# Local banking development and the use of debt financing by start-ups

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## ABSTRACT

We investigate the effects of local banking development on the use of debt financing by start-ups for a large sample of Italian start-ups, controlling for endogeneity. We find that start-ups use more debt financing if they are located in a province with more bank branches relative to population. The effects of bank branch density are not different for national banks versus local cooperative banks. However, the presence of more foreign banks in a province reduces the use of debt financing by start-ups. Taken together, our study provides new and nuanced evidence on the role of local banking development for the financing of start-ups.

JEL-classifications: G21, G32, L26, M13

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## 1. Introduction

Bank debt represents a critical source of external financing for start-ups (e.g., Bates, 1997; Cassar, 2004; Hanssens et al., 2015; Robb and Robinson, 2014). At the same time, attracting bank debt remains a major challenge for many start-ups due to informational asymmetries between these start-ups and prospective investors, which create adverse selection and moral hazard problems (Berger and Udell, 1998; Chua et al., 2011).

A major stream of research in entrepreneurial finance focuses on the relationships between banks and entrepreneurial firms and the factors that reduce adverse selection and moral hazard problems, such as contract design, collateral requirements, trust and "soft" information (e.g., Binks and Ennew, 1997; Carter et al., 2007; Chua et al., 2011; Howorth and Moro, 2006; Petersen and Rajan, 1994; Zhang, 2015). A largely separate stream of research studies capital structure decisions and the use of bank debt in start-ups (e.g., Cassar, 2004; Huyghebaert and Van de Gucht, 2007; Robb and Robinson, 2014). Moreover, scholars have focused on how an entrepreneur's wealth (Kim et al., 2006), within-country or local differences in banking development (Guiso et al., 2004a) and the aggregate amount of lending at the country level influence the formation of start-ups (Cole et al., 2014). Despite this rich literature, however, we know surprisingly little about the impact of local banking development, and bank heterogeneity, on the financing of start-ups.

First, existing studies focus on the financing of start-ups founded in countries which are typically described as either being more or less financially developed (e.g., Cassar, 2004; Huyghebaert and Van de Gucht, 2007). Implicitly these studies assume that within-country differences do not matter (much). Other studies acknowledge within-country effects (e.g., Chua et al., 2011), but do not examine what drives significant within-country effects. We argue that local banking development may be one particularly important within-country factor that influences the

financing of start-ups, because start-ups generally have few other options for external funding besides bank debt (Berger and Udell, 2002).

Second, from a largely separate literature we know that local banking development matters for the financing of small and medium-sized enterprises (SMEs). For instance, local banking development reduces financial constraints for SMEs (Alessandrini et al., 2009) and increases the use of debt financing by SMEs (La Rocca et al., 2010). Nevertheless, while start-ups are almost always SMEs, the vast majority of SMEs are not start-ups (Robinson, 2012). Moreover, Chua et al. (2011, p. 473) indicate that "what works for large or small firms may not work for new ventures". Thus, we cannot simply generalize findings from SMEs to start-ups and we need separate empirical evidence on how local banking development matters for start-ups.

Third, banks are often portrayed as relatively homogenous in the entrepreneurship literature. Zhang (2015, p. 392), for instance, provides a typical description: "formal-sector lenders rely heavily on the design of contracts and stringent collateral requirements… They often require borrowers to provide well-developed business plans…". However, scholars have also suggested that lending decisions of larger national banks and foreign banks are based on "hard" information, while smaller local banks make use of more soft information collected directly or indirectly through personal relationships and continuous contact with local firms (e.g., Berger et al., 2005; Howorth and Moro, 2006). While finance scholars have examined how heterogeneity in the banking industry (Petersen and Rajan, 1995; Bonaccorsi di Patti and Gobbi, 2001) and the geographical distance between banks and lenders (Degryse and Ongena, 2005) affect access to credit for SMEs, we again we lack insights for the financing of start-ups.

Drawing on finance theory, we take a step forward in addressing the above issues by asking the following research question: *How does banking development at the local level affect access to bank debt for start-ups, taking into account the presence of different types of banks?* For the

purpose of our study, we use a unique large-scale dataset covering financial data on 153,659 Italian start-ups founded between 2007 and 2010. Italy provides an ideal setting for multiple reasons. First, all Italian firms, including start-ups, are required to report detailed financial accounts and detailed governmental statistics are available on local financial development and other local characteristics which might affect the financing of start-ups. Second, Italy is characterized by differences in local financial development.[1] Despite Italy being unified for the last 150 years, banking development across provinces remains markedly different.[2] The wealth of Italian data on local banking development allows us to construct exogenous determinants of the degree of banking development as instruments in 2SLS regressions, thereby ascertaining the causal effect of local banking development on the use of debt financing by start-ups. Finally, the focus on local banking development in a single country allows us to exploit within-country variation in financial development, thereby implicitly controlling for differences in national institutions, such as creditor rights.

Our findings indicate that start-ups are more likely to use debt financing and have higher leverage ratios in provinces where there are more bank branches. These effects hold for both short-term and long-term bank debt. We do not find any significant difference between the positive effects of national banks, large and small local banks. However, we do find that the presence of more foreign banks in a province reduces access to bank debt for start-ups. This finding is

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[1] Italy is far from unique in this respect. Other countries with large local differences in financial development include, for example, China (Zhang, 2005), Spain (Palacín-Sánchez et al., 2013) and the US (Berger et al., 2015).

[2] We focus on local financial development at the level of the province for several reasons. First, conditions at the provincial level represent the geographical area that entrepreneurs take into account when making start-up decisions and the operations of new and small firms are initially largely bounded to the provincial level, explaining a strong link between provincial level variables and subsequent start-up growth (Guiso et al., 2004a). Second, it provides theoretical and empirical consistency with previous research focusing on local banking development in Italy (Benfratello et al., 2008; Guiso et al., 2004a). Finally, provinces are the most detailed geographical partition for which a rich set of statistics exists (Bonaccorsi di Patti and Gobbi, 2001).

consistent with the "cream skimming" hypothesis, which predicts that foreign banks lend to large profitable local firms, thereby making it more difficult for domestic banks, having lost these customers to the foreign banks, to lend to informationally opaque firms such as start-ups.

Our primary contribution is to the entrepreneurial finance literature, where we provide new evidence on the effects of local banking development for the financing of start-ups.[3] Specifically, our study contributes to a better understanding of the role and importance of debt financing for start-ups. There is generally so much focus on equity finance in the entrepreneurship literature that the importance of banks and debt finance for start-ups seems to be forgotten or at least received less attention than warranted (e.g., Cumming and Vismara, 2016). Theoretically, our study also connects to a dearth of research that challenges the common assumption that more resource munificent environments naturally benefit start-ups (e.g., Amezcua et al., 2013). We demonstrate that structural heterogeneity (distinct types of banks) in the local banking environment conditions the effects of local banking development on the financing of start-ups. Practically, our research has important implications for policy-makers, who frequently try to influence the design of the financial landscape to foster the financing of start-ups—the engines of future economic growth.

## 2. Theory and hypotheses

Finance research sets forth a number of opposing theoretical arguments for how local banking development, and bank heterogeneity at the local level, influence the financing of start-ups. In this

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[3] In a recent paper, Berger et al. (2015) investigate the effect of the presence of small banks in local US markets on the amount of credit taken by start-ups founded in 2004 using the Kauffman Firm Survey data. While they consider the proportion of small banks in the market, we investigate the effect of overall banking development and distinguish between national banks, local banks and foreign banks. Furthermore, our paper focuses on a much larger sample comprising *only* start-ups founded at different points in time. Berger et al (2015), however, study start-ups founded in 2004 and examine how these firms are financed as they mature. Thus, we employ a fundamentally different sample and address a different set of questions.

section, we first develop hypotheses on local banking development without taking into account bank heterogeneity. Next, we develop hypotheses on the effects of local versus national domestic banks and foreign banks, respectively.

*2.1. Local banking development*

Banks can overcome information problems in the provision of credit through relationship lending, which allows them to acquire soft information through contacts with firms, entrepreneurs and the community to which they belong (Berger and Udell, 2002; Chua et al., 2011; Howorth and Moro, 2006; Petersen and Rajan, 1994). The local presence of a loan officer, who has personal contacts with entrepreneurs and other individuals or businesses in the local community, facilitates the acquisition of soft information (e.g., Howorth and Moro, 2006). A close proximity between the bank's representative and small firms will also reduce transportation costs, which have been found to significantly affect access to bank financing (Degryse and Ongena, 2005). Furthermore, if more banks have branches in a local region, increased competition between the banks might increase the supply of loans, also for start-ups (Black and Strahan, 2002). Thus, it can be expected that more bank branches in a province increase the provision of bank credit to start-ups founded in that province. On the basis of the foregoing arguments, we set forth the following hypothesis:

**Hypothesis 1**. Higher overall bank branch density at the provincial level increases the use of debt financing by start-ups founded in that province.

This is a non-trivial hypothesis, since a stronger competition between banks at the local level could also have a negative effect on the availability of bank credit for informationally opaque firms such as start-ups. Petersen and Rajan (1994, 1995) point out that when a firm is young, the

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potential for future cash flows may be high while current cash flows are low. A monopolistic lender may be willing to subsidize such firms with cheap loans because the lender can extract rents later when the firms' cash flows become high. Credit market competition imposes constraints on the extent to which the lender can intertemporally share surpluses. Zarutskie (2006), for example, finds that newly formed firms in the U.S. used significantly less external debt and were smaller after the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 made banking markets more competitive. This suggests that increased credit market competition reduced access to finance for start-ups in the US. Nevertheless, based on earlier findings that local financial development in Italy favors the entry and growth of new firms (e.g., Guiso et al. 2004a), we expect that the positive effects of increased local banking development on the use of debt financing will dominate the negative effects of increased local banking development in our context.

