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Local banking development and the use of debt financing by new firms

ABSTRACT

We investigate the effects of local banking development on the debt financing of new firms using a large sample of Italian firms. Controlling for potential endogeneity issues, we find that new firms are more likely to use bank debt and have higher leverage in provinces with more bank branches relative to population. However, it is important to account for bank heterogeneity. For instance, more foreign banks in a province actually reduce access to bank debt. Taken together, our study provides new and nuanced evidence on the role of local banking development for the debt financing of new firms.

INTRODUCTION

Bank debt represents a critical source of external financing for new firms (e.g., Cassar, 2004; Cosh, Cumming, & Hughes, 2009; Cassia & Vismara, 2009; Robb & Robinson, 2014; Hanssens, Deloof, & Vanacker, 2016). At the same time, attracting bank debt remains a major challenge for many new firms due to informational asymmetries between these firms and prospective investors, which create adverse selection and moral hazard problems (Berger & Udell, 1998; Chua, Chrisman, Kellermanns, & Wu, 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, reputation, trust and “soft” information (e.g., Diamond, 1989; Petersen & Rajan, 1994; Binks & Ennew, 1997; Howorth & Moro, 2006; Carter, Shaw, Lam, & Wilson, 2007; Chua et al., 2011; Zhang, 2015). A largely separate stream of research studies capital structure and the use of debt in new firms (e.g., Cassar, 2004; Huyghebaert & Van de Gucht, 2007; Cosh et al., 2009). Moreover, scholars have focused on how an entrepreneur’s wealth (Kim, Aldrich, & Keister, 2006), local or within-country differences in banking development (Guiso, Sapienza, & Zingales, 2004) and the aggregate amount of lending at the country level influence new firm formation (Cole, Cumming, & Li, 2016).

Despite this rich literature, we know surprisingly little about the impact of local banking development, and bank heterogeneity, on new firm financing. First, existing studies on new firm financing either ignore within-country differences (e.g., Cassar, 2004) thereby implicitly assuming they do not matter (much) or acknowledge within-country effects (e.g., Chua et al., 2011) but do not examine what drives these effects. Second, from a separate literature we know that local banking development matters for the financing of small and medium-sized enterprises (SMEs) (Alessandrini, Presbitero, & Zazzaro, 2009; La Rocca, La Rocca, & Cariola, 2010). Nevertheless, while new firms are almost always SMEs, most SMEs are not new firms (Robinson, 2012), and we cannot simply generalize findings from SMEs to new firms (Chua et al., 2011). Third, banks are often portrayed as homogenous in the entrepreneurship literature (a notable exception is Howorth & Moro, 2006). While finance scholars have examined how heterogeneity in the banking industry (Petersen & Rajan, 1995; Bonaccorsi di Patti & Gobbi, 2001) affects access to credit for SMEs, we again lack insights for new firm financing.

Drawing on finance theory, we address the above issues by asking the following question: *How does local banking development—taking into account the presence of different types of banks—affect the use of debt by new firms?* We use a unique dataset covering data on 274,271 Italian new firms founded between 2007 and 2013. Italy provides an ideal setting for multiple reasons. First, all Italian firms, including new firms, are required to report detailed financial accounts. Second, Italy is characterized by significant differences in local banking development. 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, Ramírez-Herrera, & Di Pietro, 2013) and the US (Berger, Cerqueiro, & Penas, 2015). However, 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 probing the causal effect of local banking development on the use of debt financing by new firms. Finally, the focus on local banking development in a single country allows us to exploit within-country variation in financial development, thereby controlling for differences in national institutions.

Our findings indicate that new firms are more likely to use debt and have higher leverage in provinces where there are more bank branches.¹ These effects hold for both short-term and long-term debt. Still, it is important to account for bank heterogeneity in the local market. Specifically, the positive effect of bank branches on access to debt for new firms is less pronounced for local banks than for national banks but when local banks provide debt they provide more debt to new firms than national banks. Moreover, we find that the presence of more foreign banks in a province even reduces access to bank debt for new firms.

We contribute to the entrepreneurial finance literature by providing novel evidence on the effects of local banking development for new firm financing. There is generally so much focus on equity finance in the entrepreneurship literature that the importance of banks and debt finance for new firms received less attention than warranted (e.g., Cumming & Vismara, 2016). Theoretically, our study connects to a dearth of research that challenges the common assumption that more resource munificent environments benefit new firms (e.g., Amezcua, Grimes, Bradley, & Wiklund, 2013). We show that structural heterogeneity (distinct types of banks) in the local banking market conditions the effect of local banking development on new firm financing. We highlight that the increasing globalization of the banking market may even have a negative effect for new firms that

¹ 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., 2004). Second, it provides theoretical and empirical consistency with previous research focusing on local banking development in Italy (Benfratello, Schiantarelli, & Sembenelli, 2008; Guiso et al., 2004). Finally, provinces are the most detailed geographical partition for which a rich set of statistics exists (Bonaccorsi di Patti & Gobbi, 2001).

require access to bank debt. 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 new firms—the engines of future economic growth.

THE ITALIAN CONTEXT

Italy is characterized by a bank-based financial system, similar to other continental European countries, such as France, Germany and Spain. As in most other countries, bank debt is by far the most important source of external funding for Italian firms (Beck, Demirgüç-Kunt, & Maksimovic, 2008), even though the size of the Italian banking system is smaller compared to most other EU countries (De Bonis, Pozzolo, & Stacchini, 2012).² According to the Bank of Italy, financial debt represented 54% of the financial resources of SMEs in Italy in 2014, and bank debt represented 66% of financial debts. Stock and bond markets play a very limited role, particularly for new firms. Even in the UK and US, where financial markets are often argued to play a much more important role, bank financing is one of the most important sources external funding for new firms (Cosh et al., 2009; Robb & Robinson, 2014).

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. 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 604 in 2016, and on the other hand to a rapid growth in the number of bank branches, which jumped from 16,600 in 1990 to 29,027 in 2016 (Source: Bank of Italy).

² The ratio of bank assets to GDP for Italy was 2.3% in 2016, compared to 2.4% for Spain, 2.6% for Germany, and 3.7% for France. (European Central Bank, 2017)

Despite these changes, Italy still has a comparatively high number of banks, and bank market concentration, which has been increasing in recent years, is still fairly low compared to other European countries.³ The number of local bank branches relative to population on the other hand is close to the Euro area average.⁴ Benfratello et al. (2008), however, show that there are large differences between provinces with respect to branch density.

The most important Italian banks are limited companies which operate nationwide (e.g., Unicredit and Intesa San Paolo), and some of them operate even at the international level.⁵ In terms of number of branches by institutional category, national banks account for 70% of the total branches (Source: Bank of Italy). 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) (e.g., BCC di Roma and BCC di Alba, Langhe, Roero e del Canavese) and the larger *Banche Popolari* (e.g., Banco Popolare and Banca Popolare dell’Emilia Romagna). While BCCs today are still cooperative banks, Banche Popolari have evolved into entities in between national commercial banks and mutual banks. In terms of number of branches by institutional category, Banche Popolari and BCC account for 14% and 15% respectively. The role of foreign banks (e.g., Barclays Bank and ING Direct Bank) in Italy is quite small but not negligible, with a market share of customer deposits of 4% in 2010 (Infante & Rossi, 2013). Claessens & Van Horen (2014) report that foreign banks held 6% of all banking assets in Italy.

³ Population per credit institution in Italy (99,218) was lower than in France (150,243) or Spain (224,484) but higher than in Germany (48,462), Portugal (71,232) and the Euro area average (67,341) in 2016. The Herfindahl index for credit institutions in Italy evolved from 3.07% in 2008 to 4.52% in 2016 and the share of total assets of the largest five credit institutions evolved from 31% in 2008 to 43% in 2016 (European Central Bank, 2017).

⁴ Population per local branch was 2,067 in Italy and 2,278 in the Euro area in 2016 (European Central Bank, 2017).

⁵ Still, Italian banks are less internationalized than banks in most other European countries (De Bonis et al., 2012).

This percentage is the same for France, and equals 2% for Spain, 12% for Germany, 15% for the UK and 20% for the US.

THEORY AND HYPOTHESES

Taking a finance perspective and, more specifically, the idea that adverse selection and moral hazard issues as central issues in banking markets, 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 domestic banks versus foreign banks, respectively.

Local banking development

A fundamental problem in entrepreneurial finance markets—and banking markets more in particular—is informational asymmetry (Berger & Udell, 1998; Cosh et al., 2009). Banks face informational asymmetry problems and related adverse selection and moral hazard problems when dealing with entrepreneurial firms (Chua et al., 2011). Adverse selection refers to the difficulties for a bank to select good credit risks *ex-ante* when it lacks information about the quality of the borrower. When a bank provides a loan to a high risk entrepreneurial firm, in case of success it does not get any benefits from higher returns, except for a higher probability that the loan and its fixed interests will be paid back. It is the debt financed entrepreneur who captures all the upside in case of success, while an entrepreneur financed with equity has to share the upside with the other equity holders. As a result, it will be entrepreneurs establishing a high risk firm who will prefer debt financing (Stiglitz & Weiss, 1981; Cumming, 2006).

While informational asymmetry problems are commonplace, they are likely to be particularly severe for new firms (Berger & Udell, 1998). Scholars have argued that 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 local community to which they belong (Petersen & Rajan, 1994; Berger & Udell, 2002; Howorth & Moro, 2006; Chua et al., 2011). 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 & Moro, 2006). This not only reduces adverse selection problems but also moral hazard problems, which stem from the inability of the lender to effectively enforce credit contracts *ex-post* due to costly monitoring and incomplete contracting. Thus, in local community with more bank branches, all else equal, adverse selection and moral hazard problems between banks and new firms will be lower, thereby facilitating the provision of bank credit to these firms.

