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## **Local Financial Development and Cash Holdings in Italian SMEs**

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Francesco Fasano

Docente a Contratto

Dipartimento di Scienze Aziendali e Giuridiche – DiScAG  
Università della Calabria

Ponte Pietro Bucci, Cubo 3/C, II piano, stanza 12

87036 Arcavacata di Rende (CS) - Italy

E-mail: [francesco.fasano@unical.it](mailto:francesco.fasano@unical.it)

Marc Deloof

Professor of Finance

University of Antwerp and Antwerp Management School

Prinsstraat 13

2000 Antwerp, Belgium

E-mail: [marc.deloof@uantwerpen.be](mailto:marc.deloof@uantwerpen.be)

# **Local Financial Development and Cash Holdings in Italian SMEs**

## **Abstract**

In this article, we investigate the effect of local financial development on cash holdings of Italian small and medium sized enterprises (SMEs). Consistent with the hypothesis that local financial development reduces the need to hold precautionary cash because it facilitates access to bank debt, we find that local financial development measured by the density of bank branches in Italian provinces has a negative effect on corporate cash holdings. This effect is driven by SMEs with bank debt. Furthermore, the negative effect of local financial development on cash holdings only exists for younger and smaller SMEs, which are more likely to benefit from increased local financial development. Our work highlights that local financial development is an important driver of policies on holding cash by SMEs and is particularly relevant during crisis periods, such as the recent COVID-19 crisis.

**Keywords:** cash holdings, local financial development, SMEs, asymmetric information, financial constraints, bank debt.

**JEL Classifications** G21 G32 L26 R12

## 1. Introduction

Corporate finance decisions are significantly affected by the financial system in which a firm operates (Rajan and Zingales 1995; Demirguc-Kunt and Maksimovic 1996; La Porta et al. 1997; Fan et al. 2012). A well-developed financial system facilitates access to external finance (Demirguc-Kunt and Maksimovic 1998; Guiso et al. 2004). Financial development not only differs across countries but also at the local level *within* countries. Differences in local financial development especially affect corporate finance decisions of small and medium-sized enterprises (SMEs) (Pollard 2003; Alessandrini et al. 2009; La Rocca et al. 2010; Deloof and La Rocca 2015; Deloof et al. 2019). As the proximity between local banks and their customers facilitates screening and monitoring of informationally opaque firms, the local presence of banks can alleviate asymmetric information problems, which reduce the access of SMEs to external finance, (Berger and Udell 1998; Petersen and Rajan 2002; Beck et al. 2005). Local banks can provide loans to SMEs based on soft information acquired by the local banker via personal contacts with the SME owners and managers. Consistent with this argument, it has been found that local financial development improves SME access to debt (La Rocca et al. 2010; Cowling et al., 2020a), it reduces their financing constraints (Alessandrini et al. 2009) and bankruptcy risk (Arcuri and Levratto 2020), and it facilitates growth (Guiso et al. 2004; Kendall 2012) and the provision of trade credit (Deloof and La Rocca 2015).

In this article, we investigate the effect of local financial development on the cash holdings of Italian SMEs. While cash holdings tend to be a substantial part of SME assets (Bigelli and Sánchez-Vidal 2012) and have worldwide been increasing over time (Chen et al. 2017), we currently know very little about the relation between local financial development and SME

cash holdings.<sup>1</sup> Cash reserves are likely to be especially important for informationally opaque SMEs facing difficulties in obtaining external financing (Almeida et al. 2004; Berger and Udell 1998). SMEs that have restricted access to external finance due to asymmetric information problems will prefer internally available funds to finance their investments. Only when internal funds are inadequate do they seek debt as a second best option (Myers and Majluf, 1984). A well-developed local financial system increases the availability of external finance and consequently reduces the need of SMEs to hold cash as a precautionary buffer against adverse shocks. If SMEs operate in a poorly developed financial environment with limited access to debt, they have to keep more precautionary cash (Almeida et al. 2004; Khurana et al. 2006; Han and Qiu 2007; Denis and Sibilkov 2010). However, this will reduce the availability of funds for growth related investments and hence may reduce their growth. Therefore, it is important to understand how the financial environment in which SMEs operate affect their cash holdings.

The importance of cash holdings for SMEs has recently been highlighted by the COVID-19 crisis, which was a severe negative shock for many SMEs. Cowling et al. (2020b) estimate that the majority of British SMEs run the risk of a liquidity crisis due to insufficient cash holdings at the beginning of the COVID-19 crisis, while Acharya and Steffen (2020) and Li et al. (2020) have found that this crisis led to a “dash for cash”, whereby firms have tried to draw down bank credit lines and raise their cash levels.

Our investigation focuses on Italy, which, for several reasons, provides a very interesting environment to investigate the relation between local financial development and cash holdings. SMEs play a crucial role in the Italian economy, representing 99.7% of all businesses in Italy. They are particularly important in the southern regions where there are

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<sup>1</sup> One study investigating the relation between local bank markets and cash holdings is Han et al. (2017), who find that small US firms hold less cash if they are located in a highly concentrated local banking market concentration.

very few large firms.<sup>2</sup> Italian firms are also characterized by high cash holdings, which reduce their vulnerability to negative shocks such as the COVID-19 crisis.<sup>3</sup> Furthermore, there is a wide variation in financial development across Italian provinces and interestingly, in contrast to many the other European countries, the number of bank branches interestingly increased during the period examined<sup>4</sup>. The richness of Italian data allows us to assess the causal effect of local financial development on SME cash holdings by including exogenous determinants of the local financial development as instruments in two stage least squares regressions, following the methodological approach of other studies (Guiso et al. 2004; Herrera and Minetti 2007; Deloof and La Rocca 2015; Deloof et al. 2019).

Our results show that local financial development, measured by bank branch density in Italian provinces, negatively affects the cash holdings of SMEs. We find this negative effect only for those SMEs that do use bank debt, which confirms that it is the access to bank debt that drives the effect of local financial development on cash holdings. Moreover, we observe that the negative effect of local financial development only exists for younger and smaller SMEs, which are more informational opaque and, therefore, are more likely to benefit from an increase in the number of nearby bank branches. Interestingly, we also find that the effect of bank branch density is driven by *national* banks and not by local banks, highlighting the importance of a local presence of branches of national banks for SME access to bank debt. Bank branch density reduces cash holdings of SMEs both during and after the Global Financial Crisis, but the effect is more pronounced during the crisis, suggesting that local financial development matters especially during crisis periods.

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<sup>2</sup> Source: Italian National Institute of Statistics (ISTAT), report available at <http://dati-censimentipermanenti.istat.it/>

<sup>3</sup> Bank of Italy, Financial Stability Report No. 1/2020, report available at [https://www.bancaditalia.it/pubblicazioni/rapporto-stabilita/2020-1/en\\_FSR\\_1-2020.pdf?language\\_id=1](https://www.bancaditalia.it/pubblicazioni/rapporto-stabilita/2020-1/en_FSR_1-2020.pdf?language_id=1)

<sup>4</sup> As evidenced by a report from the international company KPMG entitled “Sportelli bancari e nuovi modelli distributivi. Contesto di riferimento e scenari evolutivi, 2013” available at <https://assets.kpmg/content/dam/kpmg/it/pdf/2017/02/KPMGSportellibancarinuovimodellidistributivi.pdf>

A key implication of our results is that SMEs operating in a poorly developed local financial setting have more difficulties in obtaining bank funding and, as a result, have to keep a buffer of cash to finance both their current activities and growth opportunities. The need to keep a large cash reserve is likely to limit their growth, since this cash could otherwise be used to fund growth projects. In this respect, our research has important implications for governments, suggesting that removing the barriers that cause SMEs to save cash for precautionary motives instead of investing in growth opportunities will stimulate growth. This is especially important during crisis periods such as the current COVID-19 crisis, when SMEs need external financial resources to survive collapsing revenues and to recover from the crisis (Lim et al. 2020). Our results suggest that local financial institutions may play a key role in this respect.