## 2.2. Local banks versus national banks

The effect of local banking development may depend on the type of banks that are active in a province. Many banking systems are characterized by small local banks that operate in restricted territorial areas and large banks that operate nationwide (e.g., Alessandrini et al., 2009; Berger et al., 2001).

The presence of local banks may facilitate access to bank financing for start-ups in the neighborhood. Small local banks are better suited for relationship banking than large banks. A bank's borrowers contract with the bank's loan officer, who is controlled by the bank's senior management, which in turn operates in the interests of the bank's shareholders. Each of these three layers creates information problems, which are likely to be much smaller in privately held local banks than in national banks (Berger and Udell, 2002). A local bank operating in the local community, whose employees belong to the local community, and which may be owned and/or

managed by local community members will have a more direct and in-depth knowledge of local firms and entrepreneurs. The local bank takes part in the life of the local community, thereby acquiring information that is not available to banks that operate at a distance (e.g., Angelini et al. 1998).

The lending decisions of national banks, however, will typically be based on hard information (i.e., the evaluation of financial statements, the provision of collateral, and credit scoring), which is independent of the quality of the relationship between the banker and the firm (e.g., Howorth and Moro 2006). Even if national banks have local branches to supplement hard data on borrowers with relevant soft information collected locally, local banks are expected to have an informational advantage over national banks in the provision of loans to local firms due to the proximity of local banks' headquarters (Bolton et al. 2013). Bank headquarters are less able to interpret the information from distant branch loan managers than information from closer ones. Consistent with these arguments, which suggest that more local banks in a province facilitates loans to start-ups, it has been found that local banks in Italy reduce the financing constraints of privately held firms (Alessandrini et al., 2009), large banks in Argentina lend less to informationally opaque firms (Berger et al., 2001), and the presence of small banks in local US markets increases the amount of credit taken by start-ups (Berger et al., 2015). On the basis of the foregoing theoretical arguments, we set forth the following hypothesis:

**Hypothesis 2a**. The positive effect of bank branch density on the use of debt financing by start-ups is more pronounced for branches of local banks than for branches of national banks.

While local banks may be better at relationship banking than national banks, national banks could be more cost efficient than local banks, which are typically much smaller and less diversified.

This greater cost efficiency may decrease the cost of loans, including loans to informationally opaque borrowers such as start-ups. This is confirmed by the finding that a smaller share of small banks stimulates the formation of new incorporations in local US markets (Black and Strahan, 2002) and informationally opaque US firms do not depend more on local banks than on large banks (Berger et al., 2014). Modern lending technologies may have made it easier for large banks to provide lending to these firms, thereby eroding the advantage of local banks. These arguments lead to the following competing hypothesis,

**Hypothesis 2b**. The positive effect of bank branch density on the use of debt financing by start-ups is more pronounced for branches of national banks than for branches of local banks.

*2.3. Foreign banks versus domestic banks*

With increasing globalization, there are often foreign banks that operate in a local banking market. Worldwide, foreign banks have become much more important in domestic financial intermediation (Claessens and Van Horen, 2014). As domestic banks operating nationwide, foreign banks could provide loans at a lower cost than local banks, due to better economies of scale and risk diversification (e.g., Detragiache et al., 2008). If foreign banks operate on a larger scale than national banks, their cost advantage is likely to be even bigger. Furthermore, the competition from foreign banks may force local banks to reduce costs in order to maintain their market share (Claessens et al., 2001). The cost advantages in the provision of loans that foreign banks bring may also benefit start-ups. The results of Bruno and Hauswald (2014) and Giannetti and Ongena (2012), which are based on international samples, suggest that lending by foreign banks increases the overall availability of credit for domestic firms, even for firms which do not borrow from a foreign

bank. Giannetti and Ongena (2009) also find that young firms in countries with a higher share of foreign lending receive more loans, have lower financial expenses and grow faster. Thus,

**Hypothesis 3a**. The positive effect of bank branch density on the use of debt financing by start-ups is more pronounced for branches of foreign banks than for branches of domestic banks.

However, the presence of foreign banks could also reduce access to bank credit for start-ups. Lending to informationally opaque start-ups is difficult to carry out when the bank's management is located in another country, with different institutions, a different culture, and/or a different language. Even when foreign banks enter the local market by purchasing a domestic bank, local market knowledge and relationships with local customers may be lost as distant managers impose formal accountability to monitor local loan officers (e.g., Sapienza, 2002; Degryse et al., 2011). As a result, foreign banks may focus on offering collateralized loans to large transparent firms, while start-ups have to rely on domestic banks. Foreign bank entry may "cream skim" whereby they lend only to the most profitable local firms, and soft information borrowers are no longer pooled with hard information borrowers (Detragiache et al., 2008). The domestic banks lose less risky borrowers to the foreign banks while they retain riskier borrowers, which increases the riskiness of their portfolios (Dell'Ariccia and Marquez, 2004; Sengupta, 2007). Foreign banks may actually force domestic banks out of the market, thereby reducing access to finance for informationally opaque firms such as start-ups.

Consistent with these arguments, studies have found that foreign banks in developing countries such as India and Pakistan tend to have relationships with larger, older and more transparent firms (Berger et al., 2008; Pennathur and Vishwasrao, 2014) and do not provide credit to soft-information firms that require relational contracting (Mian, 2006). Furthermore, the

presence of foreign banks increases the riskiness of the portfolio of domestic banks (Detragiache et al., 2008), it decreases the profitability of domestic banks (Claessens et al., 2001), and it reduces credit access for local small firms (Gormley, 2010). Furthermore, multinational bank subsidiaries slowed down credit growth almost three times as fast as domestic banks in the 2008-2009 crisis (De Haas and Van Lelyveld, 2014). These arguments lead to the following competing hypothesis,

**Hypothesis 3b**. The positive effect of bank branch density on the use of debt financing by start-ups is more pronounced for branches of domestic banks than for branches of foreign banks.

## 3. The Italian context

Italy is characterized by a bank-based financial system, similar to other continental European countries, such as France and Spain. Bank debt is by far the most important source of outside funds for Italian firms. Stock and bond markets play a very limited role and the importance of venture capital is negligible, particularly for start-ups.[4]

Up until 1990, the Italian banking system was heavily regulated and banks were often state-owned. This was a consequence of regulations that were introduced in 1936 and put severe restrictions on competition, including a total control by the state of entry and exit in the banking industry and severe limitations on the opening of new bank branches. Radical reforms which started in 1990 modified the above scenario (Giannola, 2009). A new legislative framework, a selling-off of state-held banking shares and large consolidation waves led on the one hand to a reduction in the number of banks, from 1,061 in 1990 to 760 in 2010, and on the other hand to a rapid growth in the

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[4] Note that while public stock and bond markets and venture capital markets are often more developed in market-based financial systems, such as the U.S. or the U.K., these markets are simply not accessible for the average start-up (e.g., Robb and Robinson, 2014).

number of bank branches, which jumped from 16,600 in 1990 to 33,600 in 2010 (Source: Bank of Italy). Benfratello et al. (2008) show that while branch density strongly increased overall, there are large differences between provinces.

The most important Italian banks are limited companies which operate nationwide, and some of them operate even at the international level. These banks have a combined market share of customer deposits of 80% in 2010. Cooperative banks which are owned by cooperative members—usually their customers—also constitute an important segment of the Italian banking system, with a 16% market share of Italian customer deposits. There are two types of cooperative banks: *Banche di Credito Cooperative* (BCCs) and the larger *Banche Popolari*. While BCCs today are still cooperative banks, Banche Popolari have evolved into entities in between national commercial banks and mutual banks. Foreign banks held 4% of customer deposits in 2010 and have gained market share in lending to households—a field in which these new entrants are less vulnerable to information asymmetry than in lending to businesses (Infante and Rossi, 2013). They also provide advanced financial services (project financing, securitization, private equity, M&A activities, etc.) to public administrations and large corporations, especially firms that want to go abroad. Compared to many other OECD countries, the role of foreign banks in Italy is quite small but not negligible. Claessens and Van Horen (2014) report that foreign banks held 6% of all banking assets in Italy, compared to 11% for the OECD, 15% for the UK and 20% for the US.

## 4. Data and sample

Our dataset is derived from several sources. Data on local banking development are from the Bank of Italy. Data on other local characteristics in the 103 Italian provinces are from the Italian National Institute of Statistics (ISTAT). Firm-specific data come from the Amadeus database of Bureau van Dijk, one of Europe's leading electronic publishers of business information. This database contains

high-quality financial statement data of privately held and publicly traded European firms, including more than 1 million Italian firms. The balance sheet and income statement data of Italian firms in Amadeus come from the account that each Italian firm is required to deliver at the Italian Chamber of Commerce.

Firms had to fulfill the following criteria to be part of our sample of Italian start-ups. First, firms had to be legally founded in either 2007, 2008, 2009 or 2010.[5] Second, firms had to employ no more than 50 people in their initial year of operation. We use this selection criterion because it is extremely unlikely that firms starting with more than 50 employees in their initial year of operation are *de novo* start-ups.[6] Third, firms could not belong to a group structure. Specifically, firms could not be controlled by a shareholder with an equity stake of 50% or more (except for equity stakes held by families, employees and directors) and could not have equity stakes in other firms in their initial year of operation. We focus on firms that are independent at start-up, because firms which belong to a group structure may do much of their lending and borrowing within their group. Moreover, firms with participations in other firms in their initial year of operation are again unlikely to be *de novo* start-ups. Fourth, firms could be active in a broad range of sectors but we excluded firms in the financial, educational and social sectors. The financing of firms in these sectors is influenced by regulatory and other issues. Finally, we eliminate firms that have missing data for any of our main variables or observations, as well as a few firms with unrealistic values for variables of interest. By doing so, we eliminated less than 0.5% of the firms in the sample.

