06)	(1.82e-06)	(2.04e-06)
Judicial inefficiency	-0.0008	+0.003	+0.004
	(0.004)	(0.003)	(0.004)
South		-0.022	-0.020
		(0.014)	(0.013)
Size	-0.008	-0.008	-0.008
	(0.002)	(0.002)	(0.002)
Return on assets	-0.918	-0.919	-0.905
	(0.072)	(0.072)	(0.080)
N. Obs.	389,829	389,829	339,097
Adj. R-square	0.2682	0.2682	0.1312

Table 11. The effect of financial development on firms ownership concentration

The left hand-side variable is a dummy variable equal to 1 if firm is 100% owned by one shareholder. Probit coefficients are marginal effects (CHECK). All regressions include industry dummies, size dummies, firms age (linear and square), dummies for whether the firm belongs to a group and is incorporated and a measure of leverage, profitability and average sales growth. Standard errors, reported in brackets, are adjusted for regional clustering.

	Probit	Probit	IV
Financial development	-0.1791	-.1739	-.2726
	(0.0744)	(0.072)	(0.127)
South		0.0258	0.0273
		(0.021)	(0.025)
Per capita GDP/1000	9.14e-03	2.93e-04 6.50e-04	6.28e-04
	(6.52e-02)		(7.17e-04)
Judicial inefficiency	0.0087	.0051	.0060
	(0.007)	(0.006)	(0.008)
Small firms (0,1)	-.0650	-0.0651	-.0594
	(0.014)	(0.014)	(0.017)
Age	-0.0004	-0.0004	-.0009
	(0.001)	(0.001)	(0.001)
Age^2	-1.07e-06	-1.08e-06	2.62e-06
	(1.0 e-05)	(1.03 e-05)	(1.05 e-05)
N. Obs.	3,246	3,246	3,246

Table 12. **The effect of financial development on firms' growth**

The left hand-side variable is the annual rate of growth in sales. All regressions include industry dummies, time dummies, the maximum rate of growth that could be internally financed, firm size (measured with the number of employees), the level of court inefficiency, the GDP per capita. Standard errors, reported in brackets, are adjusted for regional clustering.

	OLS	OLS	IV
Financial development	0.081	0.084	0.118
	(0.019)	(0.029)	(0.036)
Internally financed growth	0.098	0.093	0.088
	(0.009)	(0.009)	(0.009)
Per capita GDP/1000	1.24e-06	-1.85e-06	-1.63e-06
	(2.36e-06)	1.40e-06	(1.15e-06)
Judicial inefficiency	-0.003	0.003	0.005
	(0.002)	(0.001)	(0.001)
Size	0.015	0.015	0.015
	(0.002)	(0.002)	(0.002)
South		-0.035	-0.035
		(0.005)	(0.005)
N. Obs.	279980	279980	243803
Adj R-square	0.060	0.232	0.062

Table 13. Firm size and the effects of financial development on firm's growth

The left hand-side variable is ratio of the growth of firms sales The left hand-side variable is the annual rate of growth in sales. All regressions include industry dummies, time dummies, the maximum rate of growth that could be internally financed, firm size (measured with the number of employees), the level of court inefficiency, the GDP per capita. All regressions are the IV estimates. Standard errors, reported in brackets, are adjusted for regional clustering.

	Small firms	Medium firms	Large firms
Financial development	0.0888	0.0971	0.0381
	(0.034)	(0.011)	(0.0176)
Internally financed growth	0.0850	0.0782	0.0976
	(0.009)	(0.010)	(0.023)
South	-0.0230	-0.0339	-0.0369
	(0.006)	(0.005)	(0.007)
Per capita GDP/1000	-2.85e-06	-4.32e-04	-4.03e-04
	(1.72e-04)	(1.24e-04)	(1.64e-04)
Judicial inefficiency	0.0033	0.0062	0.0046
	(0.0015)	(0.002)	(0.003)
Log(size)	0.0302	0.0004	0.0016
	(0.002)	(0.003)	(0.002)
N. Obs.	187,454	51,032	13,615