Next to the reduction of informational asymmetry problems, having more bank branches in a local market will, all else equal, reduce the distance between the bank's representative and new firms. This reduced distance will reduce transportation costs, which have been found to significantly affect access to bank financing (Degryse & Ongena, 2005). Finally, if more banks have branches in a local community, increased competition between the banks might increase the supply of loans, also for new firms (Black & Strahan, 2002).⁶ Based on all the above arguments, it

⁶ Stronger competition between banks at the local level could also have a negative effect. Petersen & Rajan (1995) argue that when a firm is young, the current cash flows are often low *while the potential for future cash flows may be high*. Lenders may be willing to subsidize young firms with cheap loans if they can extract rents later when the firms' cash flows become high, by then charging higher interest rates (Sharpe, 1990; Rajan, 1992). According to Petersen & Rajan, credit market competition imposes constraints on the extent to which the lender can intertemporally share surpluses. A lender to a young firm cannot be sure to share in the future surplus of the firm, because competitors can lend at low rates to the firm once the uncertainty about the prospects of the firm is resolved. As a result, lenders in a competitive market may be forced to charge high interest rates to young firms, creating a situation where young firms may not get credit at all. Nevertheless, based on earlier findings that local financial development in Italy favors the entry and growth of new firms (e.g., Guiso et al. 2004), we expect that in our context, the positive effects of increased competition in a more developed local banking market (i.e., increased supply of funds) will dominate the potential negative effect of increased competition.

can be expected that more bank branches in a province increase the provision of bank credit to new firms founded in that province. Thus,

Hypothesis 1: Higher overall bank branch density at the provincial level increases the use of debt financing by new firms founded in that province.

Local banks versus national banks

While we hypothesize that the overall effect of local banking development on the use of debt financing by new firms will be positive, this effect could become stronger or weaker depending on the type of banks that are active in a province. Many banking systems across the world are characterized by small local banks that operate in restricted territorial areas and large banks that operate nationwide (e.g., Berger, Klapper, & Udell, 2001; Alessandrini et al., 2009).

Some scholars have suggested that 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 (Black & Strahan, 2002; Berger, Goulding, & Rice, 2014). Moreover, modern lending technologies may have made it easier for national banks to provide loans to these firms, thereby eroding the advantage of local banks. Larger national banks may be better able to screen and monitor their customers due to scale economies, more sophisticated procedures and technologies. However, modern lending technologies are still primarily focused on hard information, which new firms almost lack by definition. Moreover, the fact that local banks in Italy persisted after the reforms of the 1990s (and local banks are still operating in many countries across the world) suggests that they have clear competitive advantages relative to national banks. These advantages are most likely to be situated in the provision of credit to what are arguably the most informationally opaque firms, namely new firms without a track record.

The presence of local banks may facilitate access to bank financing for new firms in the local community (Berger et al., 2015). Smaller local banks may be particularly suited for relationship banking relative to larger national 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 local banks than in national banks (Berger & 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, Salvo, & Ferri, 1998). Moreover, the diversity and specialization of local markets in Italy could make it more difficult for national actors to understand these markets, thereby fostering informational asymmetry problems—again, providing an advantage to local banks.

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 & 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, Freixas, Gambacorta, & Mistrulli, 2016). Bank headquarters are less able to interpret the information from distant branch loan managers than

information from closer ones. As a result, local banks are better at reducing adverse selection and moral hazard problems in the financing of new firms. Thus,

Hypothesis 2: The positive effect of bank branch density on the use of debt financing by new firms is more pronounced for branches of local banks than for branches of national banks.

Domestic banks versus foreign 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 & Van Horen, 2014). Foreign banks operating in several countries could provide loans at a lower cost than domestic banks, due to better economies of scale and risk diversification (e.g., Detragiache, Tressel, & Gupta, 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, Demirgüç-Kunt, & Huizinga, 2001). The results of Bruno & Hauswald (2014) and Giannetti & Ongena (2012), which are based on international samples that are not focused on new firms, 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. However, we believe that these advantages will not translate to new firms that are arguably the most informationally opaque firms.

In fact, lending to informationally opaque new firms 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. These differences exacerbate adverse selection problems for foreign lenders, which will be more pronounced for new firms without a track record than for established firms (e.g., Cumming, Fleming, & Schwiabacher, 2009). 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, Masschelein, & Mitchell, 2011). As a result, foreign banks may focus on offering collateralized loans to large transparent firms for which adverse selection problems are smaller, while new firms may not benefit significantly from the presence of these foreign banks.

The presence of foreign banks could even *reduce* access to bank credit for new firms in the province. Foreign bank entry may be “cream skimming” whereby they lend only to the most profitable and established local firms and therefore soft information borrowers are no longer pooled with hard information borrowers (Detragiache et al., 2008). Consistent with this argument, scholars have shown that foreign banks tend to have relationships with larger, older and more transparent firms (Berger, Klapper, Soledad Martinez Perio, & Zaidi, 2008; Pennathur & Vishwasrao, 2014) and do not provide credit to soft information firms that require relational contracting (Mian, 2006). Consequently, the domestic banks lose more of their less risky borrowers to the foreign banks while they retain more of their riskier borrowers, which increases the riskiness of their portfolios (Dell’Ariccia & Marquez, 2004; Sengupta, 2007). Foreign banks may hence make it harder for domestic banks to lend to new firms if the foreign banks consistently take away more profitable business from the domestic banks. This is true because domestic banks will be less able to subsidize cheaper loans to new firms that currently have low cash flows but have the potential to generate high future cash flows.⁷

In sum, lending to informationally opaque new firms is more difficult for branches of foreign banks that are used to different formal and informal institutions in their home country.

⁷ We do not argue, however, that Italian banks remain “passive” when foreign banks enter. But, all else equal, as foreign banks penetrate a market they will capture part of that market. Domestic banks can, for example, collude as a reaction to foreign bank entry. However, Italian firms tend to use more bank relationships than firms in other countries, which makes collusion harder for banks (e.g., Degryse, Kim, & Ongena, 2009).

Together with the “cream skimming” by foreign banks, which may hamper to provision of credit to new firms by domestic banks, we expect that more foreign bank branches in the local community may hamper new firms’ access to debt financing. Thus,

Hypothesis 3: The positive effect of bank branch density on the use of debt financing by new firms is less pronounced (and may even turn negative) for branches of foreign banks than for branches of domestic banks.

METHOD

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.

Firms had to fulfill the following criteria to be part of our sample of Italian new firms. First, firms had to be legally founded between 2007 and 2013.⁸ 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* new firms.⁹ 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

⁸ 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.

⁹ 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.

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* new firms. 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, 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.

The final sample contains 274,271 Italian independent, non-financial, new firms founded between 2007 and 2013. 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 firms.¹⁰

Model

We investigate the effect of local banking development on the use of debt by new firms by estimating the following model:

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

Where debt_i measures the use of debt by individual firms, and $\text{local banking development}_p$ measures banking development in the province in which the firm is located. We include a number of other variables to take into account that other local characteristics, firm characteristics, industry

¹⁰ It is also important to note that our sample does not suffer from survivorship bias the Amadeus version we consulted had a full coverage for all years of the sample period.

and year effects might also affect debt financing by new firms.¹¹ All variable definitions are described in Appendix.

A potential econometric problem is that any observed relation between local banking development and the use of debt by new firms may reflect omitted variables that affect both local banking development and debt financing. To probe the causal effect of local banking development on debt financing by new firms, we use exogenous determinants of the degree of banking development as instruments in 2SLS regressions. Following prior research on local financial development in Italy (Deloof & La Rocca, 2015; Minetti & Zhu, 2011; Herrera & Minetti, 2007; Guiso et al., 2004), we use measures of the local supply of credit in 1936 as determinants of local banking development in the 2000s.

As Guiso et al. (2004) discuss in detail, a new banking law introduced in 1936 in response to the 1930-1931 banking crisis severely constrained the growth of the banking system. The law, which remained substantially unchanged until 1985, affected some types of banks more than others. Since the type of banks in the system at the time strongly differed across regions, the law created significant and persistent local differences in banking development. Guiso et al. find that local banking development in 1936 is strongly correlated with local banking development in the 1990s. Furthermore, they demonstrate that local banking development was not significantly correlated with economic development at the time, making it unlikely that instruments based on local banking structures in 1936 are correlated with contemporary economic outcomes. Following Guiso et al., we use as instruments four measures of banking development in 1936 that significantly affect local banking development in 2007–2013: 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

¹¹ Since each firm appears only once in the sample, we cannot include firm fixed effects.

population in the region in which a firm is located.^{12, 13} The (unreported) results of our first-stage regressions confirm that the instrumental variables are significantly related to local banking development in our sample, with the expected sign. They are able to explain no less than 79.06 percent of the variation of the local banking development. The F-test statistic of the first stage regressions (F-statistic = 64.06, p-value 0.000) suggests that our instruments are always jointly significant. The Kleibergen-Paap rk Wald F statistic that applies when robust options are called for confirms that our instruments are highly relevant. In addition, we find that the Hansen-J statistic is insignificant, confirming that the instrumental variables are exogenous.