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[5] We start in 2007 because up to 2006, firms were only included in Amadeus if they had a turnover of more than €100,000. Since 2007 all Italian firms are included without considering this threshold. Consequently, the coverage of Italian firms in the database increased from about 536,000 firms in 2006 to 854,000 in 2007.

[6] This restriction typically excludes only a handful of firms. However, as expected, these firms generally have an operational history or they operate in particular industries (e.g., utilities) that are typically excluded from capital structure studies.

The final sample contains 153,324 Italian independent, non-financial, start-ups between 2007 and 2010. Note that each firm appears only once in the sample, in the year it was founded because we are interested in how local financial development influences the initial financial structure of start-ups.

**5. Method and variables**

*5.1 Method*

We investigate the effect of local financial development on the use of debt financing by start-ups by estimating the following model:

$$Debt_i = \beta_0 + \beta_1 \text{ Local banking development}_p + \beta_2 \text{ Other local characteristics}_p + \beta_3 \text{ Firm characteristics}_i + \beta_4 \text{ Industry FE} + \beta_5 \text{ Year FE}$$

Where debt$_i$ measures the use of debt by individual start-ups, and local banking development$_p$ measures banking development in the province in which the start-up is located. We include a number of other variables to take into account that other local characteristics, firm characteristics, industry and year effects might also affect debt financing by start-ups.[7] All variable definitions are described in Table 1.

*** Table 1 about here ***

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[7] Since each firm appears only once in the sample, we cannot include firm fixed effects.

A potential econometric problem is that any observed relation between local banking development and the use of debt by start-ups may reflect omitted variables that affect both local banking development and debt financing. To ascertain the causal effect of local banking development on debt financing by start-ups, we use exogenous determinants of the degree of banking development as instruments in 2SLS regressions. In line with Guiso et al. (2004a), we use measures of the local supply of credit in 1936 as determinants of local banking development in the 2000s. While local banking structures in 1936 were largely determined by factors unrelated to local economic development, the new banking law of 1936 severely constrained the growth of the banking system. Since this law affected some types of banks more than others and the type of banks in the system differed across regions, the law created significant local differences in banking development that may persist to the present day. Consistent with this argument, Guiso et al. (2004a) find that local banking development in 1936 is strongly correlated with local banking development in the 1990s, but it is only weakly correlated with contemporary local economic development.[8] As instruments, we use four measures of banking development in 1936 that significantly affect local banking development in 2007–2010: the number of bank branches and banks in the province, the total number of banche popolari in the province, and the number of bank branches over the population in the region in which a firm is located.[9]

*5.2 Dependent variables: Debt*

To determine the effects of local banking development on credit availability for start-ups, we consider the use of debt (*Debt > 0*) and the proportion of debt to total assets (*Debt/TA*). For each

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[8] Data on provincial banking development in 1936 were kindly provided by Luigi Guiso.

[9] The 20 regions of Italy are the first-level administrative divisions of the state. Since data on provincial populations in 1936 are unavailable, this measure cannot be calculated at the provincial level. Similarly, measures based on GDP cannot be obtained because local GDP data in 1936 are not available.

measure we also distinguish between debt with a maturity of more than one year (*LT-Debt*) and debt with a maturity less than one year (*ST-Debt*).[10]


*5.3 Independent variables: Local banking development*

We measure banking development in provinces by branch density. *Overall Bank Branch Density* is the number of bank branches per thousand inhabitants in the province. This variable has been widely used as a measure of local banking development (e.g. Bonaccorsi di Patti and Gobbi, 2001; Degryse and Ongena, 2005; Benfratello et al., 2008; Alessandrini et al., 2009).

To take into account that different bank types might have a different impact on the availability of bank finance for start-ups, we consider local cooperative banks, commercial banks operating at the national level, and foreign banks. With respect to local cooperative banks, we further distinguish between the *Banche di Credito Cooperative* and *Banche Popolari,* which are de facto hybrids between commercial and cooperative banks. *BCC density* is the number of Banche di Credito Cooperative branches per thousand inhabitants in the province, while *Banche Popolari density* is the number of Banche Popolari bank branches per thousand inhabitants in the province. *National bank density* and *foreign bank density* refers to the density of national bank branches and foreign bank branches in the province, respectively.

In particular analyses, we also take into account the extent of bank market concentration in provinces by calculating the Herfindahl-Hirschman index (*HHI*) for each province. The HHI is the sum of squared market shares of banks operating in the province, based on the number of bank branches in 2009. As we explain below, this will allow us to unravel the "distance" versus "competition" explanation related to local banking development.

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[10] In unreported analyses we also consider the amounts (natural logarithm) of debt taken by start-ups. The results fully confirm those reported in the paper.

*5.4 Control variables: Other local characteristics*

We further include a number of proxies for local characteristics that might be correlated with local

financial development as control variables. First, industrial districts are an important feature of the

industrial structure in Italy (e.g. Di Giacinto et al. 2013). Becattini (1992) defines industrial districts

as social-territorial entities characterized by the active presence of both a community of people and

a population of SMEs in a single naturally and historically bounded area. Industrial districts

typically have numerous small firms that specialize in a very limited number of phases in the

production process of one industry and related industries. Repeated transactions between the same

firms and individuals create interdependence and trust and reduce asymmetric information. Russo

and Rossi (2001) argue, it is easier for banks to gather information on potential borrowers in these

closed communities. This reduces problems of adverse selection, and the community itself

discourages moral hazard behaviour of its members. As a result, it might be easier for start-ups to

obtain bank loans. On the other hand, the close relations between firms in industrial districts also

facilitates the provision of trade credit (Deloof and La Rocca, 2015), i.e. an alternative source of

funding for start-ups, which could reduce the need for bank loans. We measure *Industrial district*

*density* by the number of manufacturing workers in industrial districts divided by the total number

of manufacturing workers at the province level, with industrial districts defined by ISTAT. The

ISTAT definition of an industrial district is the outcome of a multi-step algorithm and is based on

1991 census data and taken from De Arcangelis and Ferri (2005).

Local financial development is related to local social capital (Guiso et al. 2004b) and local

crime (Bonaccorsi di Patti 2009). Financial contracts require trust (e.g., Howorth and Moro, 2006),

which is enhanced by social capital and is negatively affected by crime. An observed positive

relation between banking development and the use of bank debt by start-ups may therefore be

affected by the degree of social capital and/or crime in a province. In line with Guiso et al. (2004b), we measure *social capital* by the average voter turnout at the province level for referenda in 2003, 2005, 2006, and 2009. Our crime rate measure concerns *fraud crimes* based on the average number of fraud crimes reported by police to the judicial authority per 100,000 inhabitants at the province level over the period 2007-2010. We include *local GDP growth*, which is the year-by-year percentage growth rate in provincial GDP, as a measure of local economic conditions. Access to bank finance for start-ups might also be affected by the number of start-ups in a province: more start-ups might make it more difficult for start-ups to get access to scarce bank finance. We therefore include *start-up / population* which is the number of start-ups per 100 inhabitants in the province.

Since prior studies on financial development in Italy have found significant differences between North, Central, and South Italy (Angelini et al., 1998; Alessandrini et al., 2009), we also include north and south dummies in all regressions to ensure that any effect of local banking development is not driven by the north–central–south divide. Following Guiso et al. (2004a), we set the dummy *North* equal to one for all observations in provinces north of Firenze and the dummy *South* equal to one for all observations in provinces south of Rome and zero otherwise.

*5.5 Control variables: firm characteristics*

Additionally, we include the four major firm characteristics affecting capital structure, as highlighted by prior research (Brav, 2009; Sogorb-Mira, 2005). These four variables are profitability, size, tangibility and growth, which are measured in the founding year. *Profitability* is earnings before interest and taxes to total assets. Our size measure is *ln(total assets)*—the natural logarithm of total assets. *Tangibility* is tangible assets over total assets. To measure *growth opportunities*, since the market-to-book ratio and sales growth are not available for start-ups in the

founding year, our proxy for growth opportunities is the ratio of intangible asset to total assets (Sogorb-Mira, 2005). Additionally, all regressions include three-digits SIC industry dummies.

## 6. Descriptive statistics and correlations

Table 2 reports descriptive statistics. The average debt ratio of Italian start-ups is quite low at 10.7%; 34.8% of the start-ups in our sample use debt financing. About two thirds of debt financing is short-term financing. Italian start-ups seem to make less use of debt financing than start-ups in the US (Robb and Robinson, 2014; Zarutskie, 2006), Australia (Cassar, 2004) and Belgium (Hanssens et al., 2015; Huyghebaert and Van de Gucht, 2007), especially with respect to LT debt.

*** Table 2 about here ***

Table 2 also shows substantial variation in local banking development variables. The average number of overall bank branches per 1,000 inhabitants is 0.567 and ranges between 0.212 (in the province of Crotone) and 1.060 in the year 2010 (in the province of Trento). Most branches are from national banks, and BCC density is higher than Banche Popolari density. In the period considered in this study, there were BCC branches in 100 of the 103 provinces, while Banche Popolari had branches in 86 of the 103 provinces. There were foreign bank branches in 40% of the provinces, with a maximum of 140 foreign bank branches in the province of Milan.

The propensity to start a business also varies considerably between provinces, with a minimum start-up / population in 2007 of 0.191 in Oristano and a maximum start-up / population in 2007 of 0.900 in Rome. Consistent with prior research (e.g. Guiso et al., 2004a), we also find substantial variation with respect to the other province characteristics. The mean profitability is negative at -0.016, implying that the average start-up in our sample makes a loss.

Figure 1 shows the debt financing for the four founding years included in our sample. The financial crisis led to a substantial reduction in the use of debt financing by start-ups in 2008 and 2009. This reduction was more pronounced for short-term debt than for long-term debt. In 2010 the use of debt increased again.

