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by Paolo Emilio Mistrulli and Valerio Vacca

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SOCIAL CAPITAL AND THE COST OF CREDIT: EVIDENCE FROM A CRISIS

by Paolo Emilio Mistrulli* and Valerio Vacca**

Abstract

Social capital is a key factor affecting the functioning of financial markets (Guiso, Sapienza and Zingales, 2004). However, the estimation of the effect of social capital on credit markets is notoriously difficult. In this paper we exploit the recent Lehman Brothers crisis and a rich dataset to investigate whether social capital shields firms from the tightening of credit conditions. We mainly focus on lending to small Italian firms that rely almost exclusively on banks' credit and we compare the level of loan interest rates before (June 2008) and after (June 2010) Lehman's default for a balanced sample of bank-firm relationships. We find that for firms headquartered in provinces where social capital is higher, the rise in the loan spreads following Lehman's default was milder compared to firms located in low-social capital communities. The benefits were larger for small firms borrowing from more than one bank and for uncollateralised credit but did not extend to larger firms. Moreover, different measures of social capital provide slightly different results, suggesting a more ambiguous role for particularistic networking (e.g. having a wide network of friends) than for altruistic behaviour rooted in universalistic ethics. Finally, the propensity of a community to cooperate in the credit market, a kind of credit-specific measure of networking, did not always have an impact comparable to that for more general measures of social capital.

JEL Classification: A13, G01, G2.

Keywords: social capital, trust, SME finance, credit cooperation, financial crises.

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1 Introduction and motivation³

Since the seminal works of Banfield (1958), Putnam *et al.* (1994) and Fukuyama (1995), social capital has captured great attention from the economists that have explained a wide range of economic phenomena by relying on it. Among them, the functioning of the credit market seems quite a natural candidate for testing the relationship between social capital and the economy, independently from how social capital has been conceptualized.

Broadly speaking, two different views have been debated.

First, according to Guiso, Sapienza and Zingales (2011) social capital may be defined as “those persistent and shared beliefs and values that help a group overcome the free rider problem in the pursuit of socially valuable activities”. They label this sort of social capital as civic capital. Starting from this definition it clearly follows that civicness has an impact on the credit market since there is a wide consensus that the latter is largely affected by free-riding problems. Indeed, wherever internalized norms are stronger and more widely shared, borrowers might be less prone to opportunistic behaviours (i.e. *moral hazard*) since that would be contrary to their moral values. Trustworthiness and creditworthiness are closely related concepts (Glaeser *et al.*, 2000) as bank lending is based on trust-intensive contracts – credit is ultimately an exchange of a sum of money today for a promise to pay back the loan in the future – and the connection between social capital and trust is widely acknowledged.

Second, social capital has been also conceptualized as a relational resource that can “accrue to an individual or group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition” (Bourdieu, 1980). By following this definition, we are able to identify another link between social capital and the market for credit. Wherever the local community is highly interconnected the risk of being socially stigmatized may dissuade people from behaving in an opportunistic way (Coleman, 1990). It may also reinforce peer monitoring which further contributes to mitigate opportunistic behaviours. Furthermore, a widespread network of social relations may also help banks overcome adverse selection problems since in a highly interconnected community information is more easily shared and, as long as banks are part of the network, they may collect more easily soft information (i.e. information that is not verifiable by third parties and cannot be easily transmitted within the organisational structure of banks).

All in all, both notions mentioned above (civicness or networks) point to the hypothesis that the market for credit is more efficient in those areas where social capital is more developed. Among the first papers to investigate whether a relation of this kind is in place, Guiso, Sapienza and Zingales (2004, GSZ henceforth) showed that in high-social-capital

³ The opinions are those of the authors and do not involve the Bank of Italy. The paper has been partly written while Paolo Emilio Mistrulli was at the European Central Bank, Financial Research Division, as an ESCB/IO expert. We would like to thank Guglielmo Barone, Alberto Dalmazzo, Guido De Blasio, Alberto Pozzolo, Paolo Sestito, participants to two workshops held at the Bank of Italy, Rome, on 14 and 15 November 2013 and on 26 June 2014, participants to a seminar given at the European Central Bank, and two anonymous referees for very useful comments.

areas households can access the credit market at better conditions, thus indicating that social capital has an economically meaningful impact on financial development.

More recently de Blasio, Scalise e Sestito (2014) argued that a useful distinction to investigate social behaviour is also between universalistic and particularistic values. According to Baumann (1997) “A group is all the more particularistic, the more its networks, its norms of reciprocity and trust and its aims are confined to the members of the group, whereas a group is all the more universalistic, the more its networks, its norms of reciprocity and trust and its aims transgress the boundaries of the group and encompass other citizens and groups in a society”. In other terms, both civiness and networks may encompass particularistic as well as universalistic components and, as a consequence, the ‘economic payoff’ of social capital may depend on the relative importance of its particularistic versus universalistic components. However, the evidence on the economic significance of the universalism-particularism dichotomy has been scant so far (see Alesina and Giuliano, 2010, 2011, for a remarkable exception).⁴

While the debate on the role of social capital in the economy is well developed, the identification of a causal effect from social capital to the market for credit is still an issue. One of the reasons for this is that the estimated effect of social capital may be driven by several unobserved characteristics that correlate with the functioning of the credit market.

In this paper, we propose a novel identification strategy which is based on three main ingredients. First, we rely on a quasi-natural experiment, the default of Lehman Brothers in September 2008, that caused an unexpected change in the level of uncertainty and in the degree of informational asymmetry between banks and borrowers.⁵ Second, the level of social capital differs among Italian provinces and it greatly depends on historical factors that modify it very slowly.⁶ The interaction of an unexpected and common shock with the dispersion of pre-crisis social capital among Italian provinces, the latter being totally unrelated to the Lehman crisis, assures that the Lehman collapse was a source of an exogenous variation in the level of uncertainty and asymmetric information across provinces, possibly resulting in a heterogeneous response in terms of the availability of credit to borrowers (the hypothesis to be tested). Indeed, in those provinces where the level of social capital was higher the consequences of the financial turmoil might have been less pronounced since firms would be less prone to opportunistic behaviours and banks would be better able at collecting soft information, the latter becoming *more* important within an environment of greater information asymmetry.

As for the third ingredient of our identification strategy, we rely on a very rich database allowing us to use bank-borrower fixed effects jointly controlling for time invariant charac-

⁴ Partly related to this issue and with reference to Italy, Bonaccorsi di Patti (2009) finds that higher interest rates are applied by banks to firms established in Italian provinces featuring lower levels of social capital but strong family ties, thus apparently driving a wedge between universalistic and particularistic networks.

⁵ Other papers have relied on the Lehman collapse to identify an exogenous variation in the availability of credit. See among others, Albertazzi and Marchetti (2010), De Haas and Van Horen (2012), Chodorow-Reich (2014), Gambacorta and Mistrulli (2014), Ivashina and Scharfstein (2010), Santos (2011).