Dependent variables: Debt

To determine the effects of local banking development on credit availability for new firms, we consider the use of debt ($Debt > 0$) defined as a dummy variable equal to one when the new firm has debt outstanding, and zero otherwise. We also measure the proportion of debt to total assets ($Debt/TA$). For each measure we further distinguish between debt with a maturity of more than one year ($LT-Debt$) and debt with a maturity less than one year ($ST-Debt$).¹⁴

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

¹² Data on provincial banking development in 1936 were kindly provided by Luigi Guiso. 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.

¹³ We also considered incorporating a regulatory change as in Cumming & Zambelli (2010), who also focus on Italy but a different setting, namely the private equity market. However, we are not aware of such a relevant change for our context. Our current approach, which follows Guiso et al. (2004), has the advantage that it provides theoretical and empirical consistency with prior work on the Italian banking market.

¹⁴ In unreported analyses we also consider the amounts (natural logarithm) of debt taken by new firms. The results fully confirm those reported in the paper.

widely used as a measure of local banking development (e.g., Bonaccorsi di Patti & Gobbi, 2001; Degryse & 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 new firms, 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*. The latter 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.

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, Gomellini, Micucci, & Pagnini, 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 & Rossi (2001) argue that it is easier for banks to gather information on potential borrowers in these closed communities, which could make it easier for new firms to obtain bank loans. However, the close relations between firms in industrial districts

also facilitates the provision of trade credit (Deloof & La Rocca, 2015), i.e. an alternative source of funding for new firms, 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 (e.g., De Arcangelis & Ferri, 2005).

Local financial development is related to local crime (Bonaccorsi di Patti, 2009). Financial contracts require trust (e.g., Howorth & Moro, 2006), which is negatively affected by crime. An observed positive relation between banking development and the use of bank debt by new firms may therefore be affected by the degree of crime in a province. 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 2007-2013. 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 new firms might also be affected by the number of new firms in a province: more firms might make it more difficult for new firms to get access to scarce bank finance. We therefore include *new firm / population* which is the number of new firms 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. (2004), 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.

Control variables: Firm characteristics

Additionally, we include the four major firm characteristics affecting capital structure, as highlighted by prior research (e.g., Brav, 2009). 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 $\ln(\text{total assets})$ —the natural logarithm of total assets. *Tangibility* is tangible assets over total assets. Since the market-to-book ratio and sales growth are not available for new firms, our proxy for *growth opportunities* is the ratio of intangible assets to total assets. Additionally, all regressions include three-digit SIC industry dummies to control for industry fixed effects and year dummies to control for year fixed effects.

DESCRIPTIVE STATISTICS AND CORRELATIONS

Table 1 reports descriptive statistics. The average debt ratio of new firms in Italy is quite low at 9.4%; 30.7% of the new firms in our sample use debt. About two thirds of debt financing is short-term financing. New firms in Italy seem to make less use of debt financing than new firms in the US (Zarutskie, 2006; Robb & Robinson, 2014), Australia (Cassar, 2004) and Belgium (Huyghebaert & Van de Gucht, 2007; Hanssens et al., 2016), especially with respect to LT debt.

[Table 1 about here]

Table 1 also shows substantial variation in local banking development variables. The average number of overall bank branches per 1,000 inhabitants is 0.550 and ranges between 0.176 (in the province of Crotone) and 1.074 in the year 2011 (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 101 of the 103 provinces, while Banche Popolari had branches in 98 of the 103 provinces. There were foreign bank branches in 45% 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 new firm / population in 2011 of 0.148 in Nuoro and a maximum new firm / population in 2011 of 1.009 in La Spezia. Consistent with prior research (e.g., Guiso et al., 2004), we also find substantial variation with respect to the other province characteristics. The mean profitability is negative at -0.027, implying that the average new firm in our sample makes a loss.

Figure 1 shows the debt financing for the seven founding years included in our sample. The financial crisis led to a substantial reduction in the use of debt financing by new firms in 2008 and 2009. This reduction was more pronounced for short-term debt than for long-term debt. The use of debt increased in 2010 but fell again in 2011.

[Figure 1 about here]

Table 2 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 new firms, 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 new firms. In general, VIFs (unreported) show that multicollinearity problems are negligible.

[Table 2 about here]

REGRESSION RESULTS

Local banking development

We first estimate the impact of overall branch density on the debt financing of new firms. As discussed before, all regressions are 2SLS, and in each regression we control for local characteristics, firm characteristics, industry and year fixed effects.¹⁵ Since there are many firms in

¹⁵ Results are very similar if we use OLS instead of 2SLS.

our sample without debt, we also estimate regressions for the subsample of new firms with debt. In Table 3 we find a significant positive impact of bank branch density in the province on the use of debt by new firms, which supports hypothesis 1. The effect on overall debt is significant at the 1% level for both Debt/TA (column 1) and Debt>0 (column 2). 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. The significant positive effect of bank branch density is confirmed when we consider the subsample of new firms with debt (column 3), suggesting that a higher bank branch density not only increases the likelihood of getting access to bank debt for new firms, but also allows those firms to get more debt. A one standard deviation increase (0.187) in overall branch density increases the debt ratio by 2.7% for the full sample (column 1) and by 3.3% for new firms with debt financing (column 3), which is economically significant when compared to the average debt ratio of 9.4%. We find these effects for both ST debt and LT debt.

[Table 3 about here]

With respect to other local characteristics, the effect of the relative number of new firms in the province on debt stands out: the new firm / population coefficient is always negative and statistically significant, suggesting that more new firms in a province reduce the availability of debt for individual new firms. It is also interesting that industrial district density tends to be positively related to debt financing of new firms, which is consistent with the argument that industrial districts facilitate access to bank debt (Russo & Rossi, 2001). The results for firm characteristics are generally in line with a priori expectations. More profitable new firms use less debt, while larger new firms, new firms with more tangible assets which can be used as collateral and new firms with more growth opportunities use more debt.

Different bank types

In this subsection, we investigate whether the effect of branch density differs across different bank types. Table 4 reports results for regressions which include BCC, Banche Popolari and foreign bank branch densities. Each bank type branch density variable is the product of the relative proportion of branches of the bank type and overall branch density in the province.¹⁶ The estimated coefficient therefore measures how an increase in the relative number of bank type branches changes the effect of overall branch density. Since the regressions in Table 4 include densities for all bank types except national banks, the coefficient picks up any differential effect of the bank type (BCC, Banche Popolari or foreign bank) compared to national banks, which is the most common bank type.

The results in Table 4 first suggest that the effect of Banche Popolari is not significantly different from that of national banks. The Banche Popolari coefficient is negative but it is never statistically significant. This is in line with the fact that Banche Popolari became large banks, having lost their original connection to the local geographic area where they were supposed to be based on (in 2011, six Banche Popolari were listed in the stock market). With respect to BCC banks, BCC density does not significantly affect the debt ratio for the full sample (column 1). However, when we distinguish between the likelihood that firms in a province have debt (column 2) and the debt ratio of firms with debt (column 3), we find opposing effects. On the one hand, a higher proportion of BCC branches significantly reduces the positive effect of overall branch density on the likelihood that firms in the province have debt (column 2, $p < 0.05$). On the other hand, BCC density is *positively* related to the debt ratio of firms with debt (column 3, $p < 0.10$). These results hold when we distinguish between ST debt (columns 5 and 6) and LT debt (columns

¹⁶ For example, BCC branch density (no. of BCC branches per 1,000 inhabitants in the province) = (no. of BCC branches / total no. of branches) x overall branch density.

8 and 9). They indicate that the positive effect of bank branches on access to debt for new firms is less pronounced for local banks than for national banks. However, if local banks provide debt, they provide more debt than national banks. So, hypothesis 2 is only partially confirmed.

We also find a negative effect for foreign bank density on both the likelihood of debt use by new firms and the debt ratio of new firms. In most models in Table 4, the effect is statistically significant. The foreign bank density effect is also economically significant. A one standard deviation (0.009) increase in foreign bank density decreases the total debt ratio by 1.2%, while the average debt ratio for the sample (9.4%). This suggests that a higher proportion of foreign bank branches in a province reduces the use of debt by new firms. Furthermore, the coefficient of foreign bank density is always much higher than the overall branch density coefficient, indicating that an absolute increase in the number of foreign bank branches per 1,000 habitants in a province decreases the use of debt by new firms. These findings provide strong support for hypothesis 3.

[Table 4 about here]

Additional analyses

We do a number of additional analyses to confirm our findings. First, we investigate whether the effect of bank branch density holds for different parts of Italy, for the individual years in our sample, for restricted industry samples, and after controlling for the availability of business angel and venture capital investments in provinces. Second, we test the robustness of our findings on foreign bank branches by focusing on provinces with foreign bank branches, by matching provinces with the highest foreign bank density to provinces with low foreign bank density, and by distinguishing between banks from neighbouring countries and banks from other countries. Third, we seek confirmation of the role of bank branch density by investigating its effect on the cost of debt, the use of trade credit and firm survival. Finally, we test for possible interactions between

local banking development and traditional firm level capital structure variables. All results are available in Appendix.

North, Central and South Italy. There are large differences between North, Central, and South Italy, which may affect our results. So far, we have taken into account the potential effect of these differences 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 new firms in the three parts of Italy. We find a significant positive effect of local banking development on debt financing in North and Central Italy, while the effect is mostly insignificant South Italy, where bank branch density tends to be much lower.¹⁷

Year effects. Our sample covers a period when the Italian economy was hit by the global financial crisis (Budina, Lanau, & Topalova, 2015; Barone, de Blasio, & Mocetti, 2016). If the crisis reduced the supply of credit by banks, the benefit of having many local bank branches might have become smaller. However, when we estimate the effect of overall bank branch density for each of the seven years in our sample, the results generally remain significant in each year, although they are less pronounced in 2008.