The remainder of the article is structured as follows. We describe the Italian context in Section 2. Section 3 presents the main literature and the research hypotheses. Section 4 discusses the data, variables, and descriptive statistics. Section 5 contains the results. Section 6 provides some conclusions and implications.

## **2. The Italian context**

The large persistent differences in financial development across Italian provinces make Italy a very suitable environment to investigate the effects of local financial development. Italy is a bank-based economy like many other European countries, such as France, Germany and Spain. The government introduced a banking regulation in 1936 that put Italian banks under state control and limited competition and the establishment of new bank branches. In 1990, a new regulation permitted the consolidation and the sale of state-held banks. As evidenced by the Bank of Italy, this led to a rapid growth in the number of bank branches in Italy from 16,600 in 1990 to 30,740 in 2014.

Bank debt is the single most important source of financing for SMEs in Italy, where financial markets play a very minor role in corporate finance (Beck et al. 2008; Agostino et al. 2011). The most important Italian banks operate nationwide. In 2018, 77% of the bank branches in Italy were branches from national banks.<sup>5</sup> “Banche di Credito Cooperativo” (BCC), which are cooperative banks, also play an important role, with 22% of the bank branches in Italy in 2018. BCCs are owned by cooperative members who typically also are bank customers. By definition, they are local banks, given their legal obligation to operate in limited territorial areas (Alessandrini et al. 2009; Stefani et al. 2016). This characteristic makes them geographically close to SMEs. By operating in the local community and being owned by members of the local community, they may find it easier to acquire soft information via personal relationships with entrepreneurs, which is not available to national banks that operate at a distance (Angelini et al. 1998; Howorth and Moro 2006; Bolton et al. 2016). The lending decisions of national banks will be more based on hard information such as credit scoring and less on the personal relationship between the banker and the firm (Howorth and Moro 2006). However, these banks operate on a much larger scale than cooperative banks and use modern lending technologies to screen and monitor their customers, which makes them more cost efficient than the smaller and less diversified cooperative banks. This may allow the national banks to provide cheaper loans to informationally opaque SMEs than cooperative banks (Black and Strahan 2002).

With respect to corporate governance, Italian firms are in general actively managed by their owners, and there is not a marked separation between ownership and control (Bianco and Casavola 1999; Giacomelli and Trento 2005). Most Italian firms are SMEs that are family owned and operate in mature industries. These features make Italian SMEs prone to financial constraints. Therefore, local financial development is likely to be particularly important to the

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<sup>5</sup> Foreign banks had only 1% of Italian bank branches. Source: Banca d'Italia report available at [https://www.bancaditalia.it/pubblicazioni/banche-istfin/2019-banche-istfin/statistiche\\_STATER\\_29032019.pdf](https://www.bancaditalia.it/pubblicazioni/banche-istfin/2019-banche-istfin/statistiche_STATER_29032019.pdf).



growth of Italian SMEs, even in an integrated financial market. This growth is particularly important for provinces in the south of Italy, which are economically underdeveloped. Considering all these aspects, we can conclude that the Italian setting is a worthwhile case study to assess the potential effects of local financial development on SME cash holding.

### **3. Literature Review and Hypotheses development**

Market frictions make external debt expensive (Faulkender and Wang 2006), and cash holdings provide financial flexibility to firms that have difficulty accessing financial markets (Kim et al. 1998, Gamba and Triantis 2008, Chen et al. 2017). An important cause of the market frictions that reduce financial flexibility is the presence of asymmetric information that hampers access to external financing, especially for younger and smaller firms (Berger et al. 2001). These financial difficulties create a demand for cash, as cash resources allow the firm to invest in value-increasing projects when access to external financing is restricted (Almeida et al. 2004; Denis and Sibilkov 2010). Banks can mitigate information problems with relationship lending that allows to acquire information through repeated contacts with a firm and its managers (Petersen and Rajan 1994). The presence of a loan officer who has personal contacts with the firm, its owners, and its managers facilitates the acquisition of soft information on those firms that have or want to have a relation with banks (Petersen and Rajan 1997). Thus, the proximity between SMEs and bank branches reduces their information asymmetries that thereby facilitates the provision of bank credit.

Together with asymmetric information, adverse selection and moral hazard could cause financial constraints and reduce financial flexibility. Adverse selection refers to the problem for lenders in selecting good credit risks *ex ante* when they have no information about the quality of the borrower (Stiglitz and Weiss 1981). Moral hazard denotes the inability of the lender to enforce credit contracts *ex post* because of costly monitoring and incomplete

contracting. A close relationship between the lender and the borrower mitigates both problems that reduces the need to hold precautionary cash. Furthermore, if there are more bank branches in a local community, increased competition between the banks might increase the availability of loans for SMEs (Black and Strahan 2002).

In a system where bank branches and SMEs are neighbours, firms are less likely to miss valuable business opportunities when they do not have a cash buffer because they can secure credit from the bank. Consistent with this argument, La Rocca et al. (2010) find that an increase in financial development at the local level increases access to debt financing for Italian SMEs. Consequently, as better access to debt reduces the need to hold precautionary cash, we propose the following hypothesis:

*H. 1 – Local financial development has a negative effect on SME cash holdings.*

It could be argued that cash holdings are basically a by-product of financing and investment decisions, and for that reason the level of cash holdings does not really say anything about the financing policy of the firm. However, informationally opaque SMEs often have restricted access to external finance, leading to a pecking order in their finance with a preference for internally available funds (Lopez-Gracia and Sogorb-Mira 2008). Consistent with this argument, Michaely and Roberts (2012) find that the dividend payments of privately held firms in the UK are determined by the internal need for cash (which includes the need for cash holdings) and not vice versa as is the case for listed firms.

In recent years, new fintech financing methods have emerged as a source of financing that complements or replaces traditional bank lending (Gomber et al. 2017; Short et al. 2017). Crowdfunding especially is an important new instrument to fund a business and is particularly useful to SMEs (Maiolini and Naggi 2011, Mollick 2014). Fintech reduces the distance between the firm and the lender and the relative asymmetric information they might have (Cappa et al. 2020). Consequently, fintech influences the relationship between local financial

development and cash holdings. However, despite the recent proliferation of online lending as an alternative financing channel, bank debt remains the most used source of external funding by far in Italy<sup>6</sup>. The fact that a SME has bank debt means that the firm not only has a need for debt, but also that it has access to debt. SMEs with bank debt have already passed the due diligence and screening investigation of a bank. Moreover, they will be monitored by the lending bank during the loan relationship. Therefore, the SMEs that borrow from a bank will benefit from a more developed local financial system in the area in which they operate, as it provides close interaction with the lender.

SMEs without bank debt could instead be of two types. The first type, zero-leverage constrained SMEs, suffer financial constraints and consequently, save cash reserves to carry on their activities so that they can face any contingencies (Bessler et al. 2013). The second type, zero-leverage unconstrained SMEs, willingly do not use bank debt, although they can obtain bank financing. Thus, the development of the financial system is less likely to matter to zero-leverage SMEs (constrained or unconstrained), as they cannot or deliberately do not want to use bank debt. Consequently, local financial development is unlikely to affect their cash holdings.