⁶ Guiso, Sapienza and Zingales (2008).

teristics of borrowers, lenders and the relationship between them. We complement these controls with time varying ones both at the bank and the firm level, including some controls referred to the province where the firm is headquartered.

Our paper not only contributes to the literature investigating the nexus between social capital and financial development. Since we exploit the Lehman crisis to identify the impact of social capital on the supply of credit, our paper is also related to the growing literature on the effects of the recent crisis on credit markets. In this respect, Puri, Rocholl and Steffen (2011) outlined that the credit supply reduction in the aftermath of the crisis was comparatively stronger for (German) banks which were more liquidity-constrained, while Ivashina and Scharfstein (2010) point out that banks whose funding was more reliant on short term debt tended to cut new credit lines to a major extent. Carvalho, Ferreira and Matos (2011) find that the stronger the bank-firm relationship before the crisis, the stronger has been the credit reduction after the 2008-2009 crisis, since lenders exploited their market power towards their borrowers – especially opaque borrowers – stemming from the accumulation of non-transferable information. As far as the cost of credit is concerned, Santos (2011) shows that interest rate spread increased in particular at banks whose balance sheet position was more weakened by the crisis. Bolton *et al.* (2013) and Gambacorta and Mistrulli (2014) show that relationship lenders (lenders investing a great effort on building stable and deep customer relationships) were able to smoothen out the effect of the crisis on the cost of credit granted to firms. Our paper contributes to this literature by assessing whether social capital helped explain the interest rate behaviour of lenders and mitigated the effects of the crisis on the cost of credit.

The main finding of our paper is that social capital helped shield small firms from the tightening of interest rate spread that followed the Lehman collapse, especially for multi-lender and uncollateralised borrowers. The effect is weaker for those forms of social capital involving a relatively high degree of ‘particularism’, including some credit-related measures. The finding is robust to several checks, some of which suggest that social capital is less relevant for larger, less opaque firms. On the contrary, as far as banks are concerned, we are not able to detect a significant heterogeneity between large and small banks.

The paper proceeds as follows. Section 2 details the econometric strategy and the data; in Section 3, after commenting the main findings based on both the base-line and an ‘augmented’ empirical setup, we extend the analysis to a wider range of social capital definitions and then perform some robustness checks. Section 4 concludes.

2. Estimation strategy and data

2.1 Estimation strategy

We compare the interest rate charged by banks, before and after Lehman Brothers’ default (September 2008), to a balanced panel of bank-firm relationships in Italy. This allows us to use bank-firm fixed effects, controlling for observed and unobserved bank-firm time invariant characteristics, and verify whether the response to the shock depended on the

level of social capital available in the province where each small firm is headquartered. Indeed, Italy represents an ideal laboratory to investigate this issue because, due to historical reasons, the level of social capital varies across the Italian provinces (Guiso, Sapienza and Zingales, 2008) and, reasonably, it has been little affected by the crisis.

We mainly focus on small firms (i.e. firms with less than 20 employees) because bank lending is virtually the unique source of funds for them and as a consequence we are almost sure that no substitution between bank lending and other sources of funds is in place. Furthermore, since small firms are highly informational opaque, their ability to repay a loan is assessed by banks mostly on the basis of soft information. As a consequence, trust and banks' ability at gathering soft information are critical factors allowing to mitigate informational asymmetries. Lending conditions to these firms are then particularly sensitive to the general level of trust and uncertainty.

Social capital may affect several aspects of credit relationships, and in particular the availability, the quality (i.e. the riskiness) and the cost of credit. In this paper, similarly to Santos (2011), we focus on the cost of credit. In a related paper, Lozzi and Mistrulli (2014) have investigated whether social capital affects the probability for a firm to get a new loan, showing that – following the Lehman collapse – the likelihood of approval declined to a lower extent for firms that were headquartered in high-social capital areas.

Similarly to Gambacorta and Mistrulli (2014) and Bolton *et al.* (2013) we focus on overdraft loans. Interest rates on overdraft loans are modified unilaterally and at very short notice by banks and this allows us to fully capture in our quarterly data the effects of the shocks in the interbank market or a change in banks' behaviour due to a re-pricing of credit risk. Moreover, our analysis takes into account the change in banks' price conditions over a two-year horizon (2008:q2–2010:q2) and therefore it is reasonable to believe that the re-pricing for changes in risk perceptions is completely included in our sample.

We investigate overdraft facilities (i.e. credit lines) also for three other reasons. First, this kind of loan contract represents the main liquidity management tool for firms – especially the small ones (with fewer than 20 employees) that are prevalent in Italy – which cannot afford more sophisticated techniques. Second, since these loans are highly standardised among banks, the cost of credit across different firms is not affected by unobservable (to the econometrician) loan-contract-specific covenants. Third, overdraft facilities are loans granted neither for some specific purpose, as it is for the case of mortgages, nor on the basis of a specific transaction, as it is for the case of short-term advances against trade credit receivables. As a consequence, according to Berger and Udell (1995) the pricing of these loans is highly associated with the borrower-lender relationship, thus providing us with a better tool for testing the role of social capital in bank interest rate setting.

In order to identify the link between social capital and the cost of credit we estimate the following equation:

$$r_{ijt} = \alpha + \beta SocCap_i * PostLehman_t + \gamma PostLehman_t + \Phi BankFirm_{ij} + u_{ijt} \quad (1)$$

where the dependent variable r is the spread between the loan interest rate charged by bank j , to firm i , at quarter t and the 3-month Euribor rate. Our sample is made of a balanced panel including each bank-firm relationship which is observed at two different dates t , a pre-Lehman period (June 2008) and a post-Lehman one (June 2010). We therefore exclude bank-firm relationships which are not present at both dates.⁷

As usual, there are pros and cons in following this approach. On one side, we may underestimate the role of social capital in the credit market. Indeed, in a crisis most of the terminated relationships are dropped on the initiative of the lender in order to get rid of their riskiest borrowers. As a consequence, our sample is made of firms which are less financially constrained and less risky than the average and which, therefore, can be expected to benefit less from social capital. On the other side, if we run the regressions on a unbalanced sample we are not able to rely on bank-firm fixed effects anymore and then we could not exclude that our results are possibly driven by unobserved characteristics that correlate with the cost of credit.⁸ It seems then safer to run the risk of underestimating the effect of social capital than that of capturing spurious effects.

In the equation (1), *PostLehman* is a dummy that equals 1 in June 2010, and 0 otherwise. We fully control for observed and unobserved characteristics of bank-firm relationships by including bank-firm fixed effects ($\Phi BankFirm_{ij}$).