*** Figure 1 about here ***

Table 3 reports the Pearson correlations coefficients between debt measures, local banking development measures, and other local characteristics. The branch density measures are generally positively correlated with the use of debt by start-ups, except for foreign bank density which is *negatively* correlated with the use of debt. This is a first indication that the presence of foreign banks reduces access to debt for start-ups. Not surprisingly, bank market concentration as measured by HHI is negatively related to branch density, especially for Banche Popolari and foreign banks. This correlation suggests that the presence of Banche Popolari and foreign banks increases competition in the local bank market. Table 3 also shows that bank branch density is (much) higher in provinces with a higher industrial district density and in provinces where social capital is higher and the number of fraud crimes is lower. The correlation with social capital is especially strong for national banks (r=0.66) while the correlation with fraud crimes is very strong for BCCs (r=-0.32). Finally, it is interesting to note that the number of start-ups over population is strongly negatively correlated with bank market concentration (r=-0.35). In general, VIFs (unreported) show that multicollinearity problems are negligible.

*** Table 3 about here ***

**7. Regression results**

*7.1 The overall effect of local banking development*

We first estimate the impact of overall branch density on the debt financing of start-ups. As discussed in section 5, all regressions are 2SLS[11], and in each regression we control for local characteristics, firm characteristics, industry and year fixed effects. Since there are many firms in our sample without debt, we not only estimate regressions for the full sample but also for the subsample of start-ups with debt. In Table 4 we find a significant positive impact of bank branch density in the province on the use of debt by start-ups, which supports hypothesis 1. The effect on overall debt is significant at the 1% level for Debt>0 and Debt/TA. When a firm is founded in a province with a higher bank branch density, the firm is more likely to use debt financing and the amount of debt used is higher. This suggests that a higher density of bank branches in a province facilitates access to bank debt for start-ups, confirming hypothesis 1. The effect seems to be more pronounced for ST debt than for LT debt. While firms with LT debt take significantly more LT debt in provinces with a higher bank branch density, bank branch density is not significantly related to the likelihood of having LT debt.


*** Table 4 about here ***


With respect to other local characteristics, the effect of the relative number of start-ups in the province on debt stands out: the Start-Up / Population coefficient is always negative and significant at the 1% level, suggesting that more start-ups in a province reduce the availability of debt for individual start-ups. It is also interesting that industrial district density is positively related

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[11] Results are very similar if we use OLS instead of 2SLS.

to the likelihood of start-ups having bank debt, which is consistent with the argument that industrial districts facilitate access to bank debt (Russo and Rossi, 2001). The results in Table 4 suggest that this is the case even for start-ups. The results for firm characteristics are generally in line with a priori expectations. More profitable start-ups use less debt, while larger start-ups, start-ups with more tangible assets which can be used as collateral and start-ups with more growth opportunities use more debt.

A higher branch density might reflect a closer proximity of start-ups to bank branches (Degryse and Ongena, 2005). However, it could also be a proxy for the degree of competition in the local bank market. Not surprisingly, Table 3 showed a negative correlation between bank branch density and bank market concentration as measured by HHI, implying that a bank market with more branches is less concentrated. To measure the effect of bank market concentration on the use of debt by start-ups, we include HHI in the regressions in Table 5. Results for the control variables are not reported to save space but are completely in line with those reported in Table 4.

*** Table 5 about here ***

In panel A, we first include HHI without Overall Branch Density. All regressions show a negative impact of HHI on the use of debt, indicating that a more concentrated local bank market reduces access to debt for start-ups. However, in most regressions the effect is statistically insignificant. In panel B, we add Overall Branch Density. The effect of Overall Branch Density is still significantly positive in all regressions.[12] This finding suggests that the effect of branch density

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[12] This is also the case when we add HHI squared to take into account the possibility of a non-linear effect of bank competition.

on the use of debt by start-ups reflects the proximity of branches, rather than bank market competition.

Our sample period includes 2008 and 2009, when the Italian economy was hit by the global financial crisis, which led to a substantial decline in Italian gross domestic product and a significant reduction in the supply of credit by financial institutions (Panetta and Signoretti, 2010). If the crisis reduced the supply of credit by banks in 2008 and 2009, the benefit of having many bank branches in the neighbourhood might have become smaller. Table 6, which report results for the four years in our sample separately, shows that the positive effect of the overall branch density on the use of debt by Italian start-ups indeed decreased in 2008 and 2009. However, it generally remained significant, except for LT debt. Overall, it seems that even at the height of the financial crisis which hit Italy hard, local banking development mattered for the financing of start-ups. It is also interesting to note that the number of start-ups founded does not decrease much in the crisis years: 38,304 in 2007, 38,270 in 2008, 37,733 in 2009, and 39,017 in 2010. This finding is in line with Kim et al. (2006), who indicate that liquidity constraints do not matter much for the creation of entrepreneurial firms.


*** Table 6 about here ***


*7.2 The effect of different bank types*

In this subsection, we investigate whether there are any differences between different bank types. In Panel A of Table 7, we first consider the separate effect of the four different bank types—BCCs, Banche Popolari, national banks and foreign banks—by including density measures for each bank type. The effects are generally weaker than those found for Overall Branch Density in tables 4 and 5, indicating that the overall branch density matters more for the financing of start-ups than the

presence of specific bank types. Most branch density coefficients are still positive but not statistically significant anymore. One exception is BCC density, which is significantly related to (ST) Debt/TA. Another, important, exception is Foreign Bank Density which tends to have a significant *negative* impact on the use of debt by start-ups. This finding is consistent with the argument that the presence of foreign banks in the local banking market makes it harder for start-ups to obtain bank debt.

*** Table 7 about here ***

In Panel B of Table 7, we investigate whether the effects of local bank branches (BCCs and Banche Popolari) and foreign bank branches are significantly different from that of national banks that own the majority of bank branches. The regressions in this panel include Overall Branch Density, BCC Density, Banche Popolari Density and Foreign Bank Branch Density. In these regressions, the BCC Density, Banche Popolari Density and Foreign Bank Branch Density coefficients pick up any differential effect of these banks compared to the overall bank branch density effect. The results in Panel B suggest that BCCs and Banche Popolari do not make a difference, which is inconsistent with both hypothesis 2a and hypothesis 2b. This indicates that any positive effect of having branches of local banks in the neighbourhood which are supposedly better in assessing the quality of local start-ups than national banks, is cancelled out by the fact that they are smaller and less diversified than national banks, which makes it riskier for local banks to provide loans to start-ups. On the other hand, we find again that the effect of foreign bank branch density on the use of debt by start-ups is *negative* and statistically significant. This is consistent with hypothesis 3b and confirms the "cream-skimming" hypothesis.

*7.3 Additional analyses*

To test the robustness of our results, we performed several additional analyses. First, we investigate the potential effect of differences between North, Central, and South Italy. Panel A of Table 8 compares characteristics of provinces in North, Central and South Italy. Provinces in the south tend to have a lower industrial district density, a lower bank branch density and fewer start-ups, and start-ups in the south tend to have less debt. We do not find a significant difference between North, Central and South with respect to fraud crimes. So far, in all regressions we have taken into account the potential effect of differences between North, Central and South Italy by including two dummies *North* and *South* in all regressions. To further ascertain that our results are not driven by differences between North and South, we estimate separate regressions for start-ups in the three parts of Italy. The results are reported in panel B of Table 8. We find a significant positive effect of local banking development on debt financing in all three parts of Italy, although the effect is weaker in South Italy. In the South, branch density significantly increases the likelihood of having debt, but it seem to have little effect on the relative amount of debt taken by start-ups.


*** Table 8 about here ***


Next, we take into account the possibility that the effect of local banking development on access to bank financing for start-ups depends on the lending risk for bank. The effect of the local presence of banks on access to debt for start-ups might be larger in an environment where the risk of misbehaviour by the borrower is higher. In such an environment, the local presence of a loan officer might be especially important for start-ups to get access to bank loans. As a proxy for the risk of borrower misbehavior, we use our variable Fraud Crimes. We conjecture that the local

presence of banks will facilitate access to debt more in provinces with a high number of fraud crimes (above median) than in provinces with a low number of fraud crimes (below median).[13] We estimate separate regressions for both subsamples. Results are reported in Table 9. Consistent with our conjecture, the effect of branch density on the debt financing of start-ups is much more pronounced in high fraud crime provinces than in low fraud crime provinces.

*** Table 9 about here ***

Finally, we do not want our findings to be affected by management companies or corporations set up to minimize taxes but without any operational activities. To filter such entities out of our sample we required that firms do not belong to a group structure and provide basic accounting data. Additionally, we re-estimate our regressions for subsamples which are less likely to include such firms: a sample which excludes service firms (US SIC codes $\geq$ 70) and a sample for manufacturing firms only (US SIC codes 200-399). The results, which are reported in Table 10, again confirm our earlier findings.

*** Table 10 about here ***

## 8. Discussion

In this study, we provide new evidence on how local banking development affects the financing of start-ups. For this purpose, we use a unique, large-scale dataset comprising data on the financing

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[13] In an unreported analysis we consider a high number of fraud crimes to be those above the 66% percentile and a low number of fraud crimes to be those below the 33% percentile, with very similar results as the ones presented in the paper.

of Italian start-ups founded in provinces characterized by vastly differently developed banking markets.

For start-ups which are characterized by a large informational wedge between insiders and outsiders, we expect that close proximity between banks and firms, which makes it easier to reduce asymmetric information problems, will facilitate access to debt. Consistent with this hypothesis, we find that Italian start-ups are more likely to use debt and have larger amounts of debt on their balance sheet when they are located in a province with more bank branches. For instance, moving over the interquartile range of overall branch density is associated with an increase in the Debt/TA ratio of 0.046. This effect is not only statistically, but also economically significant, since the average Debt/TA ratio in our sample is 0.107. Our results also suggest that it is the proximity of bank branches rather than competition in the local bank market that affects borrowing by start-ups.