Differently, local financial development facilitates access to bank debt for those SMEs that are in need or want to use external funding, which reduces the need to hold cash. Indeed, where the financial system is well-developed, indebted SMEs can more easily get additional debt and, consequently, they have less need to keep a buffer of cash on their balance sheets. Therefore, we propose the following hypothesis:

*H.2 - The SMEs that use bank debt drive the negative effect of local financial development on cash holdings.*

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<sup>6</sup> Source: CRIF special report on Italian PMI capital structure available at [https://www.crifratings.com/media/1421/special-report\\_-\\_pmi\\_struttura-finanziaria-delle-pmi-italiane\\_ita\\_15122016\\_final.pdf](https://www.crifratings.com/media/1421/special-report_-_pmi_struttura-finanziaria-delle-pmi-italiane_ita_15122016_final.pdf)

Younger and smaller firms are more likely to face moral hazard and asymmetric information, which make them financially constrained (Berger et al. 2001). Furthermore, young firms will typically have a high need for funding, as they have high growth opportunities and limited internally generated cash flows. But they often have insufficient collateral to offer and lack a proven track record (Dittmar and Duchin 2011). As a result, SMEs that are younger and smaller are more likely to benefit from local financial development in terms of easier access to external financing. These firms will benefit the most from the closeness of bank branches and loan officers, who can assess their qualities as borrowers. Therefore, we propose the following hypothesis:

*H.3 -The negative effect of local financial development on cash holdings is stronger for younger and smaller SMEs who are more informationally opaque.*

#### **4. Data, Model, variables and descriptive statistics**

##### *4.1 Data*

Our analysis is based on a sample of nonfinancial Italian SMEs that employ fewer than 250 persons, which is the European Commission's definition of an SME. The period we study is from 2008 to 2014. We use unbalanced panel data that we collected from the Amadeus database of the Bureau van Dijk. These data contain the balance sheets of private and public companies across Europe. To avoid selection bias, firms that became inactive during the sample period remained in the sample for the years that they were active. We eliminated financial industries (NACE<sup>7</sup> codes 64, 65, 66, 68, 77) as well as firms with NACE codes 84 to 90 (public administration; education; human health and social work; and creative, arts, and entertainment), NACE code 94 (membership organisations) and NACE codes 97–98

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<sup>7</sup> NACE is the European statistical classification of economic activities. NACE groups organizations according to their business activities. Statistics produced based on NACE are comparable at the European level.

(activities of households as employers, undifferentiated goods- and services-producing by households for own use).

Restrictions on the data were imposed as follows: First, we selected all firms with accounting information over the sample period. Then, we left out economically meaningless observations with respect to accounting information. To limit the potential influence of outliers, we winsorized all the firm-specific variables (except Age) at the 1st and 99th percentiles (Debt, Tangibility, ROA and Size) or at the 5th and 95th percentiles (Working Capital and Firm Growth) before performing our regressions. Moreover, we removed any observations with errors (non-positive values for total book assets, negative number of years the firm has been operating) and zero sales. Thus, we obtain a sample of 2,032,148 firm-year observations over the 2008–2014 period. We also use data from other sources. Data on the density of bank branches and competition in the bank market per province come from the Bank of Italy. Data on gross domestic product (GDP), local crime and population per province are collected from the Italian National Institute of Statistics (ISTAT).

#### *4.2 Model and variables*

To test our hypotheses, we first use the traditional ordinary least squares (OLS) technique. Since omitted factors could influence the effect of local financial development on cash holdings, we also estimate regressions using the two stage least squares (2SLS) technique with instrumental variables (IV). We use the same instrumental variables as in Guiso et al. (2004), Deloof and La Rocca (2015), and Deloof et al. (2019), who all measure local banking structures in 1936. These structures were largely determined by factors unrelated to local economic development. As mentioned earlier, the new legislation introduced in 1936 strongly restricted the development of the Italian banking sector. As a result, the local (provincial) differences that existed then persist to today. The instruments consist of the amount of bank branches in 1936, the number of banks, the number of popular bank branches, and the 1936

branch density in the SME province. Popular banks are larger cooperative banks that since 1936 have evolved into large banks operating on a national basis.

The dependent variable of our model is Cash Holdings, measured as the ratio between cash and cash equivalents scaled by total assets (see Almeida et al. 2004; Ozkan and Ozkan 2004). Following the approach of Benfratello et al. (2008), Alessandrini et al. (2009), La Rocca et al. (2010), Deloof and La Rocca (2015), and others, the local financial development measure Branch Density is the number of bank branches (national, cooperative, and foreign) per 1,000 inhabitants in the province. We similarly calculate the variables National Branch Density, BCC Branch Density, and Foreign Branch Density, respectively, as the number of national, BCC, and foreign branches per 1,000 inhabitants in the province.

We include a number of firm-specific characteristics that may influence SME cash holdings in our regressions (see Belghitar and Khan 2013). Tangibility is the ratio of tangible fixed assets to total assets. Tangible assets may increase firm debt capacity as they are used as collateral, and thereby can reduce the need for cash holdings (Lei et al. 2018). Size is measured as the logarithm of total assets. Larger firms typically have a lower cash ratio due to economics of scale in holding cash. Age is the natural logarithm of one plus the number of years since the firm creation. Older firms tend to hold more cash (Drobtz et al. 2015). The variable Bank Debt is the ratio of long-term bank debt plus short-term bank debt to total assets. According to the pecking order theory, firms with a surplus of internal funds will have more cash and less need for debt. Working capital, which can be a substitute for cash holdings, is measured by the ratio of working capital to total assets (see Ferreira and Vilela 2004). Firm growth is measured as sales in year (t) minus sales in year (t-1). Growing SMEs generally require more financial resources (Binks and Ennew 1997). ROA is the ratio of earnings before interest and taxes (EBIT) to total assets and measures profitability. Firms that are more profitable are likely to generate and hold more cash.

We also control for provincial characteristics that may affect corporate cash holdings. To take into account differences in economic development between provinces, we include GDP Growth, which is measured as the growth in real GDP at the provincial level from year (t-1) to year (t). South is a dummy that equals one if the firm is located in the southern part of Italy and zero otherwise. This variable is important, as previous studies on financial development in Italy (Guiso et al. 2004 in particular) have shown relevant differences between the northern and the southern parts of the country. Industry and year fixed effects using dummies are also included in the econometric model. Finally, in line with the literature on local financial development (see Deloof and La Rocca 2015; Deloof et al. 2019), we include in our model a measure of local crime (per-capita fraud), which is related to local financial development (Bonaccorsi di Patti, 2009), and a measure of the concentration of the provincial bank market (HHI). Per-capita fraud is the number of crimes at the provincial level scaled by the population. The HHI is measured as the sum of squared market shares of banks operating in the province and is based on the number of bank branches in 2009. This variable controls for the bank structure at the local level to measure the extent of the competition in relation to the branch concentration in the local banking systems.

\*\*\* Table 1 about here \*\*\*

#### *4.3 Descriptive statistics*

Table 1 shows the descriptive statistics for the variables. It presents the mean, median, standard deviation, maximum value, and minimum value at the 25th and 75th percentiles for all variables. While the median firm has a cash ratio of 4.4%, the mean cash holding is 11% with a standard deviation of 15.7%, indicating that there is substantial variation in cash holdings across the firms in our sample. There is also substantial variation with respect to

branch density. The values for the other variables are in line with the literature on the cash holdings of SMEs. Table 1 also shows that the variability in the control variables is in line with the literature.

\*\*\* Table 2 about here \*\*\*

Table 2 (which is shown at the end of the article) presents the correlation matrix of our variables. All correlations are statistically significant at the 0.05 level or lower. The negative correlation between cash holdings and bank branches is statistically significant at the 0.01 level. We tested possible multicollinearity among the independent variables by using the variance inflation factors (VIFs) that estimate how much the variance in our regression coefficients is inflated due to multicollinearity. The maximum VIF in our model is 2.19 (mean of 1.38) which is far below the generally accepted cutoff of 10 (or, more prudently, 5) for regression models. Therefore, no bias was detected in the significance of our results.