The variable of interest is the interaction between the dummy *PostLehman* and the availability of social capital in the province where the firm is headquartered (*SocCap*PostLehman*). In this way, we are able to identify the effect of social capital on the cost of credit.⁹

By using bank-firm fixed effects we are able to control only for all time invariant characteristics of bank, firm and bank-firm relationships. While some characteristics may change quite slowly, such that we can reasonably argue that they do not change in the period under investigation, others may not. For this reason, we also estimate an augmented version of equation (1) by adding time varying controls for both bank ($\theta Bank_{jt}$) and firm ($\delta Firm_{it}$) characteristics:

$$r_{ijt} = \alpha + \beta SocCap_i * PostLehman_t + \gamma PostLehman_t + \Phi BankFirm_{ij} + \theta Bank_{jt} + \delta Firm_{it} + u_{ijt} \quad (2)$$

In particular, we add the following controls. At the firm level, we consider a) the (lagged) share of credit granted by the main bank, which is identified within the pool of banks lending to the firm as that bank granting the largest amount to the borrower; b) the number of banks lending to the firm; c) the (lagged) share of secured bank debt over all the firm indebtedness with the banking system; d) the amount of short-term debt as a percent-

⁷ Mergers and acquisitions among banks between the two dates have been duly taken into account.

⁸ In section 3 below we provide some results based on the unbalanced sample, allowing for firm entry or exit.

⁹ Standard errors are clustered at quarter*province level, i.e. the geographic area for which the social capital proxies are available.

age of the amount of the overall bank debt. At the bank level, we add: a) the (lagged) level of bank capital (tier 1 capital) and b) the (lagged) amount of bank deposits as a percentage of total bank liabilities (deposits and bonds issued by the bank).

Firm-level variables a)-c) are aimed at controlling for the type of bank-firm relationships which may vary in terms of its strength and intensity and of the credit risk mitigation tools used. Moreover, the composition of firms' bank debt by maturity (i.e. firm-level control variable d) can be to some extent endogenous to the applied interest rates, since firms – as a reaction to the downturn – might modify their short-term financial needs (e.g. expanding or reducing credit from suppliers and to customers), and thus the maturity composition of their bank debt: it is therefore useful to account for this possibility (Petersen and Rajan, 1997). Bank-level controls are justified by the literature pointing out that credit tightening in the 2008-09 crisis was uneven across heterogeneous banks, depending on the initial balance sheet conditions of the lenders, especially as regards their capital endowment and the stability of their liabilities (see, above, the introduction).

In what follows we provide results for both estimation equations, and in particular for the (2), our benchmark specification.

2.2 How to measure social capital?

A crucial issue to be addressed concerns the measure of social capital. Indeed, social capital, in particular when it is conceptualized as a set of social norms, is hardly observable. For this reason, following GSZ, we start with the number of blood donations and the participation in referenda referred to the province where the borrower is headquartered. We then check whether our results are confirmed for a wider range of definitions. In particular, we expand the set of possible measures of social capital along two directions. On the one hand, we rely on alternative universalistic measures. This is due in order to run some robustness checks beyond the measures adopted by GSZ that can be reasonably considered as universalistic ones. On the other hand, we add some particularistic measures in order to assess whether, at least for the functioning of the credit market, both types of social capital definitions matter.

Among (additional) universalistic measures we consider proxies related to the support of non-profit association, through money or voluntary work and trust in politicians. As for particularistic measures we rely on the participation to polls whose outcome – differently from the GSZ's referenda – potentially benefits their members or on friends' networks which are mostly interdicted to outsiders. We also supplement these proxies with credit specific measures capturing the importance of cooperation in the credit market. By this way we investigate whether the impact of particularistic proxies depends on their being credit market specific or not. To this aim we measure the role cooperative banks (see Angelini, Di Salvo and Ferri, 1998) and of mutual guarantee institutions (see Columba, Gambacorta e Mistrulli, 2010; Mistrulli e Vacca, 2011), respectively, by the percentage, at the province level, of bank-firm relationships granted by cooperative banks or those backed by mutual guarantee institutions.

In order to make all those alternative measures better comparable we have standardized them (see Chodorow-Reich, 2014, for a paper using a similar approach). Indeed, even if all proxies are related to a unique phenomenon, i.e. social capital, they are indirect measures of it. In particular, these outcome-based proxies measure phenomena that may differ to a large extent one from another. All the social capital proxies are time invariant and are measured at the province level at dates preceding our sample period (2008-2010).¹⁰

2.3 Data

The data come from four sources:

- i) the Credit Register (CR) maintained by the Bank of Italy contains detailed information on all loan contracts granted to each borrower whose total debt from a bank is above 30,000 euros (75,000 euros until December 2008); furthermore, the same data source enables us to identify the composition of the bank credit granted to a firm and its collateralisation (i.e. the share of each lender, the share of short-term financing, etc.), as well as bank-firm relationships that benefit from some form of credit cooperation, i.e. loans granted by credit cooperatives banks (CCBs) or backed by mutual guarantee institutions (MGIs);
- ii) the Bank of Italy's Loan Interest Rate Survey includes information on interest rates charged on each loan above 75,000 euros reported to the CR and granted by a sample of over 200 Italian banks; this sample accounts for more than 90 per cent of loans to non-financial firms and is highly representative of the universe of Italian banks in terms of bank size, category and location;
- iii) the data on social capital at provincial (Eurostat NUTS3) level are retrieved from Guiso *et al.* (2004), from the recurrent multi-purpose survey carried out by the Italian statistical institute (Istat) and from the Italian Ministry of Interior;
- iv) finally, we use supervisory reports to the Bank of Italy including detailed information on banks' balance-sheets. This allows us to control for banks' time variant characteristics and identify those financial intermediaries that were hit more by the dry-up of liquidity in the interbank markets and the rise in the credit risk, possibly leading to a regulatory capital shortage. By doing this, we control for other factors which might have affected banks' credit supply stance, and thus potentially represents a confounding factor of the nexus between social capital and the credit market (see section 7).

For the purpose of our analysis, we use as a dependent variable the interest rates applied by banks to Italian small firms (with less than 20 employees) on overdraft facilities, net of the corresponding 3-month Euribor rate. Rates on overdraft facilities are chosen for the reasons explained above (see Section 2.1). Interest rates do not include any additional fees and we exclude the observations below the 1st and beyond the 99th percentile. The

¹⁰ The variables 'participation in ballots (referenda or general elections)' are referred to several dates: in that case we consider the percentage of ballot participation averaged across several elections before the 2008-2010 period.

rates are referred to the second quarter of 2008 and of 2010, which allows gauging the rate effect stemming from the severe economic downturn produced by the Lehman Brothers' collapse.

Tables b1 and b2 report some descriptive statistics about the main variables employed in the estimation exercises and display correlations among them. While a positive correlation among alternative proxies of social capital clearly emerges, some definitions which have been put forward by the extant literature, and which we will test in our specifications (notably the spread of friend networks), appear to be weakly or even negatively correlated with other social capital measures, suggesting that they are capturing features of the social structure of local communities which do not fully overlap with other features. The table also suggests that the *level* of interest rates applied to small firms is negatively correlated with the social capital endowments.