Our findings do not suggest that local cooperative banks are better at providing loans to start-ups than national banks. This finding is surprising. One possible explanation is that while local banks have a better knowledge about the local community than the national banks which rely more on hard information, they are smaller and less diversified than the national banks, which may hamper their ability to provide (very) risky loans to local entrepreneurs. Interestingly, we find that the presence of foreign banks in a province has a negative effect on the use of debt by local start-ups. These results, which are consistent with findings that foreign banks reduce credit availability to SMEs in India (Gormley, 2010) and Pakistan (Mian, 2006), offer an important counter to the beneficial effects of internationalization and consolidation in banking sectors.

Our study's primary contribution is to the entrepreneurial finance literature. While previous studies have investigated the financing decisions of start-ups, these studies have generally ignored within-country differences (Cassar, 2004; Huyghebaert and Van de Gucht, 2007). Other studies did control for within-country effects (Chua et al., 2011) but the goal of these studies was not to

further unravel what is exactly driving within-country effects. The current study provides new evidence on the consequences of differently developed banking systems within a country on the financing of start-ups. By providing new evidence on the role of banks and debt financing in start-ups, we also address "a bias in the entrepreneurial finance literature", which has disproportionally focused on equity financing (Cumming and Vismara, 2016, p. 3).

More broadly, our study also connects to a broader literature on managerial discretion (e.g., Hambrick and Finkelstein, 1987) and the latitude of entrepreneurs to take decisions. Scholars have examined a host of factors that influence entrepreneurial discretion at the level of the individual, the organization and the environment (Hambrick and Finkelstein, 1987; Vanacker et al., 2013). To date, however, environmental determinants of discretion have been conceptualized primarily in terms of industry characteristics (Hambrick and Abrahamson, 1995) and more recently national-level factors (Crossland and Hambrick, 2011). Few scholars have given consideration to the idea, like we do, that within-country or local-level factors might also greatly influence the discretion of entrepreneurs. We illustrate that local banking development might both facilitate and constrain the ability of entrepreneurs to raise debt financing to finance the initial operations and growth of their start-ups.

Relatedly, existing organizational theories suggest it is almost tautological to state that a munificent, resource-rich environment facilitates entrepreneurial success (e.g., Castrogiovanni, 1991). We contribute to a dearth of research that challenges this common assumption (e.g., Amezcua et al., 2013). Our evidence indeed indicates that when start-ups are founded in a province with more bank branches, these start-ups can attract more debt financing *on average*. However, we also bring nuance by drawing on finance theory, which suggests that the effects of local banking development are not necessarily positive. Indeed, we find evidence that more foreign bank branches in a province may actually reduce start-ups access to debt financing. Overall, the structure

of the local banking market conditions the effect of banking development on the financing of business start-ups.

*8.1. Practical implications*

Our results carry important practical implications for entrepreneurs and policy-makers. Our results may guide entrepreneurs when making location decisions when establishing new businesses. Particularly entrepreneurs setting up new businesses that are highly dependent on external debt finance may benefit from selecting locations that are rich in terms of local and national banks. Policy-makers have often been concerned with the consolidation of the local banking system and its impact on the financing of informationally opaque firms, such as start-ups. On the one hand, our results are encouraging, in that both branches of local banks and branches of national banks increase the availability of debt financing for start-ups. However, when consolidation involves a general reduction in branch density of domestic (local and national) banks this is problematic for start-ups. Moreover, our study suggests that a particular concern for policy-makers may be the increasing globalization in the banking industry, particularly in Europe where an increasing integration of financial markets at the E.U. level is actively promoted. Finally, while policy-makers tend to focus on the role of venture capital and business angel financing for early-stage ventures (e.g., Bertoni et al., 2011), our findings highlight the importance of the availability of bank financing at the local level for start-ups.

*8.2. Limitations and avenues for future research*

Our findings suggest a need for both additional theory and empirical work on the role of banks at the local level in the debt financing of start-ups. While one would expect local community banks to be better suited to provide loans to local start-ups than banks headquartered outside the local

community, our results suggest that this is not the case. While we provide a preliminary answer, future studies could more explicitly study the proposed mechanisms.

Another intriguing finding is the negative effect of foreign banks on bank credit to start-ups, which does not support cross-country evidence by Bruno and Hauswald (2014) and Giannetti and Ongena (2012) that lending by foreign banks increases the overall availability of credit for local firms within countries. The differences between the results of these authors and the results in our study might be caused by the type of firms considered (start-up firms versus more mature firms), the level at which financial development is measured (within-country differences versus cross-country differences) or by the specific nature of Italy—the focus of this study. New research could establish the generalizability of our findings beyond Italy, for example, by investigating how institutional country characteristics affect the role of local financial development across an international sample of start-ups.

Previous studies have suggested that founder characteristics may influence financial decision making in start-ups (e.g., Cassar, 2004). In this study, we did not account for founder characteristics because we were more interested in how "macro"-level variables (i.e., local financial development) influence the financing of start-ups, rather than "micro"-level variables. However, we implicitly controlled for such omitted variables through our 2SLS regression approach. An interesting avenue for future research is to combine both levels and examine the interrelatedness between founder characteristics, local financial development and debt financing.

## 9. Conclusion

In sum, this study is the first to illustrate how local banking development matters for the financing of start-ups. Local banking development has *on average* a positive effect on the use of debt financing by start-ups. However, the effects of local banking development are conditioned by the

structure of the local banking market and an increasing presence of foreign banks negatively affects the availability of debt financing for start-ups.

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**Figure 1:** Debt financing by founding year
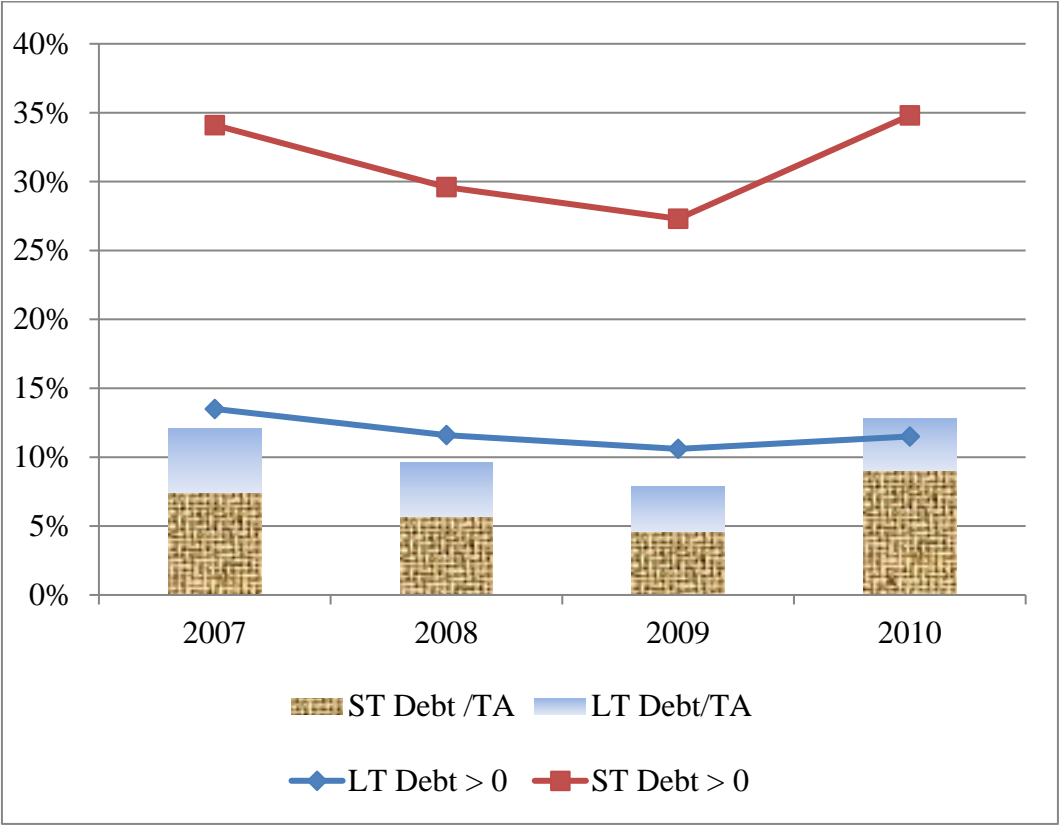
**Table 1:** Variables definitions

*Debt measures*

| | |
|---|---|
| Debt>0 | Dummy equal to 1 if the firm raised debt in founding year, else 0 |
| Debt/TA | Debt to total assets in founding year |
| ST Debt>0 | Dummy equal to 1 if the firm raised short-term debt in founding year, else 0 |
| ST Debt/TA | Short-term debt to total assets in founding year |
| LT Debt>0 | Dummy equal to 1 if the firm raised long-term debt in founding year, else 0 |
| LT Debt/TA | Long-term debt to total assets in founding year |

*Local banking development measures*

| | |
|---|---|
| Overall Branch Density | Number of bank branches per 1,000 inhabitants in the province |
| BCC Density | Number of *banche di credito cooperativo (BCC)* branches per 1,000 inhabitants in the province |
| Banche Popolari Density | Number of *banche popolari* branches per 1,000 inhabitants in the province |
| National Bank Density | Number of national bank branches per 1,000 inhabitants in the province |
| Foreign Bank Density | Number of foreign bank branches per 1,000 inhabitants in the province |
| HHI | Sum of squared market shares of banks operating in the province, based on the number of bank branches in 2009 |

*Other local characteristics*

| | |
|---|---|
| Industrial District Density | Number of manufacturing workers in industrial districts divided by the total number of manufacturing workers at the province level |
| Social Capital | Average voter turnout in referenda at the province level for referenda in 2003, 2005, 2006 and 2009 |
| Fraud Crimes | Average number of fraud crimes reported by police forces to the judicial authority per 1,000,000 inhabitants |
| Local GDP Growth | Year-by-year percentage growth rate in provincial GDP |
| Start-Up / Population | Number of start-ups per 100 inhabitants in the province |
| South | Dummy equal to one if the firm is located in South Italy |
| North | Dummy equal to one if the firm is located in North Italy |