\*\*\* Table 3 about here \*\*\*

## **5. Empirical results**

### *5.1 Local financial development and SME cash holdings*

Table 3 shows the general effect of local financial development on corporate cash holdings. The  $p$ -values are based on heteroscedastic robust standard errors. For the 2SLS regressions, the F-test statistic of the first stage indicates that the instruments are always jointly significant when estimating the local financial development. The  $p$ -value of the instruments is statistically significant. Moreover, the lack of statistical significance of the Hansen-J statistic further confirms the validity of the instruments.

Local financial development as measured by Branch Density negatively affects SME cash holdings, which confirms Hypothesis 1. The finding is statistically significant when using



both OLS in column 1 and 2SLS in column 2. With respect to the economic significance, the coefficient for Branch Density in column 2 means that a one standard deviation increase in Branch Density (0.185) reduces cash holdings by 2.86% as compared to the sample mean (0.110). This result is also confirmed when we use the natural logarithm of cash holdings as the dependent variable (column 3) and when we control for bank concentration through the Herfindahl–Hirschman Index (HHI) (column 4). In Column 5, we take into account the presence at the provincial level of national, BCC, and foreign bank branches by separately including National Branch Density, BCC Branch Density, and Foreign Branch Density. Interestingly, we find that the increase in branches of national banks reduces cash holdings, while there is no significant effect for BCC branches and foreign branches. This suggests that it is an increasing local presence of national banks that reduces the need for SMEs to hold cash.

With regard to the firm-specific control variables, the results are generally as expected. Italian SMEs hold more cash if they have fewer tangible assets, bank debt, and working capital; if they are smaller, younger, and more profitable; and if they have a higher growth rate.

As a further test, we studied the effect of local financial development on cash holdings conditioned by a set of firm characteristics (tangibility, size, age, net working capital, firm growth, and ROA). This test allows us to understand whether firm-specific factors moderate the effect of local financial development on cash holdings. The marginal effect of Branch Density conditioned by firm-specific variables is shown in Figures A.1–A.6 in appendix. The results confirm that firm characteristics moderate the effect of local financial development on the decision to hold cash, which supports the findings of Lyandres and Palazzo (2016) who claim that firm-specific characteristics and financial development jointly shape corporate cash policy. Specifically, we find that the effect of branch density on cash holdings is smaller for SMEs that find it easier to attract bank financing: older, larger, and more profitable SMEs and

SMEs with more tangible assets and more net working capital. The negative effect of branch density even disappears for larger SMEs, confirming our findings in Table 5. Differently, firm growth does not seem to matter much for the effect of branch density on cash holdings.

We also investigated whether the effect of local financial development on the cash holdings of Italian SMEs was different during the Global Financial Crisis (period 2008-2010) and after the Global Financial Crisis (period 2011-2014). The results, which are reported in Tables A.2-A.3 in the appendix, show that there is a negative effect of branch density on cash holdings in both periods. However, the effect is stronger in the crisis period 2008-2010 than in the post-crisis period 2011-2014, indicating that a lack of access to debt due to an underdeveloped local banking sector increases the need of SMEs to hold cash more during a crisis period.

\*\*\* Table 4 about here \*\*\*

### *5.2 The role of bank debt*

Table 4 reports the results concerning Hypothesis 2. The findings show that local financial development negatively affects SME decisions to hold cash for firms that use bank debt (Column 1), but not for those that do not use bank debt (Column 2). This result is confirmed when for the full sample we estimate a regression that includes Dummy Bank Debt that equals one if an SME has bank debt and zero otherwise, and the interaction between this dummy and the Branch Density variable (Column 3). In this regression Branch Density ceases to be significant while the interaction term is statistically significant, which again indicates that local financial development only affects cash holdings for firms with bank debt. This difference can be explained by SMEs using bank debt as a substitute for cash.

### *5.3 The cash holdings of informationally opaque SMEs*

Tables 5 and 6 report the results concerning the relationship between local financial development and cash holdings for subsamples of firms that depends on how sensitive they are to asymmetric information problems. In particular, we use the firm size (Bigelli and Sánchez-Vidal 2012; Kim et al.1998) and age (Dittmar and Duchin 2011; Drobetz et al. 2015) as proxies for asymmetric information. We expect that the effect of local financial development on cash holdings is more pronounced for smaller and younger firms. In Table 5 we consider subsamples of small SMEs and large SMEs that are based on the first quartile and the last quartile of the Size variable. We find a significantly negative effect of local financial development on cash holdings for small SMEs (column 1) but not for large SMEs (column 2). This finding is confirmed when we estimate a regression for the full sample with Dummy Small that equals one for large SMEs (i.e., those firms above the median value for the variable Size) and zero otherwise, and the interaction between this dummy variable and Branch Density. Not surprisingly, the economic effect is much stronger for small SMEs than for the full sample. A one standard deviation increase in branch density (0.185) reduces cash holdings by 8.15%, compared to the mean for the small SMEs subsample (0.143).

\*\*\* Table 5 about here \*\*\*

Table 5 also shows some interesting differences with respect to the effect of the control variables on the policies for cash holdings. Small SMEs typically find it harder to convince bank lenders of their credit worthiness than large SMEs. Tangible assets that provide collateral (Lyandres and Palazzo 2016) reduce the need to hold cash more for small SMEs. Firm size, which is associated with a better reputation, and working capital, which is a substitute of cash holdings (Ferreira and Vilela 2004; Demiroglu and James 2011) and helps SMEs to get external financing (Diamond 1989; Binks and Ennew 1997), also matter more for small SMEs than for large SMEs. We also find that profitability as measured by ROA has

a smaller effect on the cash holdings of small SMEs. A possible explanation is that small SMEs need a larger portion of profits to fund their investments and as a result are less able to keep these profits as cash reserves.

\*\*\* Table 6 about here \*\*\*

Table 6 presents the results for the subsamples based on Age: (1) new firms of one year old, (2) SMEs younger than five years (25 percentile), (3) SMEs older than 11 years (50 percentile), (4) SMEs older than 21 years (75 percentile), and (5) SMEs older than 31 years (90 percentile). The results from Table 6 indicate that the effect of local financial development on cash holdings depends on the age of SMEs. We only find a negative effect from Branch Density for the younger SMEs in our sample (up to five years old), which is consistent with the argument that older SMEs generally have better access to external financing than younger firms (Berger and Udell 1998) and are less dependent on the proximity of bank branches for their funding.

Table 6 further shows that the negative effect of bank debt on cash holdings increases with age that indicates SMEs substitute cash liquidity with bank loans more over time. As in Table 5, we find that the effects of tangibility, size, and working capital are more pronounced for firms that have more severe asymmetric information problems, that is younger firms (smaller firms in Table 5). We also find that profitability affects cash holdings more for firms with less asymmetric information problems, that is, older firms. All these results confirm our findings for the subsample for size. Overall, the results confirm that if SMEs operate in an institutional context for which financial development is poor, they try to save a stock of cash, especially when it is harder for them to obtain external financing. Small and young SMEs benefit the most from the development of financial intermediaries.

#### *5.4 Placebo test*

Our sample has a very high number of observations, which could affect the statistical significance of the findings (Athey and Imbens 2017). To make sure that this number does not lead to false statistically significant results we applied a placebo test, in which 200 times we randomly assigned a branch density to each firm of our sample, and each time re-estimated our regression with the variable Branch Density re-shuffled. We expect that in this setting Branch Density does not significantly influence SME cash holdings. When we run the placebo test, we find that the estimated coefficient of Branch Density is not statistically significant at the 10% level in 93.5% of the cases.<sup>8</sup> Hence, the results of placebo tests confirm the robustness of our findings, demonstrating that the relationship between local financial development and cash holdings is not influenced by chance.