3. Results

3.1. Baseline specification

Table a1, columns [1] and [2], reports the results for the estimation of equation (1). In this baseline specification, we start from the measures of social capital which were introduced by GSZ, namely the frequency of blood donations and the participation to referenda.

The results support the hypothesis that social capital is beneficial to firms since it reduces the cost of credit. Indeed, for both measures of social capital we obtain a negative coefficient for the interaction term *SocCap*PostLehman*.

According to columns [3] and [4] of Table a1, the baseline results are confirmed when we augment the estimation equation by including firm and bank time varying controls (equation 2), our benchmark specification.

As we have already mentioned in the Introduction, although different views on the role social capital in the economy are debated, they all point to the hypothesis that social capital may have an impact on the functioning of the credit market by mitigating informational asymmetries or, at least, their consequences. Following this argument one may argue that the impact of social capital is stronger once other mitigating factors are not in place. In particular, when the relationship between banks and firms are not particularly close or when collateral is not or scarcely available. Indeed, there is some evidence supporting the view that the effects of Lehman's collapse have been smoothened by close lending relationships (Bolton *et al.*, 2013), since relationship banking may mitigate informational asymmetries (allowing for the accumulation of soft information) or reduce the consequences of these asymmetries. Similarly, banks may mitigate asymmetric information problems by relying on secured lending (Hart and Moore, 1995)

For these reasons, we check whether the impact of social capital depends on the characteristics of the lending relationships (single versus multiple lending) and of the loan con-

tracts (secured versus unsecured loans). In particular, in Table a2 we report the results obtained when we split the sample into two sub-samples including alternatively those firms borrowing from only one bank (*single lending*) and the one including those firms borrowing from at least two banks (*multiple lending*). Similarly, we distinguish between secured and unsecured lending relationships. We estimate model (2), that includes time-varying controls, while model (1) yields substantially the same results (not reported).

From our perspective, this analysis is important since it may shed some light on the channels by which social capital may affect the outcomes in the credit market and, in particular, in case our expectations are empirically supported, we can reinforce the argument that social capital has a role in mitigating informational asymmetries.

The results reported in Table a2 confirm that firms benefit from social capital independently of borrowing from one or more than one bank when social capital is measured by using blood donations. In case we use the referenda turnout then the previous results seem to be confirmed only for those firms borrowing from more than one bank. As far as the presence of collateral is concerned, we obtain a negative and significant coefficient for both secured and unsecured loans with a greater impact for the latter. All in all, we may state that these results confirm that social capital lowers the cost of credit and that multiple and unsecured borrowers benefit more from being headquartered in a high-social capital province. This is consistent with the view of social capital partly functioning as a substitute for other credit risk mitigation devices, like strong credit relationships or collateral.

Table 1 below summarizes our findings obtained by using the GSZ's proxies and using model (2) to estimate the parameters of interest. The coefficients reported show the reduction of interest rates stemming from an increase of social capital of one standard deviation above the mean. The impact is in most cases close to 10 basis points. The common approach to assess the economic significance of a regressor, by increasing/decreasing the mean value of the variable of interest by two standard deviations, yields an overall reduction in the cost of credit of about 40 basis points in case firms would 'move' from a low social capital province to a high social capital one. This estimated benefit is not trivial, if compared with the overall change in the interest rate spreads in Italy for small firms between the pre-crisis and the crisis period, which averaged at 270 basis points.

Table 1

Overall impact of social capital on the cost of credit (1)					
(percentage points)					
	full sample	single-lender borrowers	multi-lender borrowers	collateralised borrowers	uncollateral- ised borrow- ers
	[1]	[2]	[3]	[4]	[5]
Blood donation	-0.099*	-0.090*	-0.106*	-0.085*	-0.113*
Referenda participation	-0.091**	-0.065	-0.113***	-0.068**	-0.123**

Source: estimated coefficients, see tables in the appendix.

(1) The reported values refer to the interest rate benefit of changing the social capital of the province where the firm is established by one standard deviations of the relevant proxy. The difference is negative if being located in a high-social capital province entails lower interest rates paid by firms to banks with respect to firms located in low-social capital provinces, controlling for firms' and banks' features.

3.2. *Universalism vs. particularism*

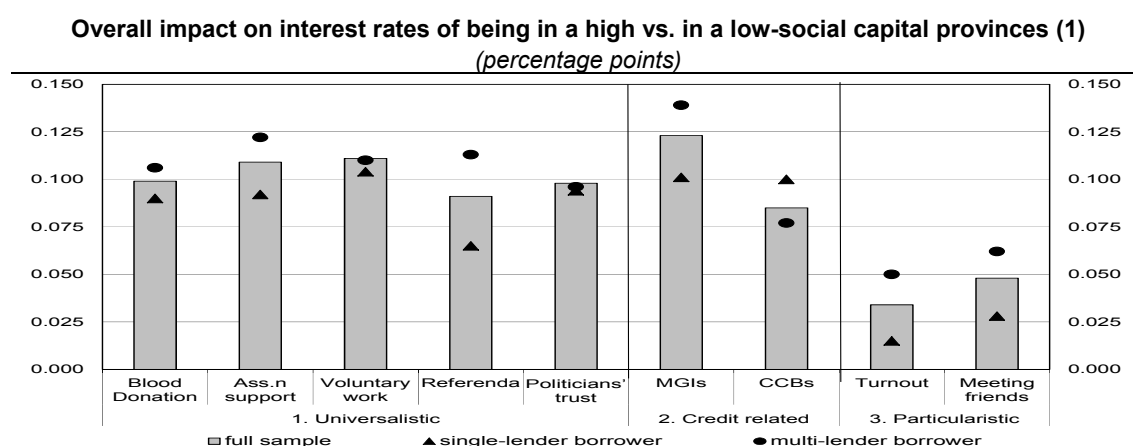
In this section we extend our previous analysis along two lines. First, we go beyond the GSZ's proxies by using alternative universalistic measures of social capital. Second, we adopt some other proxies whose particularistic components are so important such that we can synthetically label them as particularistic measures. Along with the latter, we also identify some of them that are strictly related to forms of cooperation in the credit market. By doing this way, we check whether our results are confirmed when alternative universalistic measures are used, whether particularistic forms of social capital have a different impact on the functioning of the credit market and, finally, whether, among particularistic forms, those that are more strictly related to the credit market perform better or not compared to the others.