*Firm characteristics*

| | |
|---|---|
| Profitability | Earnings before interest and taxes to total assets in founding year |
| Ln(Total Assets) | Natural logarithm of total assets in founding year |
| Tangibility | Tangible assets to total assets in founding year |
| Growth Opportunities | Intangible assets to total assets in founding year |

**Table 2:** Descriptive statistics

(ST/LT) Debt>0 is a dummy equal to 1 if firm raised (ST/LT) debt in founding year, or 0 otherwise. (ST/LT) Debt/TA is (ST/LT) debt raised in the founding year divided by total assets. (ST/LT) Debt (€ 1,000) is the debt amount raised in the founding year. All branch density measures are calculated as the number of bank branches per 1,000 inhabitants in the province.

| Variables | Mean | Median | Std.Dev. | Min | 1st quartile | 3rd quartile | Max |
|---|---|---|---|---|---|---|---|
| *Debt* | | | | | | | |
| Debt > 0 | 0.348 | | | | | | |
| Debt/TA | 0.107 | 0.000 | 0.223 | 0.000 | 0.000 | 0.077 | 1.000 |
| ST Debt > 0 | 0.315 | | | | | | |
| ST Debt /TA | 0.067 | 0.000 | 0.172 | 0.000 | 0.000 | 0.014 | 0.981 |
| LT Debt > 0 | 0.118 | | | | | | |
| LT Debt/TA | 0.039 | 0.000 | 0.138 | 0.000 | 0.000 | 0.000 | 0.847 |
| *Local banking development* | | | | | | | |
| Overall Branch Density | 0.567 | 0.581 | 0.191 | 0.212 | 0.394 | 0.708 | 1.060 |
| BCC Density | 0.067 | 0.037 | 0.078 | 0.000 | 0.023 | 0.092 | 0.649 |
| Banche Popolari Density | 0.052 | 0.044 | 0.047 | 0.000 | 0.017 | 0.077 | 0.516 |
| National Bank Density | 0.443 | 0.469 | 0.142 | 0.147 | 0.299 | 0.533 | 0.770 |
| Foreign Bank Density | 0.005 | 0.001 | 0.009 | 0.000 | 0.000 | 0.006 | 0.040 |
| HHI | 0.098 | 0.093 | 0.042 | 0.000 | 0.075 | 0.115 | 0.520 |
| *Other local characteristics* | | | | | | | |
| Industrial District Density | 0.284 | 0.110 | 0.354 | 0.000 | 0.000 | 0.530 | 1.000 |
| Social Capital | 0.377 | 0.384 | 0.066 | 0.000 | 0.336 | 0.421 | 0.511 |
| Fraud Crimes | 17.749 | 16.741 | 5.567 | 0.000 | 14.224 | 20.313 | 42.002 |
| Local GDP Growth | 0.000 | 0.000 | 0.003 | -0.114 | -0.001 | 0.001 | 0.113 |
| Start-ups/Population | 0.537 | 0.537 | 0.176 | 0.191 | 0.403 | 0.614 | 0.900 |
| South | 0.257 | | | | | | |
| North | 0.438 | | | | | | |
| *Firm characteristics* | | | | | | | |
| Profitability | -0.016 | 0.005 | 0.260 | -1.290 | -0.058 | 0.069 | 0.649 |
| Total Assets (TA) (€ 1,000) | 287.472 | 100.581 | 596.590 | 2.500 | 33.755 | 267.260 | 4,731.15 |
| Tangibility | 0.143 | 0.040 | 0.213 | 0.000 | 0.000 | 0.200 | 0.967 |
| Growth Opportunities | 0.105 | 0.032 | 0.164 | 0.000 | 0.008 | 0.127 | 2.305 |

**Table 3:** Pearson correlations matrix.

All variables are defined as before. All correlations are significant at the 5% level except *italics*.

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Debt* | | | | | | | | | | | | | | | | |
| 1 | Debt > 0 | 1.00 | | | | | | | | | | | | | | | |
| 2 | Debt / TA | 0.56 | 1.00 | | | | | | | | | | | | | | |
| 3 | ST Debt > 0 | 0.88 | 0.53 | 1.00 | | | | | | | | | | | | | |
| 4 | ST Debt / TA | 0.43 | 0.78 | 0.57 | 1.00 | | | | | | | | | | | | |
| 5 | LT Debt > 0 | 0.48 | 0.54 | 0.25 | 0.07 | 1.00 | | | | | | | | | | | |
| 6 | LT Debt / TA | 0.36 | 0.64 | 0.15 | 0.02 | 0.78 | 1.00 | | | | | | | | | | |
| | *Local banking development* | | | | | | | | | | | | | | | | |
| 7 | Overall Branch Density | 0.16 | 0.16 | 0.15 | 0.13 | 0.12 | 0.10 | 1.00 | | | | | | | | | |
| 8 | BCC Density | 0.10 | 0.12 | 0.10 | 0.10 | 0.08 | 0.07 | 0.65 | 1.00 | | | | | | | | |
| 9 | Banche Pop. Density | 0.06 | 0.05 | 0.06 | 0.05 | 0.03 | 0.02 | 0.32 | 0.11 | 1.00 | | | | | | | |
| 10 | National Bank Density | 0.14 | 0.14 | 0.13 | 0.10 | 0.11 | 0.09 | 0.87 | 0.29 | 0.02 | 1.00 | | | | | | |
| 11 | Foreign Bank Density | -0.01 | -0.01 | *0.00* | *-0.00* | -0.02 | -0.02 | 0.18 | -0.10 | 0.28 | 0.14 | 1.00 | | | | | |
| 12 | HHI | -0.03 | -0.03 | -0.03 | -0.03 | -0.01 | -0.01 | -0.31 | -0.33 | -0.11 | -0.18 | -0.28 | 1.00 | | | | |
| | *Other local characteristics* | | | | | | | | | | | | | | | | |
| 13 | Industrial district density | 0.13 | 0.12 | 0.12 | 0.10 | 0.10 | 0.07 | 0.63 | 0.37 | 0.35 | 0.52 | -0.01 | -0.22 | 1.00 | | | |
| 14 | Social Capital | 0.08 | 0.08 | 0.08 | 0.06 | 0.06 | 0.05 | 0.55 | 0.02 | 0.16 | 0.66 | 0.23 | -0.11 | 0.29 | 1.00 | | |
| 15 | Fraud crimes | -0.05 | -0.05 | -0.05 | -0.05 | -0.04 | -0.03 | -0.26 | -0.32 | -0.12 | -0.14 | 0.11 | 0.10 | -0.28 | 0.03 | 1.00 | |
| 16 | Local GDP Growth | -0.02 | -0.02 | -0.02 | -0.02 | -0.01 | -0.02 | *0.00* | 0.01 | 0.01 | -0.01 | 0.05 | -0.01 | *0.00* | *0.00* | -0.10 | 1.00 |
| 17 | Start-Up / Pop. | -0.06 | -0.05 | -0.05 | -0.03 | -0.05 | -0.04 | 0.05 | -0.12 | 0.18 | 0.05 | 0.48 | -0.35 | -0.01 | 0.26 | 0.14 | -0.03 |

**Table 4:** Overall branch density and debt financing 2007-2010

The table reports 2SLS regression results in which the branch density variable is instrumented with the number of bank branches in 1936, number of banks and number of Banche Popolari in the firm's province and the 1936 branch density in the firm's region. All variables are defined as before, except North which is a dummy equal to one if the firm is located in North Italy, and South which is a dummy equal to one if the firm is located in South Italy. Robust p-value, based on standard errors clustered by provinces, are reported in brackets. ***: denotes significance at the 1% level; **: denotes significance at the 5% level; *: denotes significance at the 10% level.

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| Sample: | All | All | Debt>0 | All | All | ST Debt>0 | All | All | LT Debt>0 |
| Dependent variable: | Debt>0 | Debt/TA | Debt/TA | ST Debt>0 | ST Debt/TA | ST Debt/TA | LT Debt>0 | LT Debt/TA | LT Debt/TA |
| Overall Branch Density | 0.126*** | 0.115*** | 0.153*** | 0.146*** | 0.091*** | 0.147*** | 0.032 | 0.024 | 0.076** |
| | (0.002) | (0.004) | (0.005) | (0.000) | (0.000) | (0.000) | (0.396) | (0.186) | (0.050) |
| Industrial District Density | 0.040*** | 0.012* | 0.002 | 0.039*** | 0.005 | -0.010 | 0.028*** | 0.008** | -0.011 |
| | (0.000) | (0.083) | (0.827) | (0.000) | (0.262) | (0.206) | (0.001) | (0.026) | (0.139) |
| Social Capital | 0.143* | 0.002 | -0.024 | 0.102* | -0.022 | -0.077** | 0.060 | 0.023 | 0.004 |
| | (0.055) | (0.958) | (0.549) | (0.086) | (0.232) | (0.030) | (0.215) | (0.174) | (0.921) |
| Fraud Crimes | -0.001* | 0.000 | -0.000 | -0.001** | -0.000 | -0.000 | 0.000 | 0.000 | 0.000 |
| | (0.087) | (0.805) | (0.752) | (0.041) | (0.608) | (0.650) | (0.786) | (0.200) | (0.764) |
| Local GDP Growth | -0.130 | -0.145 | -0.377 | 0.101 | 0.051 | -0.021 | -0.493** | -0.192** | 0.251 |
| | (0.678) | (0.340) | (0.314) | (0.721) | (0.693) | (0.951) | (0.040) | (0.042) | (0.587) |
| Start-Up / Population | -0.164*** | -0.074*** | -0.087*** | -0.135*** | -0.036*** | -0.037*** | -0.112*** | -0.039*** | -0.017 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.317) |
| South | -0.023* | -0.015 | -0.039*** | -0.011 | -0.002 | -0.013 | -0.036*** | -0.013*** | -0.015 |
| | (0.075) | (0.104) | (0.009) | (0.388) | (0.680) | (0.295) | (0.000) | (0.003) | (0.200) |
| North | 0.022** | 0.004 | -0.005 | 0.024*** | 0.005 | 0.001 | 0.003 | -0.001 | -0.016** |
| | (0.022) | (0.594) | (0.571) | (0.009) | (0.217) | (0.888) | (0.659) | (0.711) | (0.045) |
| Profitability | -0.084*** | -0.092*** | -0.207*** | -0.106*** | -0.064*** | -0.160*** | -0.042*** | -0.028*** | -0.275*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Ln(Total Assets) | 0.094*** | 0.031*** | 0.015*** | 0.077*** | 0.014*** | -0.007*** | 0.054*** | 0.017*** | -0.013*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Tangibility | 0.147*** | 0.105*** | 0.155*** | 0.064*** | -0.000 | -0.046*** | 0.212*** | 0.105*** | 0.207*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.872) | (0.000) | (0.000) | (0.000) | (0.000) |
| Growth Opportunities | 0.109*** | 0.067*** | 0.092*** | 0.078*** | 0.006* | -0.022* | 0.147*** | 0.061*** | 0.153*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.099) | (0.083) | (0.000) | (0.000) | (0.000) |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 153,324 | 153,324 | 54,976 | 153,324 | 153,324 | 48,254 | 153,324 | 153,324 | 18,030 |
| R-squared | 0.128 | 0.103 | 0.091 | 0.096 | 0.050 | 0.064 | 0.110 | 0.083 | 0.145 |