### **6. Conclusion and implications**

In this study, we demonstrate that local financial development reduces the need for SMEs to hold cash. In Italian provinces with a higher bank branch density, the nearby presence of bank branches facilitates the access of SMEs to bank credit and, consequently, allows them to keep lower levels of cash. Vice versa, a poor degree of local financial development leads SMEs to keep a higher buffer of cash against any potential contingencies. We find that this effect is significant only for smaller and younger SMEs, which face more severe asymmetric information problems than larger and older SMEs. We also find that it is additional branches of national banks rather than branches of local banks that reduce the need for holding cash. We do not find any effect of bank branch density on cash holdings for firms without bank

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<sup>8</sup> The coefficient of Branch Density is significant at the 10% level in 3% of the cases, at the 5% level in 1,5% of the cases, and at the 1% level in the 2% of the cases. The results of the 200 Placebo test regressions are available upon request to the authors.

debt, which confirms our hypothesis that bank branch density negatively affects cash holdings because it increases access to bank debt. A placebo test confirms that the statistical significance of our findings is not driven by the fact that we have a very large sample. Finally, our results indicate that the negative effect of branch density on cash holdings is less pronounced for firms that have a lower need for bank debt or have easier access to bank debt, which is consistent with our main hypothesis.

Our findings provide new insights into the role of cash holdings of SMEs. While there is an extensive literature on cash policies of large listed firms, research on cash holdings of SMEs remains scarce<sup>9</sup>, notwithstanding the fact that SMEs differ from large firms in fundamental ways. While the cash policies of listed firms are often driven by agency problems between managers and shareholders (Gao et al. 2013), SMEs are generally privately-held, with their owners managing the firm. Furthermore, SMEs are more likely to be constrained in accessing external funding than large firms, leading to a higher need for cash to finance their growth (Brav, 2009). If a dearth of bank branches in the neighborhood reduces access of SMEs to bank debt, which is their primary source of external finance, this will restrict their growth.

Our analysis has some limitations. First, while the economic importance of SMEs and the historically determined variation in local banking development across provinces makes Italy a particularly interesting setting to study the effect of local financial development on SME cash holdings, it is not clear whether our results also apply to other countries and to other institutional settings. Therefore, it would be interesting to explore the relation between local financial development and SMEs cash holdings in a multi-country setting that covers different institutional environments. Second, we measure the effect of access to bank debt for SMEs *indirectly*, via local bank branch density. To confirm our findings, it would be interesting to

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<sup>9</sup> Exceptions are García-Teruel and Martínez-Solano (2008), Bigelli and Sánchez-Vidal (2012), Martínez-Sola et al. (2018) and Cowling et al. (2020a).

investigate how access to bank debt measured at the individual firm level affects the cash holdings of SMEs.

Our research has implications for policy makers by showing that the local financial context is still relevant, despite the internalization of financial markets. The growth of SMEs, which affects the growth of the entire economy, strongly depends on their ability to seize investment opportunities. The presence of local bank branches increases the availability of funding for SMEs and should be encouraged, as banks play a crucial role in entrepreneurial growth (Fraser et al., 2015). We demonstrate that a higher local bank branch density reduces the need for SMEs to hold precautionary cash, thereby increasing the amount of cash available to finance new investments. Policymakers could help informationally opaque SMEs in areas where the local banking system is poorly developed by promoting new financial instruments such as online lending, which could bring alternative sources of financing and help SMEs in their negotiations with banks. The fact that the effect of local banking development we find is driven by *national* bank branches rather than by local banks demonstrates the importance of the presence of national banks at the local level.

Finally, it is interesting that local financial institutions seem to be particularly important for SME cash holdings during a crisis period. This has implications for the recent COVID-19 crisis that had a strong negative effect on the revenues of many firms (Fahlenbrach et al., 2020). Our findings indicate that young and small SMEs will be more likely to survive the COVID-19 crisis and finance their growth if they are located in a more developed local banking area, which reduces the need to hold precautionary cash.

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*Table 1 - Descriptive Statistics for the sample.*

	Mean	Median	Sd	Min	25° Percentile	75° Percentile	Max
Cash Holdings	0.110	0.044	0.157	0.000	0.008	0.147	1.000
Branch Density	0.562	0.533	0.185	0.176	0.443	0.7113	1.074
National Br Density	0.483	0.478	0.143	0.144	0.392	0.599	0.840
BCC Br Density	0.073	0.043	0.080	0.000	0.023	0.104	0.653
Foreign Br Density	0.006	0.002	0.009	0.000	0.000	0.008	0.037
HHI	0.100	0.092	0.042	0.000	0.075	0.114	0.520
Tangibility	0.173	0.084	0.208	0.000	0.024	0.249	0.888
Size	6.431	6.431	1.547	2.131	5.423	7.463	10.002
Age	2.281	2.398	0.981	0.000	1.609	3.045	5.017
Bank Debt	0.143	0.032	0.191	0.000	0.000	0.256	0.759
Working Capital	0.304	0.273	0.231	0.000	0.103	0.472	0.771
ROA	0.043	0.039	0.136	-0.590	0.007	0.085	0.507
Firm Growth	0.393	-0.003	1.502	-1.000	-0.212	0.248	5.766
GDP Growth	0.001	0.000	0.049	-0.952	-0.016	0.016	12.345
Per-capita Fraud	0.188	0.182	0.050	0.069	0.153	0.211	0.335
South	0.206	0.000	0.404	0.000	0.000	0.000	1.000

Table 2 – Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) Cash Holdings	1.00															
(2) Branch Density	-0.06	1.00														
(3) National Branch Density	-0.06	0.92	1.00													
(4) BCC Branch Density	-0.05	0.67	0.32	1.00												
(5) Foreign Branch Density	0.01	0.04	0.08	-0.18	1.00											
(6) HHI	-0.00	-0.24	-0.13	-0.28	-0.33	1.00										
(7) Tangibility	-0.20	0.06	0.04	0.07	-0.07	0.05	1.00									
(8) Size	-0.31	0.16	0.15	0.09	0.04	-0.04	0.21	1.00								
(9) Age	-0.16	0.12	0.12	0.06	0.04	-0.02	0.19	0.51	1.00							
(10) Debt	-0.29	0.13	0.12	0.09	-0.01	-0.01	0.15	0.26	0.14	1.00						
(11) Working Capital	-0.26	-0.00	0.00	-0.01	0.01	-0.01	-0.35	0.09	0.09	0.16	1.00					
(12) ROA	0.18	0.04	0.04	0.01	0.02	-0.02	-0.08	0.00	-0.05	-0.10	0.01	1.00				
(13) Firm Growth	-0.03	0.03	0.05	-0.00	0.02	-0.02	-0.02	0.13	-0.06	0.00	-0.01	0.10	1.00			
(14) GDP Growth	-0.00 <sup>+</sup>	0.04	0.05	-0.01	0.01	0.00 <sup>+</sup>	0.01	0.01	-0.01	0.01	-0.00	0.02	0.07	1.00		
(15) Per-capita Fraud	0.04	-0.34	-0.28	-0.34	0.39	-0.08	-0.09	-0.03	-0.02	-0.06	0.01	0.01	0.01	-0.00	1.00	
(16) South	0.04	-0.70	-0.73	-0.28	-0.31	0.12	-0.01	-0.11	-0.11	-0.08	0.00	-0.03	-0.01	-0.00	0.18	1.00

Notes: Industry dummies are not reported. Correlations greater than 0.03 or lower than -0.03 are statistically significant at the 0.05 level or lower.