Restricted industry samples. 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 ≥ 70) and a

¹⁷ The effect is most pronounced in Central Italy, where a one standard deviation increase (0.117) in overall branch density increases the debt ratio by 2.0%, compared to an average debt ratio of 8.2%. In North Italy, a one standard deviation increase (0.132) in overall branch density increases the debt ratio by 1.3%, compared to an average debt ratio of 12.5%.

sample for manufacturing firms only (US SIC codes 200-399). The results again confirm our earlier findings.

Business angel and venture capital investments. Differences in business angel and venture capital availability across provinces could also influence the capital structure of firms (particularly for those with high potential) by facilitating access to outside equity finance (e.g., Cole et al., 2016). However, the significant positive effect of local banking development on debt financing remains robust when we include measures of business angel and venture capital deals in our regressions.¹⁸

Foreign bank branches. Only 42 out of 103 provinces had foreign bank branches in the period considered in this study. First, to ascertain that our findings for foreign bank branches are not driven by differences between provinces with and without foreign bank branches, we re-estimate the regressions in Table 4 for the subsample of 42 provinces with foreign bank branches. We still find a significant negative effect of foreign bank density on total debt and ST debt. Second, to minimize the risk that the effect of foreign bank density is driven by other province characteristics, we use cluster analysis to match the provinces with the highest foreign bank density (Milan, Rome and Turin) to similar provinces but with low foreign bank density (Firenze, Naples, Palermo and Cagliari).¹⁹ Regression analysis confirms that firms in the provinces with the highest foreign bank density have significantly less debt than those in similar provinces with low foreign bank density.

¹⁸ We measure venture capital density by venture capital deals per 1,000 province inhabitants between 2007 and 2013 (source: Osservatorio “Venture Capital Monitor - VeMTM”; data retrieved from <http://privateequitymonitor.it>), and business angel density by business angel deals per 1,000 province inhabitants in 2016 (source: Italian Business Angels Network Association). We do find that business angel density is generally negatively related to debt financing in new firms, while results related to venture capital density are generally not significant. This set of findings might not be surprising as it is often acknowledged that business angels invest in very early stage firms, while venture capital investors often invest in somewhat later stages of development (e.g., Berger and Udell, 1998). Moreover, in Italy, the availability of venture capital is very limited (see <http://www.investeurope.eu>).

¹⁹ Using province indicators local GDP growth, industrial district density, fraud crimes and new firm / population, we obtain five province clusters with one cluster including Milan (140 foreign branches) and Firenze (three foreign branches) and another cluster including Rome (65 foreign branches), Turin (21 foreign branches), Naples (five foreign branches), Palermo (one foreign branch) and Cagliari (two foreign branches in 2013, zero before 2013).

We also test whether the effect of foreign banks depends on the geographic proximity between the parent country of the banks and Italy: adverse selection problems are arguably bigger for lenders which are located at a greater distance from the borrower (e.g., Hain, Johan, & Wang, 2016). Consistent with this argument, we find that the negative effect of foreign banks is driven by banks which are not located in a neighbouring country to Italy.²⁰

Cost of debt. Our finding that bank branch density is positively related to the use of debt raises the question how branch density affects the cost of debt. Using interest expenses in the post founding year over total debt outstanding in the founding year as a proxy for the cost of debt, we find that branch density is significantly and negatively related to the cost of debt. Thus, more bank branches in a province not only make debt more accessible but also cheaper for new firms.

Trade credit. Trade credit is an important alternative source of outside finance for SMEs (Beck et al., 2008; Deloof & La Rocca, 2015; Andrieu, Staglianò, & van der Zwan, 2017). This raises the question how trade credit is related to bank branch density and the use of debt by new firms. We find that overall branch density has a significant negative effect on the use of trade credit.²¹ Furthermore, when we include trade payables as an independent variable in our base model of the determinants of bank debt, trade payables and bank debt are significantly and negatively related. Both results suggest that new firms use more trade credit when access to bank debt is restricted.

Firm survival. Our findings suggest that a greater branch density facilitates access to credit for new firms. However, this is not necessarily good, if greater branch density leads to more poor quality firms getting credit. We address this issue by investigating the relation between debt finance

²⁰ Neighbouring countries are Austria, France, Slovenia, Spain and Switzerland. Other countries with banks having branches in Italy are Brazil, China, Denmark, Germany, Iran, Ireland, Japan, Latvia, Luxembourg, Netherlands, the UK and the USA (source: Bank of Italy).

²¹ Result based on 2SLS models in which the dependent variable is trade payables over total assets, and the independent variables are the same as in the bank debt models reported in the paper.

and firm survival up to three years after founding. If the average quality of new firms receiving debt is lower in provinces with a higher branch density, we expect that firms with debt have a lower survival rate when branch density is higher. However, when we compare the effect of debt financing on survival for firms in provinces with high bank branch density ($>$ median) versus firms in provinces with low bank branch density ($<$ median), we find that debt financing is associated with a *greater* or similar likelihood of survival in provinces with high branch density compared to provinces with low branch density.²² This result is inconsistent with the argument that firms receiving loans in provinces with a higher branch density tend to be of poorer quality.

Moderating effects. Finally, we investigate how local banking development moderates the effects of firm characteristics on debt financing, by including interactions between firm characteristics and overall branch density in the regressions. We find that the effect of firm characteristics is generally significantly stronger in provinces with a higher branch density. In other words, firm characteristics which reflect a demand for debt (i.e., larger size, higher growth, lower profitability) or access to debt (i.e., more tangible assets) are associated with more debt in provinces with more local branches.²³

DISCUSSION AND CONCLUSION

In this study, we provide new evidence on how local banking development and bank heterogeneity in the local banking market affect the debt financing of new firms. For this purpose, we use a

²² Results based on a sample of 273,995 new firms of which 7.3% were not dissolved after three years (excluding firms dissolved because of merger or takeover). We investigate the effect of Debt $>$ 0 and Debt/TA on survival three, two and one years after founding. The other independent variables in the model are the same as in the bank debt models reported in the paper. Additionally, we include debt policy, branch density and the interaction between debt policy and branch density in 2SLS regressions estimated for the full sample. The coefficient of the interaction is positive (but not statistically significant), which again suggests that higher branch density does not lead to more debt financing of poor quality firms.

²³ When we distinguish between LT Debt and ST Debt, these effects hold for LT Debt but the positive effect of tangibility and growth opportunities on ST Debt is actually reduced. For firms with more tangible assets and higher growth opportunities, a more developed local banking sector may lead to a shift from ST Debt to LT Debt.

unique, large-scale dataset comprising data on the financing of new firms founded between 2007 and 2013 in Italian provinces characterized by vastly differently developed banking markets.

For new firms characterized by large informational asymmetries, 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 our first hypothesis, we find that new firms are more likely to use debt and attract larger amounts of debt when they are located in a province with more bank branches. Thus, bank branch density in the local bank market affects borrowing by new firms and this despite being in an era characterized by modern information and communication technologies.

Our findings also show that it is important to account for bank heterogeneity in the local market. The positive effect of bank branches on access to debt for new firms is less pronounced for local banks than for national banks, but when local banks provide debt they provide more debt to new firms than national banks. This finding provides partial support for our second hypothesis. One possible explanation is that local banks are smaller and less diversified than the national banks, which may hamper the former's ability to provide risky loans to new firms. However, local banks have a better knowledge about the local community, while national banks rely more on hard information. Thus, conditional upon providing a loan, local banks may have an informational advantage, which allows them to provide larger loans.

Interestingly, consistent with our third hypothesis, we further find that the presence of foreign banks in a province has a negative effect on the use of debt by local new firms. This finding offers an important counter to the often acclaimed beneficial effects of internationalization in banking sectors (e.g., Claessens et al., 2001; Giannetti & Ongena, 2012). Thus, the presence of foreign banks in the local market worsens the financial situation for entrepreneurs in new firms that

are already vulnerable to informational asymmetry problems and constraints in accessing outside financing.

Contributions and theoretical implications

Our study's primary contribution is to the entrepreneurial finance literature. While previous studies have investigated the capital structure of new firms (e.g., Cassar, 2004; Huyghebaert & Van de Gucht, 2007), these studies have generally ignored within-country differences or implicitly assumed they do not matter much. The current study provides new evidence on the consequences of differently developed banking systems within a country on the financing of new firms. By providing new evidence on the role of banks and debt financing in new firms, we also address “a bias in the entrepreneurial finance literature”, which has disproportionately focused on equity financing (Cumming & Vismara, 2016, p. 3).

While entrepreneurial finance scholars may have neglected the role of banks in the financing of entrepreneurship, studies that do consider the role of banks often portray them as relatively homogenous. 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, 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., Howorth and Moro, 2006). Our study provides new theoretical and empirical insights on how heterogeneity in the local banking market affect new firm financing.

More broadly, our study also connects to a broader literature on managerial discretion (e.g., Hambrick & 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 & Finkelstein, 1987; Vanacker et al., 2013). To date, however, environmental determinants of discretion have been conceptualized primarily in terms of industry characteristics (Hambrick & Abrahamson, 1995) and more recently national-level factors (Crossland & Hambrick, 2011). Few entrepreneurship and management 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 to finance the initial operations of their new firms.

Relatedly, existing organizational theories suggest it is almost tautological to state that a munificent or 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 firms are founded in a province with more bank branches, these new firms 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 new firms' access to debt financing. Overall, the structure of the local banking market conditions the effect of banking development on the financing of new firms.