**Table 5:** Bank market concentration, branch density and debt financing 2007-2010

The table reports 2SLS regression results in which HHI and the branch density variable are instrumented with the number of bank branches in 1936, number of banks and number of Banche Popolari in the firm's province and the 1936 branch density in the firm's region. All regressions include other local characteristics, firm characteristics, industry and year fixed effects. Robust p-values, based on standard errors clustered by provinces, are reported in brackets. ***: denotes significance at the 1% level; **: denotes significance at the 5% level; *: denotes significance at the 10% level.

**Panel A**

| | (1)<br>All<br>Debt>0 | (2)<br>All<br>Debt/TA | (3)<br>Debt>0<br>Debt/TA | (4)<br>All<br>ST Debt>0 | (5)<br>All<br>ST Debt/TA | (6)<br>ST Debt>0<br>ST Debt/TA | (7)<br>All<br>LT Debt>0 | (8)<br>All<br>LT Debt/TA | (9)<br>LT Debt>0<br>Debt/TA |
|---|---|---|---|---|---|---|---|---|---|
| Sample:<br>Dependent variable: | | | | | | | | | |
| HHI | -0.295 | -0.283 | -0.391 | -0.360 | -0.237* | -0.405* | -0.007 | -0.044 | -0.252 |
| | (0.199) | (0.163) | (0.179) | (0.104) | (0.069) | (0.079) | (0.966) | (0.574) | (0.134) |
| Observations | 153,324 | 153,324 | 54,976 | 153,324 | 153,324 | 48,254 | 153,324 | 153,324 | 18,030 |
| R-squared | 0.127 | 0.100 | 0.088 | 0.095 | 0.048 | 0.060 | 0.110 | 0.083 | 0.145 |

**Panel B**

| | (1)<br>All<br>Debt>0 | (2)<br>All<br>Debt/TA | (3)<br>Debt>0<br>Debt/TA | (4)<br>All<br>ST Debt>0 | (5)<br>All<br>ST Debt/TA | (6)<br>ST Debt>0<br>ST Debt/TA | (7)<br>All<br>LT Debt>0 | (8)<br>All<br>LT Debt/TA | (9)<br>LT Debt>0<br>LT Debt/TA |
|---|---|---|---|---|---|---|---|---|---|
| Sample:<br>Dependent variable: | | | | | | | | | |
| HHI | 0.552 | 0.440 | 0.494 | 0.561 | 0.295 | 0.376 | 0.405 | 0.146 | -0.006 |
| | (0.351) | (0.199) | (0.160) | (0.299) | (0.161) | (0.141) | (0.342) | (0.383) | (0.976) |
| Overall Branch Density | 0.245* | 0.209** | 0.255*** | 0.267** | 0.154*** | 0.224*** | 0.119 | 0.055 | 0.075 |
| | (0.070) | (0.015) | (0.006) | (0.029) | (0.003) | (0.001) | (0.251) | (0.192) | (0.174) |
| Observations | 153,324 | 153,324 | 54,976 | 153,324 | 153,324 | 48,254 | 153,324 | 153,324 | 18,030 |
| R-squared | 0.127 | 0.098 | 0.086 | 0.095 | 0.047 | 0.061 | 0.108 | 0.081 | 0.548 |

**Table 6**: Overall branch density and debt financing year by year

The table reports 2SLS regression results for each year separately, in which the branch density variables are instrumented with the number of bank branches in 1936, number of banks and number of Banche Popolari in the firm's province and the 1936 branch density in the firm's region. All regressions include other local characteristics, firm characteristics, and industry fixed effects. Standard errors, clustered by provinces, are reported in brackets under the coefficients.

| | (1) All Debt>0 | (2) All Debt/TA | (3) Debt>0 Debt/TA | (4) All ST Debt>0 | (5) All ST Debt/TA | (6) ST Debt>0 ST Debt/TA | (7) All LT Debt>0 | (8) All LT Debt/TA | (9) LT Debt>0 LT Debt/TA |
|---|---|---|---|---|---|---|---|---|---|
| Sample: | | | | | | | | | |
| Dependent variable: | | | | | | | | | |
| **2007** | | | | | | | | | |
| Overall Branch Density | 0.215*** | 0.186*** | 0.198*** | 0.265*** | 0.151*** | 0.180*** | 0.041 | 0.034** | 0.102** |
| | (0.001) | (0.001) | (0.000) | (0.000) | (0.001) | (0.000) | (0.192) | (0.035) | (0.023) |
| Observations | 38,304 | 38,304 | 15,012 | 38,304 | 38,304 | 13,042 | 38,304 | 38,304 | 5,147 |
| R-squared | 0.153 | 0.143 | 0.127 | 0.117 | 0.071 | 0.065 | 0.121 | 0.090 | 0.147 |
| **2008** | | | | | | | | | |
| Overall Branch Density | 0.059 | 0.121* | 0.235** | 0.104** | 0.094*** | 0.196*** | 0.018 | 0.026 | 0.109 |
| | (0.300) | (0.065) | (0.019) | (0.021) | (0.001) | (0.001) | (0.801) | (0.517) | (0.266) |
| Observations | 38,270 | 38,270 | 13,017 | 38,270 | 38,270 | 11,326 | 38,270 | 38,270 | 4,435 |
| R-squared | 0.128 | 0.114 | 0.112 | 0.100 | 0.058 | 0.063 | 0.105 | 0.078 | 0.141 |
| **2009** | | | | | | | | | |
| Overall Branch Density | 0.165*** | 0.063** | 0.041 | 0.179*** | 0.074*** | 0.103** | -0.004 | -0.010 | -0.054 |
| | (0.006) | (0.031) | (0.389) | (0.001) | (0.000) | (0.013) | (0.932) | (0.423) | (0.380) |
| Observations | 37,733 | 37,733 | 11,781 | 37,733 | 37,733 | 10,290 | 37,733 | 37,733 | 3,978 |
| R-squared | 0.113 | 0.100 | 0.101 | 0.089 | 0.052 | 0.050 | 0.099 | 0.073 | 0.152 |
| **2010** | | | | | | | | | |
| Overall Branch Density | 0.062 | 0.084** | 0.133*** | 0.037 | 0.044*** | 0.106*** | 0.058* | 0.039*** | 0.113*** |
| | (0.200) | (0.000) | (0.001) | (0.483) | (0.012) | (0.004) | (0.063) | (0.003) | (0.008) |
| Observations | 39,017 | 39,017 | 15,166 | 39,017 | 39,017 | 13,593 | 39,017 | 39,017 | 4,470 |
| R-squared | 0.111 | 0.057 | 0.059 | 0.070 | 0.021 | 0.071 | 0.112 | 0.091 | 0.171 |

**Table 7:** Different bank types and debt financing 2007-2010

The table reports 2SLS regression results in which the branch density variables are instrumented with the number of bank branches in 1936, number of banks and number of Banche Popolari in the firm's province and the 1936 branch density in the firm's region. All regressions include other local characteristics, firm characteristics, industry and year fixed effects. Robust p-values, based on standard errors clustered by provinces, are reported in brackets. ***: denotes significance at the 1% level; **: denotes significance at the 5% level; *: denotes significance at the 10% level.