Among universalistic value-related definitions of social capital we include monetary contributes to associations, voluntary work provided to associations and general trust in politicians' behaviours. Among particularistic ones we include the frequency people meet their friends, which is also a *networking* based measure. As regard civicness measured by political participation, we also check whether *participation in general elections* has a different impact compared to referenda. The difference may arise since people may vote for general elections because of self-interested motivations while, at the opposite, since voting is not mandatory and voters gain no direct benefit, participation in referenda might be mostly driven by universalistic values (see GSZ).

Table a3 reports the estimates obtained when the new proxies are plugged into our complete model (eq. 2). Our previous results are confirmed for the alternative proxies for universalistic forms of social capital (i.e. monetary support to associations, voluntary work, and the level of trust towards politicians). Indeed, in all these cases we get a negative and significant coefficient for the interaction term *SocCap*PostLehman*. On the contrary, even if still negative, the estimated coefficient is not significant once we substitute particularistic measures for universalistic ones. This happens when we estimate the impact of *general election turnouts* and *meeting friends* on the cost of credit. Once we take into account market credit-specific forms of cooperation, mostly based on particularistic values, the interpretation of the results is less straightforward. We find that cooperation in the credit market has an impact on the cost of credit only if it refers to collateral provided by mutualistic institutions (MGIs) while no effect is detected for credit extended by cooperative banks (CCBs). A possible explanation of this different result is that MGIs are very small and relatively simple institutions, who need a critical mass of social capital in order to function properly; by contrast, CCBs are slightly larger and more complex institutions, which in some cases they can even act as a substitution for social capital, also in provinces where the latter is poor. Moreover, MGIs' activity is mainly oriented to small firms that may fall short of collateral and we know from our previous results that, among small firms, those are the ones who benefit the most from social capital.

Figure 2 provides a comparison among estimates retrieved from generalistic and universalistic notions of social capital, including the difference in coefficients estimated for the subsamples of single- and multiple-lender borrowers.

Figure 2



Source: estimated coefficients, see tables in the appendix.

(1) The bars display the interest rate effect of social capital for a small firm (less than 20 employees) after the Lehman Brothers collapse. The bars are positive if being located in a high-social capital province entails lower interest rates paid by firms to banks with respect to firms located in low-social capital provinces (with a difference between the relevant social capital of the two provinces equal to one standard deviation of the relevant social capital measure), controlling for the features of the bank-firm relationship. The dark symbols refer to the estimated effect for the two subsamples of single-lender borrowers (the triangle) and multiple-lender borrowers (the dot).

All in all, these findings suggest that while universalistic forms of social capital have an impact on the functioning of the credit market, particularistic ones, with the exception of MGIs, seems to play a minor role. Furthermore, the social capital effect is generally confirmed to be stronger for multiple-banks relationships.

3.3. Robustness checks

In this section we run some robustness checks. First of all we verify whether the impact of social capital differs across types of firms. In particular, since social capital is highly related with the acquisition of soft information, a natural test for that is to check whether the benefits from being headquartered in high-social capital areas are greater for opaque firms relative to less opaque ones. A standard way to proxy for firms' opacity is to look at their size. Our previous results have been obtained for small firms, i.e. firms with less than 20 employees. We now verify whether those results still hold for firms with 20 employees or more. What we expect is that the effect of the social capital is less pronounced or even absent compared to smaller firms, since larger firms are less opaque.

Table a4 reports the estimated coefficients for larger firms.¹¹ We get a negative but insignificant coefficient for social capital, indicating that the latter plays no role for less opaque firms, in line with the view that it mitigates asymmetric information problems.

We then check our results by comparing firms according to some characteristic of the province where they are headquartered other than social capital. In particular, we check whether our results depend on how export oriented are the provinces where firms have set their headquarters and whether our results are driven by the North-South divide. On one

¹¹ In this estimation on larger firms we also control for the firm's financial fragility, through a (lagged) score assigned to each firm at the two relevant dates (mid-2008 and mid-2010). The score is unavailable for most of the small firm sample.

side, there is some evidence that the firms' reaction to the Lehman crisis has been positively affected by their export orientation. On the other side, the effects of the crisis have been quite different among the two areas of the country, which in turn are endowed on average with quite different levels on social capital. What we find is that our previous results are mostly confirmed, indicating that our measures of social capital do not correlate with some other province characteristics.

As far as bank heterogeneity is concerned, we check whether the estimated social capital effect is different for larger banks, in particular those belonging to the top five Italian banking groups (Table a5). Indeed, there is a wide consensus that larger banks are complex organizations and as a consequence they are less prone to rely on soft information (Stein, 2002). However we are not able to detect any significant difference in the role of social capital for larger banks compared to smaller ones, once we have controlled for bank-firm fixed effects and some time-varying bank or firm features. This result, jointly with the irrelevance of social capital for larger firms, suggests that the information gain from operating in a high-social capital province is more linked to the firm's features (especially opaqueness) than to the bank characteristics

We also check our results by using bank time varying characteristics in order to be sure that our results are not driven by some heterogeneity in the response of banks to the Lehman shock. To this aim, we estimate a model including bank-by-time fixed effects controlling for all observed and unobserved time varying characteristics of banks, joint with firm fixed effects. Again, the previous results are confirmed, apart from a general reduction in the size of the social capital effect, with a change in the sign of the coefficient for the general elections turnout proxy (Table a6).¹²

Finally, we address the potential bias stemming from the fact that our econometric setup requires each bank-firm couple to be present in the dataset both at the date before the Lehman collapse and afterwards, thus excluding entries or exits from the sample. We therefore re-estimate the (1) and the (2) on an unbalanced sample of bank-firm relationships, replacing the bank-firm fixed effects with distinct bank- and firm- fixed effects. The results (not reported) confirm those obtained in the previous sections.

4. Conclusions

This paper has investigated whether social capital has played a role in the credit market during a global crisis. To this aim, we have employed bank-firm level data from the Italian registers on credit and bank rates, as well as different measures of the social capital at the province level. In particular, by using bank-firm fixed effects, controlling for all observable and unobservable characteristics of both the lender and the borrower, we have compared the interest rates charged to small firms before and after the collapse of Lehman Brothers

¹² This is the only specification, among those reported in this paper, where estimation errors are not clustered by province and time, owing to the presence of a bank by time fixed effect. For the same reason, the Post-Lehman dummy variable is omitted. Furthermore, time varying control variables for firms are added.

and checked whether the response of loan interest rates to that shock has been affected by the amount of social capital available in the province where the firm is headquartered.

Our main finding is that social capital has mitigated the transmission of the shock, due to the Lehman collapse, to the cost of credit charged to small firms. The estimated effect is not trivial if compared to the overall change in interest rate spreads charged to the Italian SMEs, and it is stronger for multiple-lender borrowers and unsecured overdraft loans. We interpret this as an evidence supporting the view that the main benefits of social capital come from mitigating informational asymmetries.