Practical implications

Our results carry important practical implications for entrepreneurs. Particularly entrepreneurs that are setting up new firms that are highly dependent on external debt financing may benefit from selecting locations that are rich in terms of local and national banks. Our robustness tests also

provide evidence that these locations not only make debt more accessible but also cheaper for new firms. Most entrepreneurs, however, start their firms in a familiar location because this location facilitates opportunity identification and initial venture development, including resource acquisition (Dahl & Sorenson, 2012). Our study suggests that the initial location can facilitate but also hamper new firm debt financing and this depending on the local financial development and heterogeneity in the local banking market.

Our results also carry important practical implications for policy-makers. 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 new firms. 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 new firms. However, when consolidation involves a general reduction in branch density of domestic (local and national) banks this is problematic for new firms. 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.

For policy-makers, our results suggest the need to increase the availability of debt for new firms in local markets with few domestic bank branches. Some governments (e.g., Belgium) have set up “credit intermediaries” which help SMEs and particularly new firms that experience problems accessing bank debt. They help entrepreneurs in their negotiations with banks, provide advice on credit applications and bring alternative sources of financing under the attention of entrepreneurs, amongst other activities. Additionally, (local) governments could facilitate the availability of alternative sources of outside finance, particularly in vulnerable locations.

Limitations and avenues for future research

Our findings suggest a need for additional theory and empirical work on the role of banks at the local level in the debt financing of new firms. Some limitations of our own study might serve as input for future work.

While one would expect local community banks to be better suited to provide loans to local new firms than banks headquartered outside the local community, our results suggest that this is not universally the case. Specifically, the positive effect of bank branches on access to debt for new firms is less pronounced for local banks than for national banks but when local banks provide debt they provide more debt to new firms than national banks. While we provide a preliminary answer supporting this finding, future studies could more explicitly study the proposed mechanisms.

Every study is confronted with a balance between internal validity and external validity. In our research, we focus on one specific country to unravel the effects of within-country differences in the banking market on new firm financing, which facilitates internal validity, but comes at the cost of lower external validity. New research could establish the generalizability of our findings beyond Italy. While local differences in financial development are widespread in many countries and Italy is far from unique in this respect, our results do not necessarily hold (or will be equally strong) in all countries. Hence, an interesting avenue for future research is to investigate how country characteristics moderate the impact of local financial development on new firm financing using an international sample of new firms.

We further consider a period that includes an economic crisis and its aftermath. There is some evidence of a credit crunch in Italy after the crisis (Budina, Lanau & Topalova, 2015; Barone, de Blasio & Mocetti, 2016), which raises the question to what extent our conclusions hold in other, more stable periods. However, since we focus on a relatively broad time period (2007-2013) and

our robustness tests suggest that our results also hold in each individual year in our sample, we expect that our results are not specific to the period that we study.

It would also be interesting to further investigate the role of trade credit and other potential sources of outside financing. We currently know little about what drives the use of trade credit by new firms. Studies on SMEs find that trade credit and bank debt are complements rather than substitutes (Deloof & La Rocca, 2015; Andrieu et al., 2017), but our results suggest that new firms rely on trade credit as an alternative source of funding when the availability of bank debt is restricted. Relatedly, it would be interesting to study the effect of local banking development on the use of a broader set of specific debt types and the specific loan terms used in the debt contracts, which we could not do in this study because we lack the data.

There are some other potential influences that we did not take into account due to a lack of data. For example, previous studies have suggested that founder characteristics have a relatively weak influence on financial decision making in new firms (e.g., Cassar, 2004). We did not account for founder characteristics because we lack relevant data for our large sample and were more interested in how “macro”-level variables (i.e., local financial development) influence the financing of new firms, rather than “micro”-level variables. However, we implicitly controlled for 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.

Finally, specifically for the Italian context it would be interesting to investigate how political connections, which play a significant role in the Italian credit market (Infante & Piazza, 2014), affect access of new firms to credit, and how the effects of political connections interact with local banking development.

Concluding note

This study is the first to illustrate how local banking development matters for the financing of new firms. Local banking development has on average a positive effect on the use of debt financing by new firms. 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 new firms. We hope that our study will form the basis for more work that examines how local banking market conditions influence the financing of entrepreneurship and entrepreneurial outcomes.

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Figure 1

Debt financing by founding year

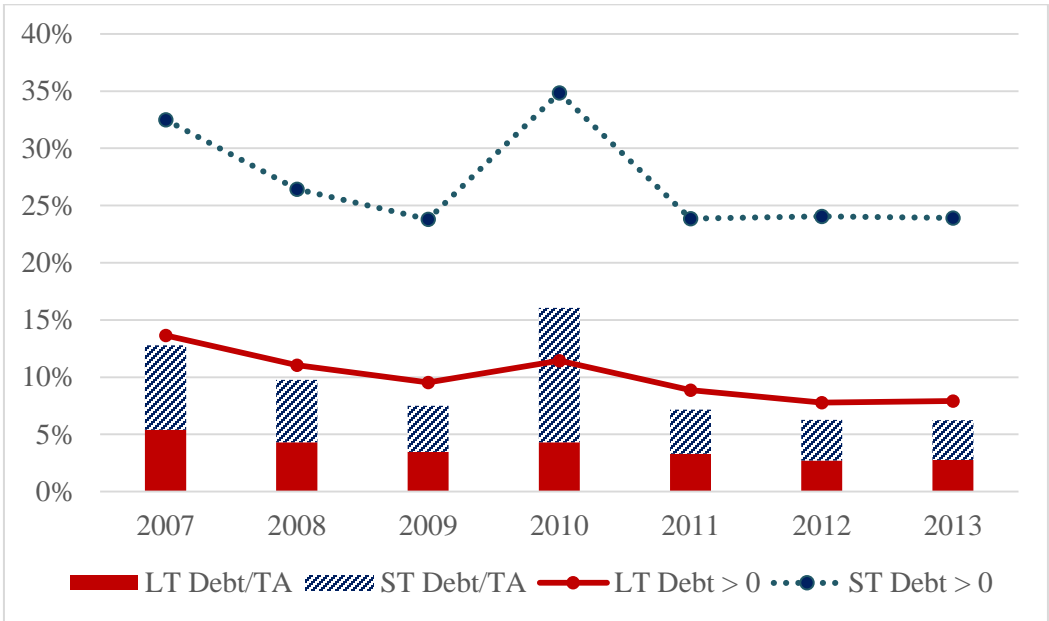


Table 1
Descriptive statistics

Variables	Mean	Median	Std.Dev.	Min	1 st quartile	3 rd quartile	Max
<i>Debt</i>							
Debt > 0	0.307						
Debt/TA	0.094	0.000	0.218	0.000	0.000	0.019	0.996
ST Debt > 0	0.269						
ST Debt /TA	0.056	0.000	0.161	0.000	0.000	0.001	0.952
LT Debt > 0	0.100						
LT Debt/TA	0.038	0.000	0.138	0.000	0.000	0.000	0.795
<i>Local banking development</i>							
Overall Branch Density	0.550	0.532	0.187	0.176	0.389	0.695	1.074
BCC Density	0.065	0.041	0.075	0.000	0.023	0.085	0.654
Banche Popolari Density	0.069	0.063	0.055	0.000	0.028	0.094	0.537
National Bank Density	0.411	0.413	0.134	0.133	0.284	0.510	0.764
Foreign Bank Density	0.006	0.002	0.009	0.000	0.000	0.008	0.037
<i>Other local characteristics</i>							
Industrial District Density	0.242	0.060	0.333	0.000	0.000	0.290	1.000
Fraud Crimes	0.190	0.178	0.056	0.031	0.152	0.222	0.420
Local GDP Growth	0.006	0.000	0.020	-0.116	-0.001	0.001	0.159
New firms/Population	0.497	0.475	0.106	0.148	0.424	0.565	1.009
South	0.252						
North	0.400						
<i>Firm characteristics</i>							
Profitability	-0.027	-0.000	0.263	-1.334	-0.068	0.052	0.669
Total Assets (TA) (€ 1,000)	267.180	77.386	592.267	2.500	23.139	228.116	4,162.066
Tangibility	0.152	0.026	0.241	0.000	0.000	0.204	0.972
Growth Opportunities	0.115	0.038	0.169	0.000	0.008	0.149	0.787

Table 2

Pearson correlations matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<i>Debt</i>														
1 Debt > 0	1.00													
2 Debt / TA	0.55	1.00												
3 ST Debt > 0	0.90	0.45	1.00											
4 ST Debt / TA	0.41	0.76	0.46	1.00										
5 LT Debt > 0	0.49	0.56	0.25	0.06	1.00									
6 LT Debt / TA	0.38	0.67	0.17	0.02	0.80	1.00								
<i>Local banking development</i>														
7 Overall Branch Density	0.13	0.15	0.12	0.11	0.11	0.10	1.00							
8 BCC Density	0.09	0.10	0.08	0.08	0.07	0.06	0.66	1.00						
9 Banche Pop. Density	0.04	0.03	0.05	0.02	0.03	0.02	0.42	0.23	1.00					
10 National Bank Density	0.12	0.13	0.11	0.10	0.10	0.10	0.84	0.28	0.02	1.00				
11 Foreign Bank Density	-0.00	-0.01	-0.00	-0.01	-0.01	-0.01	0.13	-0.14	0.20	0.10	1.00			
<i>Other local characteristics</i>														
12 Industrial District Density	0.10	0.10	0.10	0.07	0.08	0.07	0.54	0.36	0.37	0.39	-0.00	1.00		
13 Fraud Crimes	-0.06	-0.07	-0.06	-0.06	-0.04	-0.03	-0.33	-0.30	-0.12	-0.25	0.21	-0.26	1.00	
14 Local GDP Growth	0.05	0.05	0.04	0.03	0.04	0.04	0.12	0.02	0.01	0.14	0.11	0.05	0.11	1.00
15 New Firm / Population	-0.03	-0.02	-0.03	-0.03	-0.02	-0.00	0.04	-0.18	-0.11	0.19	0.24	-0.15	0.19	0.26

Note: All correlations are significant at the 5% level except *italics*.