*Table 3 - Main model: results concerning local financial development and Cash Holdings*

Estimation method:	(1)	(2)	(3)	(4)	(5)
	OLS	2SLS	2SLS	2SLS	2SLS
Dependent variable:	Cash Holdings	Cash Holdings	Ln(Cash Holdings)	Cash Holdings	Cash Holdings
Branch Density	-0.008** (0.004)	-0.017** (0.007)	-0.511*** (0.135)	-0.019*** (0.007)	
HHI				-0.011 (0.022)	
National Branch Density					-0.034*** (0.011)
BCC Branch Density					0.001 (0.008)
Foreign Branch Density					-0.019 (0.061)
Tangibility	-0.182*** (0.002)	-0.182*** (0.002)	-1.854*** (0.041)	-0.182*** (0.002)	-0.183*** (0.002)
Size	-0.022*** (0.002)	-0.022*** (0.002)	0.626*** (0.014)	-0.022*** (0.002)	-0.022*** (0.002)
Age	0.009*** (0.001)	0.009*** (0.001)	0.089*** (0.005)	0.009*** (0.001)	0.009*** (0.001)
Bank Debt	-0.110*** (0.007)	-0.109*** (0.007)	-1.938*** (0.112)	-0.109*** (0.007)	-0.109*** (0.007)
Working Capital	-0.190*** (0.002)	-0.190*** (0.002)	-1.751*** (0.051)	-0.190*** (0.002)	-0.190*** (0.002)
ROA	0.177*** (0.003)	0.177*** (0.003)	1.725*** (0.057)	0.177*** (0.003)	0.178*** (0.003)
Firm Growth	-0.002*** (0.000)	-0.002*** (0.000)	0.007*** (0.002)	-0.002*** (0.000)	-0.002*** (0.000)
GDP Growth	0.130 (0.092)	0.123 (0.086)	1.997** (0.810)	0.122 (0.085)	0.119 (0.082)
Per-capita Fraud	-0.002 (0.008)	-0.009 (0.011)	-0.179 (0.240)	-0.012 (0.011)	-0.008 (0.013)
South	0.002 (0.002)	-0.001 (0.003)	-0.046 (0.043)	-0.001 (0.003)	-0.005 (0.003)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Adj. R2	0.264	0.278	0.328	0.263	0.264
Observations	2,032,148	2,032,148	2,032,148	2,032,148	2,032,148

Notes: The 2SLS model uses local banking structures in 1936 as instrumental variables. The  $p$ -values are in parentheses: \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

*Table 4 - Model with and without bank debt.*

Estimation method:	(1) 2SLS	(2) 2SLS	(3) 2SLS
Dependent variable:	With Bank Debt Cash Holdings	Without Bank Debt Cash Holdings	Model with interaction Cash Holdings
Branch Density	-0.017** (0.008)	-0.012 (0.011)	-0.011 (0.007)
Branch Density* Dummy Bank Debt			-0.052*** (0.007)
Dummy Bank Debt			-0.049*** (0.002)
Tangibility	-0.123*** (0.004)	-0.253*** (0.003)	-0.190*** (0.003)
Size	-0.011*** (0.001)	-0.030*** (0.002)	-0.022*** (0.002)
Age	0.006*** (0.001)	0.015*** (0.001)	0.009*** (0.001)
Bank Debt	-0.060*** (0.005)		-0.038*** (0.006)
Working Capital	-0.147*** (0.004)	-0.211*** (0.004)	-0.193*** (0.003)
ROA	0.161*** (0.003)	0.191*** (0.004)	0.167*** (0.004)
Firm Growth	-0.001*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)
GDP Growth	-0.014 (0.012)	-0.047 (0.035)	-0.050 (0.035)
Per-capita Fraud	-0.025** (0.014)	0.022 (0.022)	-0.007 (0.010)
South	-0.001 (0.003)	-0.002 (0.003)	-0.002 (0.002)
Industry Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Adj. R2	0.196	0.225	0.284
Observations	1,182,140	850,008	2,032,148

Notes: The 2SLS model uses local banking structures in 1936 as instrumental variables. The  $p$ -values in parentheses: \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

Table 5 - Small and large SMEs

Estimation method:	(1) 2SLS Small SMEs	(2) 2SLS Large SME	(3) 2SLS Model with interaction
Dependent variable:	Cash Holdings	Cash Holdings	Cash Holdings
Branch Density	-0.063*** (0.017)	0.004 (0.013)	0.011 (0.009)
Dummy Small			0.017*** (0.004)
Dummy Small*Branch Density			-0.062*** (0.007)
Bank Debt	-0.098*** (0.010)	-0.098*** (0.005)	-0.109*** (0.007)
Tangibility	-0.333*** (0.008)	-0.138*** (0.005)	-0.183*** (0.002)
Size	-0.078*** (0.002)	-0.004*** (0.001)	-0.026*** (0.003)
Age	0.009*** (0.001)	0.012*** (0.001)	0.009*** (0.000)
Working Capital	-0.311*** (0.007)	-0.148*** (0.006)	-0.189*** (0.002)
ROA	0.147*** (0.002)	0.278*** (0.006)	0.180*** (0.002)
Firm Growth	-0.003*** (0.000)	-0.001*** (0.000)	-0.002*** (0.000)
GDP Growth	-0.003 (0.005)	-0.003* (0.003)	-0.028 (0.027)
Per-capita Fraud	0.001 (0.024)	0.015 (0.019)	-0.006 (0.011)
South	0.004 (0.007)	-0.009* (0.005)	-0.003 (0.003)
Industry Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Adj. R2	0.314	0.251	0.267
Observations	509,960	507,862	2,032,148

Notes: The 2SLS model uses local banking structures in 1936 as instrumental variables. The  $p$ -values in parentheses: \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$



Table 6 - Model for different age of SMEs.

Estimation method:	(1) 2SLS 1 year old	(2) 2SLS 5 years old (25 percentile)	(3) 2SLS 11 years old (50 percentile)	(4) 2SLS 21 years old (75 percentile)	(5) 2SLS 31 years old (90 percentile)
Dependent variable:	Cash Holdings	Cash Holdings	Cash Holdings	Cash Holdings	Cash Holdings
Branch Density	-0.085*** (0.025)	-0.047*** (0.014)	-0.004 (0.007)	-0.000 (0.009)	-0.003 (0.010)
Bank Debt	-0.035*** (0.005)	-0.058*** (0.005)	-0.123*** (0.007)	-0.134*** (0.006)	-0.138*** (0.006)
Tangibility	-0.400*** (0.012)	-0.250*** (0.009)	-0.190*** (0.003)	-0.202*** (0.003)	-0.214*** (0.005)
Size	-0.064*** (0.003)	-0.042*** (0.002)	-0.015*** (0.001)	-0.012*** (0.001)	-0.010*** (0.001)
Age		-0.022*** (0.001)	0.020*** (0.001)	0.019*** (0.001)	0.013*** (0.003)
Working Capital	-0.390*** (0.011)	-0.250*** (0.006)	-0.206*** (0.003)	-0.220*** (0.005)	-0.230*** (0.007)
ROA	0.101*** (0.006)	0.132*** (0.004)	0.193*** (0.004)	0.195*** (0.005)	0.191*** (0.007)
Firm Growth	0.001*** (0.000)	-0.003*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
GDP Growth	-0.010 (0.014)	-0.002 (0.005)	0.002 (0.003)	0.002 (0.003)	0.003 (0.004)
Per-capita Fraud	0.035 (0.036)	-0.009 (0.018)	-0.014 (0.012)	-0.000 (0.013)	0.005 (0.017)
South	-0.004 (0.010)	0.000 (0.006)	-0.001 (0.002)	-0.006** (0.003)	-0.010*** (0.003)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Adj. R2	0.382	0.319	0.275	0.295	0.313
Observations	101,399	538,525	1,055,975	532,266	221,308

Notes: The 2SLS model uses local banking structures in 1936 as instrumental variables. The  $p$ -values in parentheses: \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

## APPENDIX

Table A.1 – Variables descriptions.