We contribute to two different strands of literature. First of all, we contribute to the existing literature on social capital by relying on a novel identification strategy that solves many problems that other papers on social capital could not, mainly due to data limitations. Furthermore, we contribute to the literature on the role of social capital in the economy by looking at different measures of social capital, both universalistic and particularistic, including those related to credit cooperation (credit cooperative banks and mutual guarantee institutions). Second, we provide a novel evidence about the transmission of a global shock to loan interest rates, showing that social capital helped banks shield their borrowers from the effects of the Lehman collapse. Surprisingly, despite the large number of papers investigating this issue, the literature was still silent on the role of social capital in a crisis.

Our main findings are robust to many controls: We have verified whether our result are affected by some unobservable factor driving the choice of banks about where to open branches and then lend; whether they apply to larger firms as we find for smaller ones; whether they are robust to controls for the international trade openness of the province where the firm is headquartered and to time varying controls for both bank and firm characteristics.

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6. Appendix A. Tables

Table a1

Social capital and the cost of credit: GSZ (2004) proxies (1)				
<i>(Dependent variable: interest rate spread 2008.Q2 and 2010.Q2; bank-firm fixed effects and control variables)</i>				
	Base-line model (equation (1))		Complete model (equation (2))	
	Blood donations	Referenda Participation	Blood donations	Referenda Participation
	[1]	[2]	[3]	[4]
Post Lehman	2.703*** (0.052)	2.703*** (0.052)	2.697*** (0.082)	2.706*** (0.080)
Post Lehman * social capital	-0.084* (0.047)	-0.077** (0.034)	-0.099* (0.052)	-0.091** (0.036)
Constant	4.615*** (0.037)	4.615*** (0.037)	4.671*** (0.314)	4.638*** (0.328)
Adjusted R-sq.	0.699***	0.699***	0.706***	0.706***
N. obs.	379,362	379,362	342,452	342,452

Source: estimations on Bank of Italy survey on bank interest rates, GSZ (2004), Ministry of Interior. See the Appendix B.

(1) The dependent variable is the interest rate on overdrafts. The base-line model refers to equation (1) in the text, the complete model refers to equation (2) in the text. Control variables not reported. Data refer to Italian firms with less than 20 employees. Robust standard errors (clustered by province * time) in brackets. *, **, and *** represent significance levels of 10%, 5%, and 1% respectively. The coefficient "Post-Lehman * social capital" refers to the interaction between a dummy variable, which takes the value of 1 for mid-2010 and 0 for mid-2008, and a standardised proxy for social capital in the province (Eurostat NUTS3 geographical unit) where the firm is headquartered.

Table a2

Social capital and the cost of credit: single and multiple lending, collateral (1)*(Dependent variable: interest rate spread 2008.Q2 and 2010.Q2; bank-firm fixed effects and control variables)*

	Blood donations (equation (2))				Referenda participation (equation (2))			
	Single lending	Multiple lending	Collater- alised	Uncol- lateral- ised	Single lending	Multiple lending	Collater- alised	Uncol- lateral- ised
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Post Lehman	2.706*** (0.090)	2.691*** (0.094)	2.739*** (0.076)	2.594*** (0.101)	2.714*** (0.089)	2.701*** (0.091)	2.747*** (0.074)	2.606*** (0.100)
Post Lehman * social capital	-0.090* (0.052)	-0.106* (0.064)	-0.085* (0.046)	-0.113* (0.069)	-0.065 (0.041)	-0.113*** (0.041)	-0.068** (0.034)	-0.123** (0.048)
Constant	5.470*** (0.484)	4.372*** (0.324)	5.006*** (0.310)	3.620*** (0.347)	5.446*** (0.499)	4.336*** (0.339)	4.979*** (0.324)	3.583*** (0.360)
Adjusted R-sq.	0.723***	0.696***	0.707***	0.691***	0.723***	0.696***	0.707***	0.691***
N. obs.	137,942	204,510	232,914	74,480	137,942	204,510	232,914	74,480

Source: estimations on Bank of Italy survey on bank interest rates, GSZ (2004), Ministry of Interior. See the Appendix.

(1) The dependent variable is the interest rate on overdrafts. The complete model refers to equation (2) in the text. Control variables not reported. Data refer to Italian firms with less than 20 employees. Robust standard errors (clustered by province * time) in brackets. *, **, and *** represent significance levels of 10%, 5%, and 1% respectively. The coefficient "Post-Lehman * social capital" refers to the interaction between a dummy variable, which takes the value of 1 for mid-2010 and 0 for mid-2008, and a standardised proxy for social capital in the province (Eurostat NUTS3 geographical unit) where the firm is headquartered.

Table a3

Social capital and the cost of credit: Universalism Vs Particularism (1)*(Dependent variable: interest rate spread 2008.Q2 and 2010.Q2; bank-firm fixed effects and control variables)*

	Universalism			Credit market		Particularism	
	Associa- tions' support	Voluntary work	Politicians' trust	MGIs' presence	CCBs presence	General elections turnout	Friends' networks
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Post Lehman	2.706*** (0.080)	2.698*** (0.082)	2.716*** (0.078)	2.728*** (0.084)	2.702*** (0.081)	2.703*** (0.082)	2.702*** (0.081)
Post Lehman * social capital	-0.104** (0.048)	-0.111* (0.058)	-0.098* (0.050)	-0.123** (0.054)	-0.085 (0.069)	-0.034 (0.049)	-0.048 (0.044)
Constant	4.676*** (0.331)	4.681*** (0.343)	4.658*** (0.327)	4.697*** (0.316)	4.663*** (0.334)	4.638*** (0.331)	4.623*** (0.326)
Adjusted R-sq.	0.706***	0.706***	0.706***	0.706***	0.706***	0.705***	0.705***
N. obs.	342,446	342,446	342,446	342,452	342,452	342,452	342,452

Source: estimations on Bank of Italy survey on bank interest rates, Istat, GSZ (2004), Ministry of Interior. See the Appendix B.

(1) The dependent variable is the interest rate on overdrafts. The complete model refers to equation (2) in the text. Control variables not reported. Data refer to Italian firms with less than 20 employees. Robust standard errors (clustered by province * time) in brackets. *, **, and *** represent significance levels of 10%, 5%, and 1% respectively. The coefficient "Post-Lehman * social capital" refers to the interaction between a dummy variable, which takes the value of 1 for mid-2010 and 0 for mid-2008, and a standardised proxy for social capital in the province (Eurostat NUTS3 geographical unit) where the firm is headquartered.