Table 3

Overall branch density and debt financing 2007-2013

Sample: Dependent variable:	(1) All Debt/TA	(2) All Debt>0	(3) Debt>0 Debt/TA	(4) All ST Debt/TA	(5) All ST Debt>0	(6) ST Debt>0 ST Debt/TA	(7) All LT Debt/TA	(8) All LT Debt>0	(9) LT Debt>0 LT Debt/TA
Overall Branch Density	0.145*** (0.031)	0.204*** (0.056)	0.177*** (0.050)	0.103*** (0.022)	0.210*** (0.053)	0.140*** (0.043)	0.040*** (0.014)	0.083** (0.035)	0.094** (0.040)
Industrial District Density	0.001 (0.005)	0.015 (0.011)	-0.004 (0.008)	-0.002 (0.003)	0.014 (0.010)	-0.009 (0.007)	0.002 (0.003)	0.010* (0.006)	-0.011 (0.007)
Fraud Crimes	0.014 (0.030)	-0.077 (0.058)	0.036 (0.066)	0.011 (0.022)	-0.061 (0.053)	0.016 (0.058)	0.003 (0.011)	-0.016 (0.024)	0.029 (0.040)
Local GDP Growth	0.214*** (0.073)	0.245 (0.151)	0.217** (0.096)	0.034 (0.038)	0.071 (0.126)	-0.007 (0.084)	0.171*** (0.044)	0.349*** (0.090)	0.188 (0.128)
New Firm / Population	-0.070*** (0.013)	-0.168*** (0.030)	-0.093*** (0.025)	-0.040*** (0.008)	-0.154*** (0.028)	-0.054*** (0.017)	-0.028*** (0.007)	-0.087*** (0.017)	0.011 (0.026)
South	0.009 (0.008)	0.006 (0.016)	-0.007 (0.014)	0.010** (0.005)	0.013 (0.015)	0.007 (0.010)	-0.001 (0.003)	-0.006 (0.009)	-0.004 (0.011)
North	0.003 (0.005)	0.013 (0.010)	-0.000 (0.008)	0.002 (0.003)	0.011 (0.010)	0.001 (0.005)	0.001 (0.003)	0.003 (0.006)	-0.006 (0.007)
Profitability	-0.082*** (0.006)	-0.087*** (0.004)	-0.194*** (0.007)	-0.057*** (0.004)	-0.085*** (0.005)	-0.105*** (0.005)	-0.023*** (0.002)	-0.033*** (0.003)	-0.237*** (0.010)
Ln(Total Assets)	0.030*** (0.001)	0.090*** (0.003)	0.019*** (0.001)	0.012*** (0.001)	0.075*** (0.003)	0.005*** (0.001)	0.018*** (0.001)	0.051*** (0.003)	-0.014*** (0.002)
Tangibility	0.089*** (0.004)	0.125*** (0.007)	0.124*** (0.006)	-0.006** (0.003)	0.049*** (0.006)	-0.041*** (0.007)	0.093*** (0.005)	0.183*** (0.009)	0.115*** (0.008)
Growth Opportunities	0.056*** (0.004)	0.108*** (0.009)	0.074*** (0.012)	0.006** (0.003)	0.080*** (0.010)	-0.032*** (0.011)	0.049*** (0.004)	0.123*** (0.013)	0.111*** (0.015)
R-squared	0.114	0.124	0.121	0.058	0.092	0.046	0.100	0.119	0.147
Observations	274,271	274,271	86,948	274,271	274,271	73,778	274,271	274,271	27,501

Notes: All regressions include industry and year dummies. Robust standard errors clustered by provinces, are reported in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 4

Different bank types and debt financing 2007-2013

Sample:	(1) All	(2) All	(3) Debt>0	(4) All	(5) All	(6) ST Debt>0	(7) All	(8) All	(9) LT Debt>0
Dependent variable:	Debt/TA	Debt>0	Debt/TA	ST Debt/TA	ST Debt>0	ST Debt/TA	LT Debt/TA	LT Debt>0	LT Debt/TA
Overall Branch Density	0.135** (0.055)	0.484*** (0.165)	0.026 (0.075)	0.094** (0.040)	0.498*** (0.168)	-0.011 (0.053)	0.043 (0.027)	0.180** (0.070)	-0.092 (0.074)
BCC Density	-0.030 (0.064)	-0.369** (0.157)	0.113* (0.066)	-0.013 (0.038)	-0.354** (0.143)	0.121*** (0.044)	-0.021 (0.033)	-0.146* (0.085)	0.185*** (0.059)
Banche Popolari Density	-0.079 (0.096)	-0.051 (0.309)	-0.124 (0.163)	-0.017 (0.066)	-0.083 (0.324)	0.114 (0.123)	-0.058 (0.045)	-0.161 (0.122)	-0.085 (0.134)
Foreign Bank Density	-0.708** (0.281)	-0.528 (0.866)	-1.294*** (0.391)	-0.374* (0.191)	-0.209 (0.849)	-0.883*** (0.288)	-0.335*** (0.129)	-0.629* (0.327)	-0.646 (0.425)
R-squared	0.115	0.122	0.121	0.058	0.089	0.047	0.101	0.119	0.146
Observations	274,271	274,271	86,948	274,271	274,271	73,778	274,271	274,271	27,501

Notes: All regressions include local characteristics, firm characteristics, industry and year dummies. Robust standard errors clustered by provinces, are reported in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Local banking development and the use of debt financing by new firms

Note: results reported in this appendix are always based on 2SLS estimation, unless otherwise mentioned.

This appendix contains the following tables:

Table A.1. Variables definitions

Table A.2. North versus Central versus South Italy

Table A.3. Year by year regressions

Table A.4. Regressions for restricted industry samples

Table A.5. Venture capital and business angel density

Table A.6. Different bank types and debt financing: only provinces with foreign branches

Table A.7. Effect of foreign bank density for samples with matching of provinces based on province characteristics local GDP growth, industrial district density, fraud crimes and new firm / population

Table A.8. Effect of foreign bank density: banks from neighbouring countries versus banks from other countries

Table A.9. Cost of debt and trade credit

Table A.10 Survival analysis OLS – dependent variable = survival after 3 years

Table A.11. Survival analysis: additional tests

Table A.12. Moderating effects of local banking development

Table A.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 <i>banche di credito cooperativo (BCC)</i> branches per 1,000 inhabitants in the province
Banche Popolari Density	Number of <i>banche popolari</i> 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

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
Fraud Crimes	Average number of fraud crimes reported by police forces to the judicial authority per 1,000 inhabitants
Local GDP Growth	Year-by-year percentage growth rate in provincial GDP
New Firm / Population	Number of new firms 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
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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 A.2

North versus Central versus South Italy

Panel A: Mean province values (unweighted)

	North (N)	Mean Central (C)	South (S)
Debt>0	0.371	0.278	0.238
Debt/TA	0.125	0.082	0.058
Overall Branch Density	0.695	0.562	0.312
% National Bank Branches	71.5%	79.2%	79.3%
% BCC Branches	14.3%	10.0%	12.4%
% Banche Popolari Branches	12.8%	9.7%	8.1%
% Foreign Bank Branches	1.5%	1.1%	0.2%
New Firm / Population	0.468	0.580	0.448
Fraud Crimes	0.183	0.180	0.210
Industrial District Density	0.428	0.175	0.026

Panel B: Regression results

Dependent variable:	(1) All Debt / TA	(2) All Debt>0	(3) Debt >0 Debt/TA	(4) All ST Debt / TA	(5) All ST Debt>0	(6) ST Debt >0 ST Debt/TA	(7) All LT Debt / TA	(8) All LT Debt>0	(9) LT Debt >0 LT Debt/TA
North Italy									
Overall Branch Density	0.100*** (0.025)	0.119*** (0.041)	0.139*** (0.037)	0.072*** (0.016)	0.130*** (0.037)	0.113*** (0.033)	0.026** (0.012)	0.039 (0.031)	0.101*** (0.036)
R-squared	0.117	0.123	0.124	0.059	0.091	0.051	0.107	0.125	0.164
Observations	115528	115528	44299	115528	115528	37664	115528	115528	15406
Central Italy									
Overall Branch Density	0.168*** (0.025)	0.265*** (0.044)	0.251*** (0.052)	0.091*** (0.013)	0.228*** (0.041)	0.129*** (0.028)	0.076*** (0.016)	0.166*** (0.034)	0.124** (0.057)
R-squared	0.102	0.112	0.110	0.051	0.081	0.036	0.095	0.113	0.133
Observations	88675	88675	25479	88675	88675	21486	88675	88675	7786
South Italy									
Overall Branch Density	0.090 (0.058)	0.380* (0.218)	-0.007 (0.148)	0.082** (0.038)	0.415* (0.222)	0.047 (0.085)	0.011 (0.026)	0.041 (0.066)	0.013 (0.121)
R-squared	0.071	0.093	0.086	0.036	0.067	0.024	0.070	0.087	0.127
Observations	70068	70068	17170	70068	70068	14628	70068	70068	4309