<i>Dependent variable</i>	<i>Calculation</i>	<i>Role</i>
Cash Holdings	Cash & cash equivalents / total assets	Dependent variable
<b><i>Explanatory variables</i></b>		
Branch Density (Local Financial Development)	(Total Bank Branches at provincial level × 1000) / Population at provincial level	Independent variable
HHI (Hirschman and Herfindahl Index)	Sum of squared Market Shares of Banks operating in the province (number of Bank Branches in 2009)	Controls for the bank structure at local level
Tangibility	Tangible Assets / Total Assets	Controls for the typology of assets
Size	ln(total assets)	Controls for corporate size
Age	ln(1 + Age)	Controls for SME age characteristics
Bank Debt	(Long-Term Bank Debt + Short-Term Bank Debt) / Total Assets	Controls for SME level of indebtedness
Working Capital	(Working Capital) / Total Assets	Controls for a substitute of cash holdings
Firm Growth	(Sales <sub>t</sub> – Sales <sub>t-1</sub> ) / Sales <sub>t-1</sub>	Controls for SME growth
ROA	EBIT / Total Assets	Controls for SME profitability
GDP Growth	$[(\text{real GDP at provincial level})_t - (\text{real GDP at provincial level})_{t-1}] /$ $(\text{real GDP at provincial level})_{t-1}$	Controls for GDP growth at provincial level
Per-capita Fraud	Mean number of Fraud Crimes at provincial level scaled by population	Controls for the level of crime at provincial level
South	Dummy equal to one for firms based in the southern part of Italy	Controls for north-south differences.

*Table A.2 - Main model: results concerning local financial development and Cash Holdings during the Global Financial Crisis (period 2008-2010).*

Estimation method:	(1)	(2)	(3)	(4)	(5)
	OLS	2SLS	2SLS	2SLS	2SLS
Dependent variable:	Cash Holdings	Cash Holdings	Ln (Cash Holdings)	Cash Holdings	Cash Holdings
Branch Density	-0.014*** (0.005)	-0.028*** (0.010)	-0.803*** (0.178)	-0.031*** (0.010)	
HHI				-0.017 (0.013)	
National Branch Density					-0.052*** (0.013)
BCC Branch Density					-0.022 (0.030)
Foreign Branch Density					-0.065 (0.072)
Tangibility	-0.190*** (0.003)	-0.190*** (0.003)	-1.911*** (0.050)	-0.190*** (0.003)	-0.191*** (0.003)
Size	-0.025*** (0.002)	-0.025*** (0.002)	0.629*** (0.013)	-0.025*** (0.002)	-0.025*** (0.002)
Age	0.005*** (0.001)	0.005*** (0.001)	0.082*** (0.006)	0.005*** (0.001)	0.005*** (0.001)
Bank Debt	-0.104*** (0.007)	-0.103*** (0.007)	-1.801*** (0.106)	-0.103*** (0.007)	-0.103*** (0.007)
Working Capital	-0.191*** (0.005)	-0.191*** (0.005)	-1.738*** (0.072)	-0.191*** (0.005)	-0.191*** (0.005)
ROA	0.148*** (0.005)	0.148*** (0.005)	1.791*** (0.066)	0.148*** (0.005)	0.148*** (0.005)
Firm Growth	-0.002*** (0.000)	-0.002*** (0.000)	0.009*** (0.002)	-0.002*** (0.000)	-0.002*** (0.000)
GDP Growth	0.002 (0.004)	-0.000 (0.004)	0.052 (0.066)	-0.000 (0.005)	-0.000 (0.005)
Per-capita Fraud	-0.002 (0.010)	-0.012 (0.012)	-0.197 (0.276)	-0.015 (0.013)	-0.010 (0.019)
South	0.002 (0.003)	-0.002 (0.004)	-0.138** (0.059)	-0.003 (0.004)	-0.008* (0.004)
Constant	0.388*** (0.017)	0.399*** (0.018)	0.367** (0.167)	0.403*** (0.019)	0.411*** (0.018)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Adj. R2	0.278	0.278	0.321	0.278	0.277
Observations	733,950	733,950	733,950	733,950	733,950

Notes: The 2SLS model uses local banking structures in 1936 as instrumental variables. The p-values are in parentheses: \*p< 0.10, \*\*p< 0.05, \*\*\*p< 0.01

*Table A.3 - Main model: results concerning local financial development and Cash Holdings after Global Financial Crisis (period 2011-2014).*

Estimation method:	(1)	(2)	(3)	(4)	(5)
	OLS	2SLS	2SLS	2SLS	2SLS
Dependent variable:	Cash Holdings	Cash Holdings	Ln(Cash Holdings)	Cash Holdings	Cash Holdings
Branch Density	-0.004 (0.004)	-0.011* (0.006)	-0.345*** (0.122)	-0.013** (0.006)	
HHI				-0.013 (0.011)	
National Branch Density					-0.026** (0.010)
BCC Branch Density					-0.004 (0.018)
Foreign Branch Density					-0.019 (0.076)
Tangibility	-0.186*** (0.002)	-0.186*** (0.002)	-1.814*** (0.036)	-0.186*** (0.002)	-0.186*** (0.002)
Size	-0.023*** (0.002)	-0.023*** (0.002)	0.625*** (0.014)	-0.023*** (0.002)	-0.023*** (0.002)
Age	0.009*** (0.001)	0.009*** (0.001)	0.093*** (0.004)	0.009*** (0.001)	0.009*** (0.001)
Bank Debt	-0.112*** (0.007)	-0.112*** (0.007)	-2.028*** (0.117)	-0.112*** (0.007)	-0.112*** (0.007)
Working Capital	-0.200*** (0.002)	-0.200*** (0.002)	-1.754*** (0.041)	-0.200*** (0.002)	-0.200*** (0.002)
ROA	0.172*** (0.003)	0.172*** (0.003)	1.695*** (0.052)	0.172*** (0.003)	0.172*** (0.003)
Firm Growth	-0.004*** (0.000)	-0.004*** (0.000)	0.003 (0.002)	-0.004*** (0.000)	-0.004*** (0.000)
GDP Growth	0.005 (0.004)	0.005 (0.004)	0.005 (0.063)	0.006 (0.005)	0.005 (0.004)
Per-capita Fraud	-0.001 (0.008)	-0.009 (0.011)	-0.122 (0.210)	-0.011 (0.012)	-0.011 (0.013)
South	0.004* (0.002)	0.001 (0.002)	-0.002 (0.038)	0.001 (0.002)	-0.001 (0.003)
Constant	0.356*** (0.014)	0.361*** (0.014)	0.056 (0.115)	0.364*** (0.014)	0.368*** (0.013)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Adj. R2	0.268	0.268	0.333	0.268	0.268
Observations	1,298,198	1,298,198	1,298,198	1,298,198	1,298,198

Notes: The 2SLS model uses local banking structures in 1936 as instrumental variables. The p-values are in parentheses: \*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01