**Panel A**

| | (1)<br>All<br>Debt>0 | (2)<br>All<br>Debt/TA | (3)<br>Debt>0<br>Debt/TA | (4)<br>All<br>ST Debt>0 | (5)<br>All<br>ST Debt/TA | (6)<br>ST Debt>0<br>ST Debt/TA | (7)<br>All<br>LT Debt>0 | (8)<br>All<br>LT Debt/TA | (9)<br>LT Debt>0<br>LT Debt/TA |
|---|---|---|---|---|---|---|---|---|---|
| Sample: | | | | | | | | | |
| Dependent variable: | | | | | | | | | |
| BCC Density | 0.114 | 0.108** | 0.140*** | 0.137 | 0.089*** | 0.144*** | 0.025 | 0.019 | 0.049 |
| | (0.420) | (0.014) | (0.000) | (0.283) | (0.006) | (0.000) | (0.704) | (0.270) | (0.471) |
| Banche Popolari Density | 1.356 | 0.311 | 0.053 | 1.313 | 0.315 | 0.227 | 0.540 | 0.006 | -1.018 |
| | (0.326) | (0.424) | (0.916) | (0.331) | (0.318) | (0.617) | (0.381) | (0.975) | (0.267) |
| National Bank Density | 0.561 | 0.117 | 0.019 | 0.546 | 0.108 | 0.052 | 0.155 | 0.013 | -0.169 |
| | (0.205) | (0.288) | (0.875) | (0.217) | (0.265) | (0.603) | (0.360) | (0.763) | (0.495) |
| Foreign Bank Density | -1.061 | -0.968*** | -1.335*** | -0.743 | -0.451* | -0.619 | -1.066** | -0.517*** | -1.818 |
| | (0.285) | (0.000) | (0.001) | (0.431) | (0.062) | (0.144) | (0.037) | (0.000) | (0.210) |
| Observations | 153,324 | 153,324 | 54,976 | 153,324 | 153,324 | 48,254 | 153,324 | 153,324 | 18,030 |
| R-squared | 0.121 | 0.102 | 0.091 | 0.089 | 0.049 | 0.063 | 0.108 | 0.083 | 0.120 |

**Panel B**

| | (1)<br>All<br>Debt>0 | (2)<br>All<br>Debt/TA | (3)<br>Debt>0<br>Debt/TA | (4)<br>All<br>ST Debt>0 | (5)<br>All<br>ST Debt/TA | (6)<br>ST Debt>0<br>ST Debt/TA | (7)<br>All<br>LT Debt>0 | (8)<br>All<br>LT Debt/TA | (9)<br>LT Debt>0<br>LT Debt/TA |
|---|---|---|---|---|---|---|---|---|---|
| Sample: | | | | | | | | | |
| Dependent variable: | | | | | | | | | |
| Overall Branch Density | 0.561 | 0.117 | 0.019 | 0.546 | 0.108 | 0.052 | 0.155 | 0.013 | -0.169 |
| | (0.205) | (0.288) | (0.875) | (0.217) | (0.265) | (0.603) | (0.360) | (0.763) | (0.495) |
| BCC Density | -0.447 | -0.009 | 0.121 | -0.409 | -0.019 | 0.092 | -0.131 | 0.006 | 0.218 |
| | (0.289) | (0.942) | (0.302) | (0.317) | (0.839) | (0.328) | (0.464) | (0.909) | (0.278) |
| Banche Popolari Density | 0.795 | 0.194 | 0.034 | 0.766 | 0.207 | 0.175 | 0.385 | -0.007 | -0.849 |
| | (0.522) | (0.597) | (0.938) | (0.530) | (0.496) | (0.669) | (0.478) | (0.966) | (0.277) |
| Foreign Bank Density | -1.622 | -1.084*** | -1.354*** | -1.289 | -0.558** | -0.671 | -1.221** | -0.530*** | -1.649 |
| | (0.146) | (0.000) | (0.001) | (0.235) | (0.041) | (0.114) | (0.018) | (0.000) | (0.245) |
| Observations | 153,324 | 153,324 | 54,976 | 153,324 | 153,324 | 48,254 | 153,324 | 153,324 | 18,030 |
| R-squared | 0.121 | 0.102 | 0.091 | 0.089 | 0.049 | 0.063 | 0.108 | 0.083 | 0.120 |

**Table 8:** North versus Central versus South Italy

Panel A provides summary statistics using the North-Central-South divide in Italy. Panel B reports 2SLS regression results in which the branch density variables are instrumented with the number of bank branches in 1936, number of banks and number of Banche Popolari in the firm's province and the 1936 branch density in the firm's region. All regressions include other local characteristics, firm characteristics, industry and year fixed effects. Robust p-values, based on standard errors clustered by provinces, are reported in brackets. ***: denotes significance at the 1% level; **: denotes significance at the 5% level; *: denotes significance at the 10% level.

**Panel A**: Mean province values (unweighted)

| | | Mean | | Significance of difference (t-test) | | |
|---|---|---|---|---|---|---|
| | North (N) | Central (C) | South (S) | N-C | N-S | C-S |
| Debt>0 | 0.440 | 0.372 | 0.292 | *** | *** | *** |
| Debt/TA | 0.153 | 0.122 | 0.075 | *** | *** | *** |
| Overall branch density | 0.735 | 0.643 | 0.374 | *** | *** | *** |
| % National Bank Branches | 82.70% | 84.79% | 85.11% | ns | ns | ns |
| % BCC Branches | 10.33% | 10.18% | 8.53% | ns | ns | ns |
| % Banche Popolari Branches | 6.59% | 4.92% | 6.33% | ns | ns | ns |
| % Foreign Bank Branches | 0.38% | 0.11% | 0.02% | * | *** | ns |
| Start-Up / Population | 0.415 | 0.541 | 0.373 | *** | * | *** |
| Fraud crimes | 16.337 | 16.367 | 16.256 | ns | ns | ns |
| Industrial district density | 0.443 | 0.414 | 0.047 | ns | *** | *** |

**Panel B**: Regression results

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Dependent variable: | Debt>0 | Debt / TA | ST Debt>0 | ST Debt / TA | LT Debt>0 | LT Debt / TA |
| **North Italy** (67.018 obs.) | | | | | | |
| Overall Branch Density | 0.134*** | 0.131*** | 0.143*** | 0.089*** | 0.071*** | 0.042*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.004) | (0.000) |
| R-squared | 0.118 | 0.099 | 0.085 | 0.044 | 0.115 | 0.091 |
| **Central Italy** (46.764 obs.) | | | | | | |
| Overall Branch Density | 0.234** | 0.180*** | 0.223** | 0.095*** | 0.200*** | 0.085*** |
| | (0.030) | (0.000) | (0.011) | (0.001) | (0.004) | (0.001) |
| R-squared | 0.112 | 0.086 | 0.081 | 0.041 | 0.102 | 0.077 |
| **South Italy** (39.542 obs.) | | | | | | |
| Overall Branch Density | 0.305** | 0.059 | 0.259* | 0.023 | 0.149*** | 0.038** |
| | (0.027) | (0.257) | (0.086) | (0.550) | (0.002) | (0.046) |
| R-squared | 0.097 | 0.057 | 0.069 | 0.024 | 0.074 | 0.054 |

**Table 9:** High fraud versus low fraud environment

The table reports 2SLS regression results in which the branch density variables are instrumented with the number of bank branches in 1936. number of banks and number of Banche Popolari in the firm's province and the 1936 branch density in the firm's region. All regressions include other local characteristics. firm characteristics. industry and year fixed effects. Robust p-values. based on standard errors clustered by provinces. are reported in brackets. ***: denotes significance at the 1% level; **: denotes significance at the 5% level; *: denotes significance at the 10% level.

**Panel A**: Fraud crimes > median (76.493 observations)

| Dependent variable: | (1) Debt>0 | (2) Debt / TA | (3) ST Debt>0 | (4) ST Debt / TA | (5) LT Debt>0 | (6) LT Debt / TA |
|---|---|---|---|---|---|---|
| Overall Branch Density | 0.221*** | 0.142*** | 0.223*** | 0.102*** | 0.086** | 0.040** |
| | (0.000) | (0.006) | (0.000) | (0.006) | (0.033) | (0.016) |
| R-squared | 0.135 | 0.112 | 0.103 | 0.055 | 0.108 | 0.081 |

**Panel B**: Fraud crimes < median (76.831 observations)

| Dependent variable: | (1) Debt>0 | (2) Debt / TA | (3) ST Debt>0 | (4) ST Debt / TA | (5) LT Debt>0 | (6) LT Debt / TA |
|---|---|---|---|---|---|---|
| Overall Branch Density | -0.003 | 0.102*** | -0.010 | 0.069*** | 0.043 | 0.031 |
| | (0.966) | (0.002) | (0.882) | (0.000) | (0.336) | (0.112) |
| R-squared | 0.121 | 0.094 | 0.089 | 0.046 | 0.112 | 0.086 |

**Table 10:** Restricted samples

The table reports 2SLS regression results in which the branch density variables are instrumented with the number of bank branches in 1936. number of banks and number of Banche Popolari in the firm's province and the 1936 branch density in the firm's region. All regressions include other local characteristics. firm characteristics. industry and year fixed effects. Robust p-values. based on standard errors clustered by provinces. are reported in brackets. ***: denotes significance at the 1% level; **: denotes significance at the 5% level; *: denotes significance at the 10% level.

**Panel A**: Without Services industries (US SIC codes ≥ 70), 113.945 observations

| Dependent variable: | (1) Debt>0 | (2) Debt / TA | (3) ST Debt>0 | (4) ST Debt / TA | (5) LT Debt>0 | (6) LT Debt / TA |
|---|---|---|---|---|---|---|
| Overall Branch Density | 0.132*** | 0.125*** | 0.155*** | 0.103*** | 0.023 | 0.022 |
| | (0.003) | (0.004) | (0.000) | (0.000) | (0.472) | (0.187) |
| R-squared | 0.130 | 0.100 | 0.098 | 0.051 | 0.107 | 0.079 |

**Panel B**: Manufacturing industries only (US SIC codes 200-399), 20.208 observations

| Dependent variable: | (1) Debt>0 | (2) Debt / TA | (3) ST Debt>0 | (4) ST Debt / TA | (5) LT Debt>0 | (6) LT Debt / TA |
|---|---|---|---|---|---|---|
| Overall Branch Density | 0.154** | 0.117*** | 0.175*** | 0.068*** | 0.131* | 0.052** |
| | (0.011) | (0.000) | (0.004) | (0.001) | (0.069) | (0.047) |
| R-squared | 0.137 | 0.100 | 0.116 | 0.066 | 0.117 | 0.084 |