Table a4

Social capital and the cost of credit: larger firms, GSZ (2004) proxies (1)				
<i>(Dependent variable: interest rate spread 2008.Q2 and 2010.Q2; bank-firm fixed effects and control variables)</i>				
	Base-line model (equation (1))		Complete model (equation (2))	
	Blood donations	Referenda participation	Blood donations	Referenda participation
	[1]	[2]	[3]	[4]
Post Lehman	2.629*** (0.040)	2.628*** (0.040)	2.674*** (0.069)	2.678*** (0.066)
Post Lehman * social capital	-0.051 (0.045)	-0.038 (0.029)	-0.054 (0.054)	-0.050 (0.034)
Constant	4.092*** (0.029)	4.092*** (0.028)	3.627*** (0.267)	3.619*** (0.271)
Adjusted R-sq.	0.655***	0.655***	0.657***	0.657***
N. obs.	628,060	628,060	486,492	486,492

Source: estimations on Bank of Italy survey on bank interest rates, GSZ (2004), Ministry of Interior, Cerved group. See the Appendix B.

(1) The dependent variable is the interest rate on overdrafts. The base-line model refers to equation (1) in the text, the complete model refers to equation (2) in the text. Control variables not reported. Data refer to Italian firms with at least 20 employees. Robust standard errors (clustered by province * time) in brackets. *, **, and *** represent significance levels of 10%, 5%, and 1% respectively. The coefficient "Post-Lehman * social capital" refers to the interaction between a dummy variable, which takes the value of 1 for mid-2010 and 0 for mid-2008, and a standardised proxy for social capital in the province (Eurostat NUTS3 geographical unit) where the firm is headquartered.

Table a5

Social capital and the cost of credit: Robustness checks (1)*(Dependent variable: interest rate spread 2008.Q2 and 2010.Q2; bank-firm fixed effects and control variables)*

	Top 5 banking groups		Export orientation				Center-North and South	
	Blood dona- tions	Refer- enda partici- pation	Blood donations		Referenda participation		Blood dona- tions	Refer- enda partici- pation
			High (2)	Low (2)	High (2)	Low (2)		
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Post Lehman	2.607*** (0.085)	2.611*** (0.086)	2.688*** (0.094)	2.592*** (0.127)	2.739*** (0.093)	2.728*** (0.127)	2.702*** (0.082)	2.759*** (0.089)
Post Lehman * social capital	-0.119** (0.052)	-0.103** (0.044)	-0.074 (0.076)	-0.230*** (0.078)	-0.186* (0.111)	-0.093** (0.043)	-0.101 (0.068)	-0.204* (0.114)
Post Lehman * Top 5 banks	0.198*** (0.072)	0.210*** (0.071)						
Post L. * Top 5 banks*soc.capital	0.063 (0.065)	0.028 (0.061)						
Post Lehman * South							-0.297 (0.277)	-0.179 (0.189)
Post L. * South * social capital							-0.203 (0.201)	0.084 (0.132)
Constant	4.563*** (0.304)	4.530*** (0.316)	4.592*** (0.385)	5.020*** (0.358)	4.525*** (0.406)	5.013*** (0.387)	4.662*** (0.313)	4.592*** (0.334)
Adjusted R-sq.	0.706***	0.706***	0.695***	0.733***	0.695***	0.732***	0.706***	0.706***
N. obs.	342,452	342,452	244,824	97,622	244,824	97,622	342,452	342,452

Source: estimations on Bank of Italy survey on bank interest rates, Istat, GSZ (2004), Ministry of t Interior. See the Appendix B.

(1) The dependent variable is the interest rate on overdrafts. The complete model refers to equation (2) in the text. Control variables not reported. Data refer to Italian firms with less than 20 employees. Robust standard errors (clustered by province * time) in brackets. *, **, and *** represent significance levels of 10%, 5%, and 1% respectively. The coefficient "Post-Lehman * social capital" refers to the interaction between a dummy variable, which takes the value of 1 for mid-2010 and 0 for mid-2008, and a standardised proxy for social capital in the province (Eurostat NUTS3 geographical unit) where the firm is headquartered. – (2) Estimation is run separately for high- and low-export oriented provinces. High- (low-) export oriented provinces are those whose export / GDP is above (below) the median of Italian provinces.

Table a6

Social capital and the cost of credit: Bank-time and firm fixed effects (1)									
<i>(Dependent variable: interest rate spread 2008.Q2 and 2010.Q2; firm control variables)</i>									
	Blood dona- tions	Refer- enda parti- cipation	Associ- ations' support	Volun- tary work	Politi- cians' trust	MGLs' pres- ence	CCBs pres- ence	General elec- tions turnout	Friends' net- works
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
PostLehman	-0.024**	-0.049***	-0.040***	-0.068***	-0.042***	-0.147***	-0.008	0.030***	-0.024***
* Soc.capital	(0.010)	(0.010)	(0.010)	(0.009)	(0.008)	(0.009)	(0.010)	(0.009)	(0.008)
Constant	4.613***	4.619***	4.614***	4.623***	4.611***	4.625***	4.607***	4.599***	4.605***
	(0.072)	(0.072)	-0.072	(0.072)	(0.072)	(0.072)	(0.072)	(0.072)	(0.072)
Adj.R-sq.	0.684	0.684	0.684	0.684	0.684	0.684	0.684	0.684	0.684
N. of obs.	342,460	342,460	342,460	342,460	342,460	342,460	342,460	342,460	342,460

Source: estimations on Bank of Italy survey on bank interest rates, GSZ (2004), Ministry of t Interior. See the Appendix B.

(1) The dependent variable is the interest rate on overdrafts. The model is like equation (2) in the text, where bank-firm fixed effects are replaced by bank-time and firm fixed effects and the dummy Post Lehman is omitted. Firm control variables not reported. Data refer to Italian firms with less than 20 employees. Robust standard errors in brackets. *, **, and *** represent significance levels of 10%, 5%, and 1% respectively. The coefficient "Post-Lehman * social capital" refers to the interaction between a dummy variable, which takes the value of 1 for mid-2010 and 0 for mid-2008, and a standardised proxy for social capital in the province (Eurostat NUTS3 geographical unit) where the firm is headquartered.

7. Appendix B. Variable and data description

The variables used in the OLS estimations are the following.

1. Dependent variable.

Interest rates. – The average rate applied by bank b to firm i at time t (i.e. June 2008, June 2010) on overdraft overnight facilities, net of the 3-month Euribor rate (monthly average in June 2008 and June 2010).

2. Social capital variables (Italian provinces, Eurostat's NUTS3).

Blood donations. – Number of donor blood units collected by the main Italian donor association (AVIS) per million inhabitants, 1995 (source: Guiso *et al.*, 2004).

Referenda. – Average ballot participation to referenda, 1946 to 1989 (source: Guiso *et al.*, 2004, based on Ministry of Interior data).

Turnout. – Average ballot participation to general political elections, 1992 to 2008 (source: Ministry of Interior).

Associations' support. – Answer to the question: "Have you given money to an association?" (source: Multipurpose survey, Istat, 2008).

Voluntary Work. – Answer to the question: "A Have you done any unpaid work for a voluntary organization?" (source: Multipurpose survey, Istat, 2008).

Politicians' trust. – Answer to the question: "You do not keep informed about politics because of distrust?" (source: Multipurpose survey, Istat, 2008).