Figure A.1 - Marginal effect of Branch Density conditioned by Tangibility

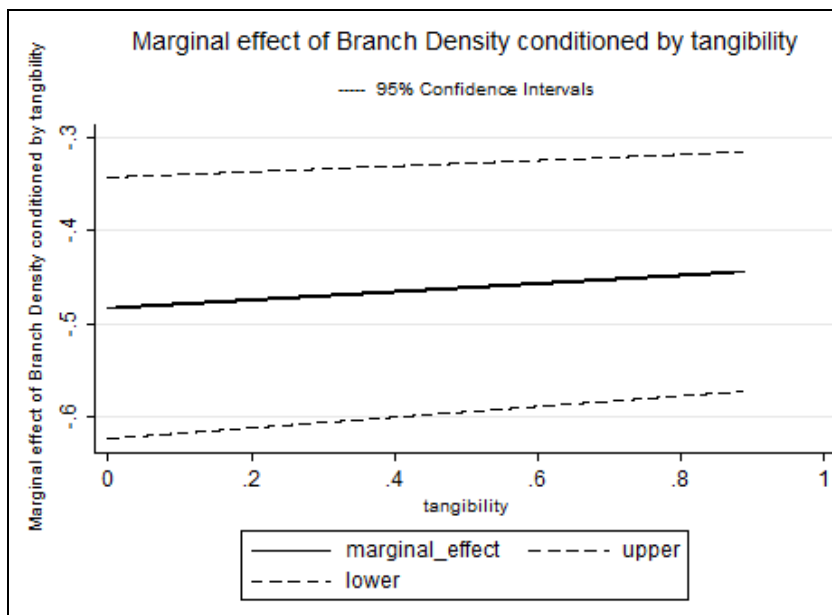


Figure A.2 - Marginal effect of Branch Density conditioned by Age

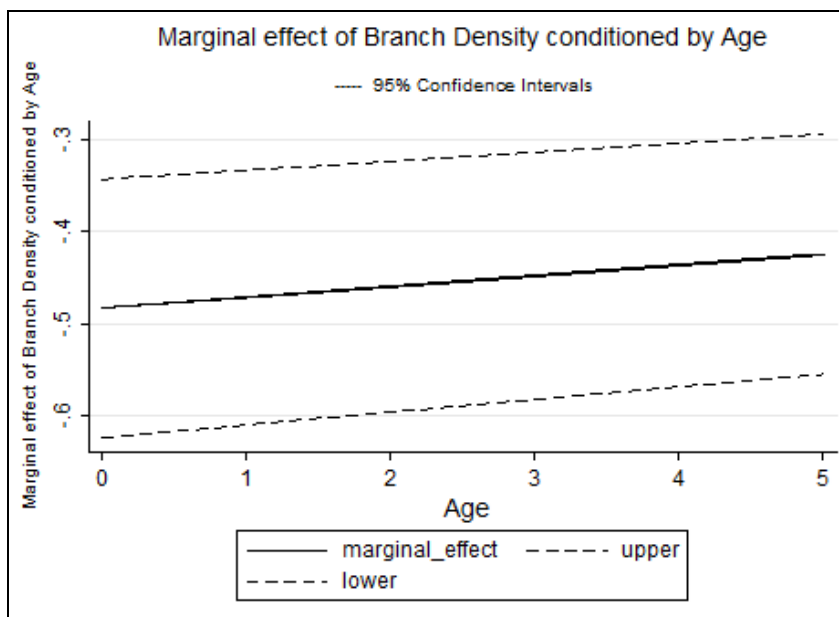


Figure A.3 - Marginal effect of Branch Density conditioned by Net Working Capital

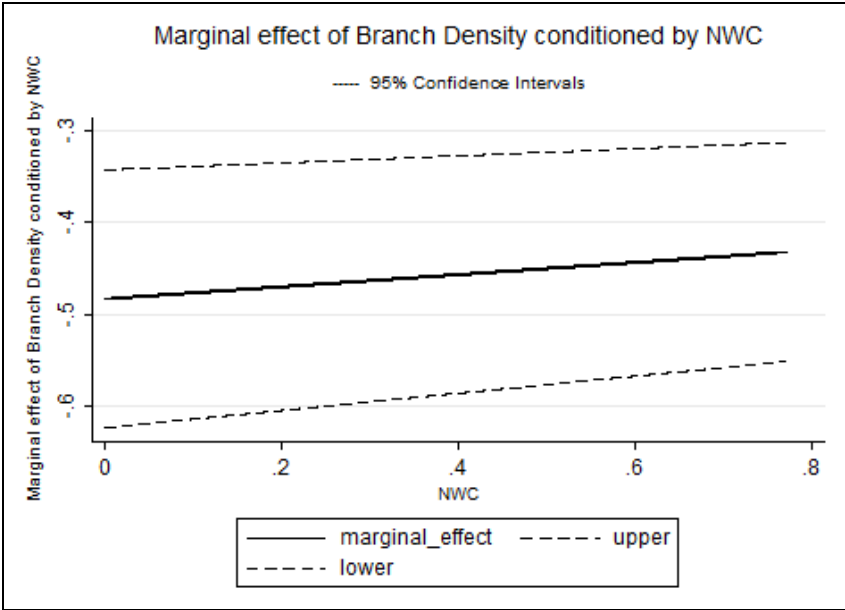


Figure A.4 - Marginal effect of Branch Density conditioned by ROA

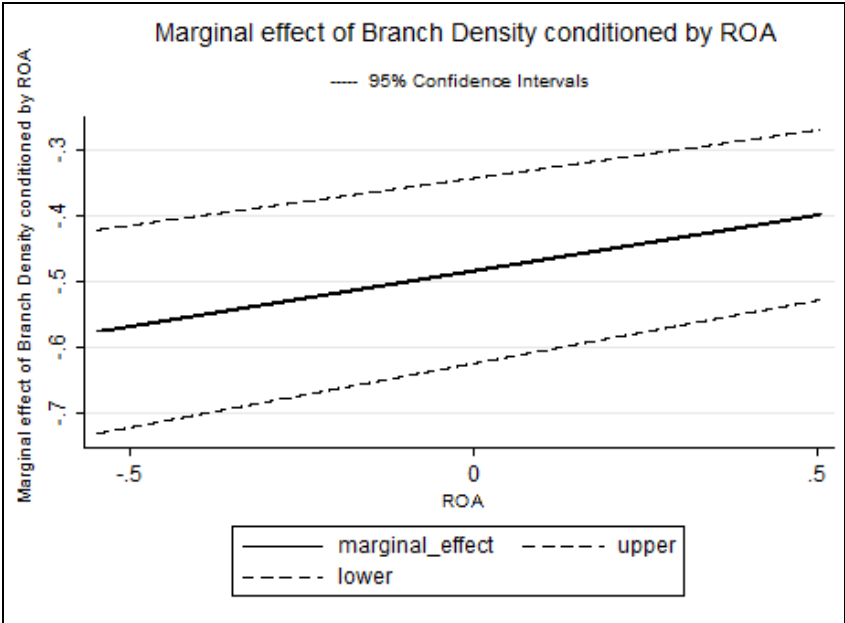


Figure A.5 - Marginal effect of Branch Density conditioned by Size

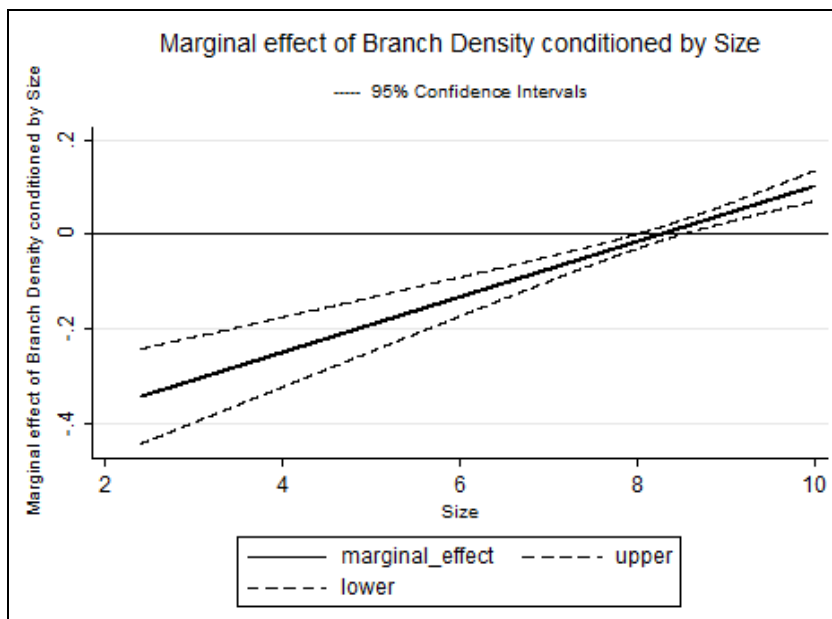


Figure A.6 - Marginal effect of Branch Density conditioned by Firm Growth