Notes: All regressions include other local characteristics, firm characteristics, industry and year dummies. Robust standard errors clustered by provinces, are reported in brackets.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.3

Year by year regressions

Sample: Dependent variable:	(2) All Debt/TA	(1) All Debt>0	(7) Debt>0 Debt/TA	(4) All ST Debt/TA	(3) All ST Debt>0	(8) ST Debt>0 ST Debt/TA	(6) All LT Debt/TA	(5) All LT Debt>0	(9) LT Debt>0 LT Debt/TA
2007									
Overall Branch Density	0.183*** (0.053)	0.204*** (0.077)	0.200*** (0.048)	0.149*** (0.045)	0.281*** (0.077)	0.162*** (0.059)	0.032 (0.020)	0.034 (0.050)	0.126*** (0.043)
R-squared	0.177	0.169	0.162	0.073	0.119	0.061	0.126	0.142	0.173
Observations	37234	37234	14255	37234	37234	12106	37234	37234	5080
2008									
Overall Branch Density	0.129** (0.066)	0.112 (0.093)	0.195* (0.106)	0.106*** (0.041)	0.159* (0.094)	0.184** (0.086)	0.021 (0.034)	0.010 (0.064)	0.137 (0.102)
R-squared	0.123	0.131	0.136	0.050	0.094	0.044	0.098	0.114	0.155
Observations	43202	43202	13553	43202	43202	11422	43202	43202	4770
2009									
Overall Branch Density	0.065** (0.033)	0.136* (0.069)	0.033 (0.063)	0.074*** (0.021)	0.174*** (0.057)	0.106* (0.054)	-0.011 (0.022)	-0.033 (0.054)	0.011 (0.069)
R-squared	0.102	0.109	0.123	0.042	0.080	0.031	0.086	0.105	0.152
Observations	40844	40844	11432	40844	40844	9718	40844	40844	3894
2010									
Overall Branch Density	0.160*** (0.029)	0.133** (0.053)	0.165*** (0.045)	0.120*** (0.026)	0.132*** (0.051)	0.102*** (0.036)	0.043*** (0.013)	0.108*** (0.028)	0.069 (0.044)
R-squared	0.044	0.111	0.064	0.025	0.084	0.023	0.112	0.127	0.155
Observations	35824	35824	15561	35824	35824	12481	35824	35824	4098
2011									

Overall Branch Density	0.105*** (0.030)	0.170** (0.072)	0.170*** (0.037)	0.079*** (0.021)	0.153** (0.067)	0.173*** (0.038)	0.024* (0.013)	0.058 (0.036)	0.032 (0.056)
R-squared	0.109	0.107	0.138	0.041	0.077	0.030	0.096	0.115	0.149
Observations	45694	45694	12679	45694	45694	10900	45694	45694	4052
2012									
Overall Branch Density	0.096*** (0.018)	0.181*** (0.065)	0.139*** (0.048)	0.065*** (0.021)	0.170** (0.066)	0.112** (0.047)	0.030** (0.013)	0.083*** (0.028)	0.012 (0.087)
R-squared	0.095	0.095	0.127	0.036	0.071	0.028	0.086	0.108	0.133
Observations	38542	38542	10502	38542	38542	9272	38542	38542	3001
2013									
Overall Branch Density	0.097*** (0.018)	0.269*** (0.068)	0.089 (0.060)	0.052*** (0.012)	0.262*** (0.072)	0.043 (0.039)	0.042*** (0.013)	0.111*** (0.022)	0.021 (0.096)
R-squared	0.085	0.097	0.106	0.030	0.073	0.018	0.082	0.107	0.139
Observations	32931	32931	8966	32931	32931	7879	32931	32931	2606

Notes: All regressions include industry and year dummies. Robust standard errors clustered by provinces, are reported in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.4

Regressions for restricted industry samples

Panel A: Without services industries (US SIC codes ≥ 70)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent variable:	All Debt / TA	All Debt>0	Debt>0 Debt/TA	All ST Debt / TA	All ST Debt>0	ST Debt>0 ST Debt/TA	All LT Debt / TA	All LT Debt>0	LT Debt>0 LT Debt/TA
Overall Branch Density	0.148*** (0.035)	0.207*** (0.061)	0.167*** (0.052)	0.107*** (0.025)	0.221*** (0.058)	0.130*** (0.046)	0.039*** (0.013)	0.078** (0.035)	0.091** (0.041)
R-squared	0.114	0.126	0.120	0.058	0.094	0.047	0.102	0.120	0.158
Observations	209777	209777	69157	209777	209777	58296	209777	209777	22785

Panel B: Manufacturing industries only (US SIC codes 200-399)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent variable:	All Debt / TA	All Debt>0	Debt>0 Debt/TA	All ST Debt / TA	All ST Debt>0	ST Debt>0 ST Debt/TA	All LT Debt / TA	All LT Debt>0	LT Debt>0 LT Debt/TA
Overall Branch Density	0.123*** (0.031)	0.211*** (0.061)	0.129*** (0.049)	0.084*** (0.017)	0.260*** (0.056)	0.045* (0.023)	0.040** (0.019)	0.109** (0.055)	0.045 (0.049)
R-squared	0.114	0.154	0.108	0.092	0.137	0.055	0.076	0.115	0.202
Observations	30921	30921	11776	30921	30921	10534	30921	30921	3370

Notes: All regressions include other local characteristics, firm characteristics, industry and year dummies. Robust standard errors clustered by provinces, are reported in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.5

Venture capital and business angel density

Panel A: Descriptive statistics

Variables	Mean	Median	Std.Dev.	Min	1 st quartile	3 rd quartile	Max
Venture Capital Density	0.005	0.000	0.007	0.000	0.000	0.008	0.030
Business Angel Density	0.001	0.001	0.001	0.000	0.000	0.001	0.008

Panel B: Mean province values (unweighted) for North versus Central versus South Italy

	North	Central	South
Venture Capital Density	0.007	0.004	0.003
Business Angel Density	0.002	0.001	0.000

Panel C: Regression results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent variable:	All Debt / TA	All Debt>0	Debt>0 Debt/TA	All ST Debt / TA	All ST Debt>0	ST Debt>0 ST Debt/TA	All LT Debt / TA	All LT Debt>0	LT Debt>0 LT Debt/TA
Overall Branch Density	0.142*** (0.035)	0.231*** (0.069)	0.157*** (0.052)	0.107*** (0.023)	0.242*** (0.067)	0.141*** (0.043)	0.034** (0.016)	0.068* (0.038)	0.073* (0.042)
Venture Capital Density	-0.004 (0.231)	0.662 (0.508)	-0.480 (0.335)	0.159 (0.178)	0.797 (0.568)	0.152 (0.279)	-0.160 (0.102)	-0.317 (0.261)	-0.544* (0.306)
Business Angel Density	-2.653** (1.051)	-4.696** (2.243)	-2.606 (1.937)	-1.793** (0.756)	-4.188* (2.358)	-2.784 (1.698)	-0.878* (0.486)	-2.874** (1.181)	1.407 (1.574)
R-squared	0.114	0.124	0.121	0.058	0.092	0.046	0.100	0.119	0.147
Observations	274271	274271	86948	274271	274271	73778	274271	274271	27501

Notes: Venture capital density is venture capital deals per 1,000 province inhabitants between 2007 and 2013 (source: Osservatorio “Venture Capital Monitor - VeMTM”; data retrieved from <http://privateequitymonitor.it>), and business angel density is business angel deals per 1,000 province inhabitants in 2016 (source:

Italian Business Angels Network Association). All regressions include other local characteristics, firm characteristics, industry and year dummies. Robust standard errors clustered by provinces, are reported in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.6

Different bank types and debt financing: only provinces with foreign branches

Sample:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent variable:	All Debt/TA	All Debt>0	Debt>0 Debt/TA	All ST Debt/TA	All ST Debt>0	ST Debt>0 ST Debt/TA	All LT Debt>0	All LT Debt/TA	LT Debt>0 LT Debt/TA
Overall Branch Density	0.044 (0.045)	0.267** (0.104)	-0.066 (0.071)	0.026 (0.027)	0.266** (0.109)	-0.042 (0.044)	0.078 (0.059)	0.018 (0.024)	-0.059 (0.043)
BCC Density	0.067 (0.070)	-0.152 (0.138)	0.217*** (0.067)	0.057 (0.041)	-0.133 (0.133)	0.162*** (0.047)	-0.042 (0.078)	0.006 (0.035)	0.166*** (0.051)
Banche Popolari Density	-0.107 (0.093)	-0.201 (0.185)	-0.126 (0.188)	-0.000 (0.052)	-0.146 (0.207)	0.134 (0.123)	-0.304** (0.131)	-0.105** (0.053)	-0.008 (0.079)
Foreign Bank Density	-0.674*** (0.248)	-0.199 (0.546)	-1.342*** (0.418)	-0.506*** (0.146)	-0.123 (0.542)	-1.044*** (0.308)	-0.340 (0.361)	-0.170 (0.130)	-0.390 (0.250)
R-squared	0.116	0.124	0.124	0.061	0.093	0.048	0.118	0.100	0.146
Observations	182341	182341	57598	182341	182341	49028	182341	182341	18055

Notes: All regressions include local characteristics, firm characteristics, industry and year dummies. Robust standard errors clustered by provinces, are reported in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.7

Effect of foreign bank density for samples with matching of provinces based on province characteristics local GDP growth, industrial district density, fraud crimes and new firm / population