Friends' network. – Answer to the question: "Do you meet your friends in free time at least once a week?" (source: Multipurpose survey, Istat, 2008).

MGIs' presence – Percentage of bank-firm relationships benefiting from a guarantee provided by mutual guarantee institutions (MGIs or *Confidi*; source: Credit register, Bank of Italy).

CCBs' presence – Percentage of bank-firm relationships where the lending bank is a credit cooperative banks (CCBs; source: Credit register, Bank of Italy).

N.B.: All social capital variables used in the estimations are standardised.

3. Control variables.

The complete model (2), in addition to fixed bank-firm fixed effects, features the following time-varying variables.

3.1. Firm features

Share of the main bank. – The share of overdraft credit held by the main bank over the total overdraft credit extended at time $t-1$ to firm i (source: Credit Register, Bank of Italy).

Number of lending banks. – The number of banks extending overdraft credit at time t to firm i (source: Credit Register, Bank of Italy).

Weight of short term credit. – The ratio of the quarterly average of the overdraft credit over the total bank credit extended at the end of the quarter, at time t to firm i (source: Credit Register, Bank of Italy).

Share of collateralised credit. – The share of collateralised credit over total bank credit extended at time t to firm i (source: Credit Register, Bank of Italy).

3.2. Bank features

Tier one capital. – The ratio of ‘tier one’ capital to risk weighted asset for bank b at time $t-1$, i.e. at end 2007 or end 2009 (source: Bank of Italy supervisory reports).

Share of retail deposits. – The ratio of retail deposits over total funding for bank b at time $t-1$, i.e. at end 2007 or end 2009 (source: Bank of Italy supervisory reports).

Table b1

Summary statistics of key variables (1)

(small firms sample)

	# Observa- tions	Mean	Standard Deviation	Minimum	Maximum
1. Dependent variable					
Interest rates (%)					
- Before Lehman (June '08)	189,681	4.62	2.40	0.30	10.07
- After Lehman (June '10)	189,681	7.32	3.15	0.79	13.97
2. Social capital proxies					
Blood donations	379,362	0.3730	0.1993	0.0000	1.0521
Association financial support	379,362	0.2004	0.0669	0.0240	0.3775
Voluntary work	379,362	0.1110	0.0424	0.0000	0.2254
Friends' networks	379,362	0.6996	0.0622	0.3985	0.9183
Trust in politicians	379,362	0.9559	0.0220	0.8674	1.0000
Referenda participation	379,362	0.8355	0.0657	0.6210	0.9153
Polls participation	379,362	0.8570	0.0514	0.3390	0.1568
Presence of CCBs	379,362	0.1012	0.1251	0.0000	0.5673
Presence of MGIs	379,362	0.1848	0.0992	0.3824	0.6861
3. control variables					
(firm) Share of the main bank	351,947	0.66	0.35	0.00	1.00
(firm) # of lending banks	375,024	2.26	1.60	1.00	25.00
(firm) Weight short term credit	371,505	0.21	15.94	3.27e-8	8,377.98
(firm) Share collateral.d credit	373,567	0.65	0.44	0.00	1.00
(bank) Tier one capital	379,340	0.02	0.03	1.00e-4	0.19
(bank) Share of retail deposits	379,362	0.53	0.14	9.09e-7	0.99

Source: estimations on Bank of Italy survey on bank interest rates, Istat, GSZ (2004), Ministry of Interior.

(1) Both in this table and in the estimations, observations with interest rates above the 99th and below the 1st percentile have been discarded. Data refer to Italian firms with less than 20 employees. For the sake of comparison, social capital variables are reported within a 0-1 range rather than the original range.

Table b2

Correlation matrix of key variables (1)*(dependent variables and social capital variables; small firm sample)*

	Interest rates	Blood donations	Association financial support	Voluntary work	Friends' networks	Trust in politicians	Referenda participation	Polls participation
Interest rates	1							
Blood donations	-0.0696*	1						
Association financial support	-0.0974*	0.4435*	1					
Voluntary work	-0.1175*	0.4095*	0.7659*	1				
Friends' networks	-0.0399*	-0.2619*	-0.1527*	-0.0339*	1			
Trust in politicians	-0.0659*	0.2851*	0.4847*	0.2229*	-0.2271*	1		
Referenda particip.	-0.0518*	0.6620*	0.5652*	0.4137*	-0.3843*	0.3897*	1	
Polls participation	-0.0441*	0.5655*	0.5584*	0.4506*	-0.2917*	0.3280*	0.7489*	1
Presence of CCBs	-0.1148*	0.2890*	0.4574*	0.5732*	-0.1316*	0.3169*	0.2525*	0.3559*
Presence of MGIs	0.0005	0.1559*	0.1565*	0.1282*	0.0238*	0.1273*	0.1812*	-0.0187*
Share main bank	0.0483*	-0.0241*	-0.0044*	-0.0030	0.0260*	0.0228*	-0.0336*	-0.0483*
N. lending banks	-0.0183*	0.0290*	0.0015	-0.0022	-0.0303*	-0.0275*	0.0417*	0.0582*
Short term credit	-0.0034	-0.0055*	-0.0048*	-0.0031	0.0027	-0.0046*	-0.0068*	-0.0058*
Collateralised credit	0.1506*	-0.1133*	0.1059*	-0.0906*	0.0759*	-0.0627*	-0.1220*	-0.1186*
Tier one capital	-0.2657*	0.0740*	0.0312*	0.0745*	-0.0045*	-0.0448*	0.0103*	0.0294*
Share retail deposits	0.0494*	-0.1634*	-0.2124*	-0.1716*	0.1650*	-0.1391*	-0.2361*	-0.2168*
	Pres-ence of CCBs	Pres-ence of MGIs	Share main bank	N. lend-ing banks	Short term credit	Collater-alised credit	Tier one capital	Share retail deposits
Interest rates								
Blood donations								
Association financial support								
Voluntary work								
Friends' networks								
Politicians distrust								
Referenda particip.								
Polls participation								
Presence of CCBs	1							
Presence of MGIs	-0.1475*	1						
Share main bank	-0.0092*	0.0100*	1					
N. lending banks	0.0089*	0.0037	-0.0453*	1				
Short term credit	-0.0020	-0.0046*	-0.0019	-0.0043*	1			
Collateralised credit	-0.0552*	0.0067*	-0.0002	0.1142*	-0.0049*	1		
Tier one capital	0.0388*	-0.0731*	0.1390*	-0.0028	0.0000	-0.0162*	1	
Share retail deposits	-0.1305*	0.0564*	-0.1054*	0.0722*	0.0033	0.0561*	-0.0148*	1

Source: estimations on Bank of Italy survey on bank interest rates, Istat, GSZ (2004), Ministry of Interior.

(1) * denotes significance at 1 per cent confidence level.

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