	(1)	(2)
Sample:	Milan vs Firenze	Milan, Rome and Turin vs Firenze, Naples, Palermo and Cagliari
Estimation method:	OLS	OLS
Dependent variable:	Debt/TA	Debt/TA
Overall Branch Density	-0.178*** (0.033)	0.095*** (0.013)
High Foreign Bank Density Dummy	-0.025*** (0.003)	-0.021*** (0.005)
R-squared	0.103	0.098
Observations	30898	106069

Notes: All regressions include local characteristics, firm characteristics, industry and year dummies. Robust standard errors clustered by provinces, are reported in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.8

Effect of foreign bank density: banks from neighbouring countries versus banks from other countries

Panel A: Descriptive statistics

Variables	Mean	Std.Dev.	Min	Max
Neighbouring countries	0.001	0.001	0.000	0.004
Other countries	0.007	0.010	0.000	0.033

Panel A: Regression results

Sample:	(1) All	(2) All	(3) Debt>0	(4) All	(5) All	(6) ST Debt>0	(7) All	(8) All	(9) LT Debt>0
Dependent variable:	Debt/TA	Debt>0	Debt/TA	ST Debt/TA	ST Debt>0	ST Debt/TA	LT Debt>0	LT Debt/TA	LT Debt/TA
Overall Branch Density	0.174** (0.075)	0.563*** (0.195)	0.089 (0.097)	0.115** (0.049)	0.576*** (0.201)	0.020 (0.059)	0.062* (0.036)	0.214** (0.091)	-0.073 (0.082)
BCC Density	-0.051 (0.077)	-0.406** (0.186)	0.079 (0.076)	-0.024 (0.043)	-0.389** (0.173)	0.103** (0.044)	-0.031 (0.040)	-0.164* (0.099)	0.174*** (0.059)
Banche Popolari Density	-0.110 (0.120)	-0.109 (0.318)	-0.173 (0.208)	-0.034 (0.078)	-0.139 (0.335)	0.092 (0.140)	-0.073 (0.054)	-0.187 (0.136)	-0.104 (0.140)
<i>Foreign Bank Density</i>									
Neighbouring countries	16.579 (10.870)	35.065 (30.866)	25.372 (20.770)	8.743 (8.857)	35.424 (34.222)	12.245 (15.387)	7.812 (5.104)	14.749 (11.792)	5.661 (22.312)
Other countries	-2.381** (1.159)	-4.171 (3.454)	-3.866* (2.341)	-1.254 (0.958)	-3.922 (3.805)	-2.101 (1.736)	-1.125** (0.528)	-2.120* (1.217)	-1.169 (2.519)
R-squared	0.113	0.120	0.120	0.057	0.088	0.047	0.100	0.119	0.146
Observations	274271	274271	86948	274271	274271	73778	274271	274271	27501

Notes: In this analysis, foreign bank density measures are calculated for 2009, based on data from the Bank of Italy. Neighbouring countries are Austria, France, Slovenia, Spain and Switzerland. Other countries with banks having branches in Italy are Brazil, China, Denmark, Germany, Iran, Ireland, Japan, Latvia, Luxembourg, Netherlands, the UK and the USA. All regressions include local characteristics, firm characteristics, industry and year dummies. Robust standard errors clustered by provinces, are reported in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.9

Cost of debt and trade credit

Sample: Dependent variable:	Debt > 0 Cost of debt	All Accounts payable / TA	All Debt / TA
Overall Branch Density	-0.084** (0.041)	-0.076*** (0.027)	0.141*** (0.031)
Accounts payable / TA			-0.053*** (0.006)
Industrial District Density	-0.002 (0.010)	0.008 (0.006)	0.001 (0.005)
Fraud Crimes	-0.026 (0.051)	0.069** (0.029)	0.018 (0.030)
Local GDP Growth	0.129 (0.139)	-0.075 (0.073)	0.209*** (0.071)
New Firm / Population	0.109*** (0.034)	-0.019 (0.018)	-0.071*** (0.013)
South	0.052*** (0.014)	0.013* (0.008)	0.010 (0.008)
North	-0.026*** (0.009)	0.020*** (0.006)	0.004 (0.005)
Profitability	0.143*** (0.009)	-0.187*** (0.008)	-0.092*** (0.006)
Ln(Total Assets)	-0.070*** (0.002)	0.036*** (0.004)	0.032*** (0.001)
Tangibility	-0.137*** (0.007)	-0.080*** (0.006)	0.084*** (0.004)
Growth Opportunities	-0.054*** (0.015)	-0.212*** (0.010)	0.045*** (0.004)
R-squared	0.071	0.092	0.121
Observations	86948	274271	274271

Notes: All regressions include industry and year dummies. Robust standard errors clustered by provinces, are reported in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.10
Survival analysis OLS – dependent variable = survival after 3 years

Sample: Debt Measure:	Overall Branch Density > median		Overall Branch Density < median	
	Debt>0	Debt/TA	Debt>0	Debt/TA
Debt Measure	0.008*** (0.002)	0.013*** (0.003)	0.003 (0.002)	0.015*** (0.003)
Industrial District Density	-0.004 (0.451)	-0.004 (0.467)	-0.021 (0.346)	-0.021 (0.347)
Fraud Crimes	0.006 (0.893)	0.007 (0.879)	-0.070** (0.015)	-0.070** (0.015)
Local GDP Growth	0.004 (0.915)	0.003 (0.939)	0.070 (0.180)	0.071 (0.175)
New Firm / Population	-0.000 (0.996)	-0.000 (0.989)	-0.062*** (0.001)	-0.062*** (0.001)
South	0.001 (0.542)	0.001 (0.557)	0.002 (0.620)	0.002 (0.608)
North	-0.011** (0.011)	-0.011** (0.011)	-0.006 (0.662)	-0.006 (0.657)
Profitability	0.110*** (0.000)	0.111*** (0.000)	0.098*** (0.000)	0.098*** (0.000)
Ln(Total Assets)	0.010*** (0.000)	0.010*** (0.000)	0.007*** (0.000)	0.007*** (0.000)
Tangibility	0.046*** (0.000)	0.046*** (0.000)	0.047*** (0.000)	0.046*** (0.000)
Growth Opportunities	0.017*** (0.004)	0.017*** (0.004)	0.016** (0.014)	0.016** (0.017)
R-squared	0.040	0.040	0.032	0.032
Observations	132200	132200	141795	141795

Notes: All regressions include industry and year dummies. Robust standard errors clustered by provinces, are reported in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.11

Survival analysis: additional tests

Panel A: OLS - Dependent variable = survival after 1 year

Sample: Debt Measure:	Overall Branch Density > median		Overall Branch Density < median	
	Debt>0	Debt/TA	Debt>0	Debt/TA
Debt Measure	0.001** (0.001)	0.003** (0.001)	0.000 (0.001)	0.002 (0.001)
R-squared	0.016	0.016	0.013	0.013
Observations	132200	132200	141795	141795

Panel B: OLS - Dependent variable = survival after 2 years

Sample: Debt Measure:	Overall Branch Density > median		Overall Branch Density < median	
	Debt>0	Debt/TA	Debt>0	Debt/TA
Debt Measure	0.004*** (0.001)	0.007*** (0.002)	0.001 (0.001)	0.004* (0.002)
R-squared	0.032	0.032	0.026	0.026
Observations	132200	132200	141795	141795

Panel C: Probit - Dependent variable = survival after 3 years

Sample: Debt Measure:	Overall Branch Density > median		Overall Branch Density < median	
	Debt>0	Debt/TA	Debt>0	Debt/TA
Debt Measure	0.062*** (0.014)	0.115*** (0.030)	0.028* (0.016)	0.138*** (0.024)
Observations	132200	132200	141795	141795

Panel D: 2SLS - Dependent variable = survival after 3 years

Sample:	All	All
Debt Measure:	Debt>0	Debt/TA
Debt Measure	-0.436 (0.584)	-0.356 (0.433)
Debt Measure x Overall Branch Density	0.777 (0.961)	0.611 (0.710)
Overall Branch Density	-0.429 (0.410)	-0.150 (0.109)
R-squared	-0.027	0.027
Observations	273997	273997

Notes: All regressions include other local characteristics, firm characteristics, industry and year dummies. Robust standard errors clustered by provinces, are reported in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.12

Moderating effects of local banking development

Sample:	(1)	(2)	(3)
Debt measure:	All Debt/TA	All STDebt/TA	All LTDebt/TA
Overall Branch Density	-0.040 (0.027)	0.044 (0.049)	-0.084 (0.115)
Overall Branch Density x Profitability	-0.133*** (0.017)	-0.095*** (0.012)	-0.037*** (0.009)
Overall Branch Density x Ln(Total Assets)	0.036*** (0.004)	0.016*** (0.002)	0.020*** (0.003)
Overall Branch Density x Tangibility	0.092*** (0.015)	-0.052*** (0.012)	0.141*** (0.015)
Overall Branch Density x Growth Opportunities	-0.015 (0.026)	-0.078*** (0.020)	0.066*** (0.015)
Profitability	-0.008 (0.011)	-0.005 (0.008)	-0.003 (0.005)
Ln(Total Assets)	0.010*** (0.003)	0.004** (0.001)	0.006*** (0.002)
Tangibility	0.038*** (0.008)	0.023*** (0.007)	0.015* (0.008)
Growth Opportunities	0.064*** (0.014)	0.049*** (0.010)	0.012 (0.010)
R-squared	0.118	0.060	0.105
Observations	274271	274271	274271

Notes: Reported results are based on 2SLS regressions with the interactions between the original instruments (as described in the paper) and firm characteristics as additional instruments. All regressions include other local characteristics, industry and year dummies. Robust standard errors clustered by provinces, are reported in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.