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Does institutional quality matter for lending relationships?

Annamaria Nifo[1], Sabrina Ruberto[2] and Gaetano Vecchione[3]

Abstract

Why the number of banking relationships per firm varies so much across space? Is it due to microeconomic features of firms localized in different places or is there something systematic, connected to geographical macroeconomic factors? Does local institutional endowment matter in the firm's choice? We address these issues with reference to the Italian case, one particularly interesting because of the substantial institutional gap between Center-North and South, and the high average number of banking relationships. Consistent with previous studies, we find that provincial institutions are a basic determinant of the observed differentials in the number of banking relationships per firm.

JEL classification numbers: G20; G21; L60; O43; R11.
Keywords: Firm-Bank relationships, Institutional quality, Italian manufacturing SMEs.

1 Introduction

During the last two decades, the literature has paid great attention to the widespread use of multiple banking relationships. In almost all countries, even relatively small firms borrow from several banks at the same time, even if the distribution of the number of banking relationships per firm substantially varies

[1] Department of Law and Economics - University of Sannio, Italy
[2] Department of Economics, Statistics and Finance "Giovanni Anania",University of Calabria, Italy
[3] Department of Political Science – University of Naples "Federico II", Italy

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across countries. Ongena and Smith (2000), using a dataset of 1079 large firms from 20 European countries, document that single-bank relationships are relatively rare, and Italy – with an average number of 15 banking relationships per firm - is the country where the phenomenon of multiple borrowing is most common. This is confirmed by Detragiache et al. (2000) comparing samples of small firms operating in the United Stated and Italy. They show that single banking is relatively common in the United States (where the median number of relationships is 2, and 55,5% of firms deal with more than one bank), while in Italy 89 percent of firms rely on multiple banking, the median number of relationships is 5, and the 75^{th} percentile is 8 (against only 2 in the United States).

To better understand the reasons behind the diversity of firms' preferences about the number of banking relationships, many economic motivations have been set forth. A number of contributions have focused on the microeconomic aspects of the individual choice, i.e. firms' features such as size, age, propensity to innovate, the endowment of human capital, the amount of R&D investment, and so forth. Theory predicts that larger and older, more innovative and financially distressed firms (Horoff and Korting, 1998) are more likely to resort to multiple bank relationships. On the empirical ground, some evidence shows that multiple relationships are associated with higher borrower riskiness (Foglia et al., 1998), while other authors point out that relationship oriented lenders have a ratio of bad loans lower than the average (Horoff and Korting, 1998; Ferri and Messori, 2000; Farinha and Santos, 2002). Moreover, the firms' decision can be traced back to a cost-benefit assessment: firms may prefer to borrow from more than one bank to increase total leverage (Cosci e Meliciani, 2000) and credit availability (Petersen and Rajan, 1994, 1995; Bianco, 1997; Sapienza, 1997; Cole, 1998), to reduce the cost of debt (Rajan, 1992), and avoid liquidity problems (Detragiache et al., 2000). On the other hand, it has been also recognized that often macroeconomic structural factors matter as well: for example, regional productive specialization, technology diffusion, degree of markets' competition and institutional factors have been deemed to be relevant in driving firms' preferences, to the extent that they affect the financial market structure and shape differences in the relative expected profitability of firms' choices. In particular, the role of institutions in influencing financial systems and the behaviour of firms in financial markets has been largely acknowledged by the economic literature (Chinn and Ito, 2006; Sierra et al., 2006; Claessens and Leaven, 2003; Garretsen et al., 2004; Andrianova and Demetriades, 2004; Neuberger et al., 2008), which in most cases has dealt with cross-country analysis, and referred to national institutional endowments. In line with recent developments of the literature, this paper adopts an approach emphasizing in particular the link among *local* institutional quality and firms' preferences on the number of bank relationships. In recent years, eminent contributions have focused on institutional settings at local level, recognising that even *within* a single country, differences in institutional quality may be relevant, and play a crucial role in determining firms' choices. Thus it comes as no surprise, and there is extensive evidence thereof, that although the institutional framework mostly applies all over

a country, its effectiveness is not the same in different areas (Guiso et al., 2004), because different quality of local institutions entails disparities in the rule of law, the provision of local public goods, the security of local property rights (Aron and Dell, 2010) and so on. Hence, a large strand of the literature has recognized an influence of local institutions on small and medium sized enterprises (La Porta et al., 2010), i.e. those firms more conditioned by the different challenges, opportunities and constraints connected to the geographical context in which they are located (Pollard, 2003). In the same vein, Demirguk-Kunt and Maksimovich (1998, 1999) argue that financial policies of large and small firms are likely to be affected by institutional quality at a different layer: the former mainly influenced by national institutional factors, the latter by local (La Rocca et. al., 2010). Following this approach, the macro factors at local level such as the enforcement system, corruption, excessive bureaucratisation, poor or inefficient organisation of public services, lower endowment of infrastructures, lack of security, and an unsatisfactory social and cultural environment are expected to be especially significant to explain the observed diversity in firm behaviour (Cheng and Shiu, 2007) over and above any relevant microeconomic factor.

Evaluating the importance of *local* institutional quality is important also for other reasons. On one side, it allows to single out the national or regional sources of firm behavior, so documenting and rationalizing patterns that comprehensive explanations of growth and development should strive to match. On the other, it may signal the possible presence of inter-linkages between national and local determinants of firms' financial decisions, which would require a more unified framework of public policies.

Addressing the issue of the choice of the number of banking relationships per firm in Italy has a strong motivation in the evidence of the long-lasting economic and institutional gap between Mezzogiorno and the rest of the country[4]. The large differences observed in regional institutional endowments match up with the evidence of large disparities occurring in a number of economic and social indicators across the country (Malanima and Zamagni, 2010; Giannola *et al.*, 2016), testifying the multifaceted nature of the Southern lag and confirming that even at the subnational level, differences in firms' performance might be explained on the basis of institutional differences (Del Monte and Giannola, 1997; Scalera and Zazzaro, 2010; Erbetta and Petraglia, 2011; Nifo, 2011; Aiello et al., 2014). In particular, despite the increasing integration of the Italian financial system, its efficiency at local level is very different among regions (Guiso et al., 2004; Giordano et al., 2013) and, although the same laws and regulations apply throughout the country, the enforcement system does differ at local level (Bianco et al., 2005).

However, while in recent years a growing literature is focusing on the relationship

[4] The term *Mezzogiorno* corresponds to the Southern regions plus the islands, namely Abruzzo, Molise, Campania, Puglia, Basilicata, Calabria, Sicily and Sardinia.

between institutional quality and various indicators of firms' performance (Aiello and Ricotta, 2016; Ganau and Rodriguez-Pose, 2016; Mannarino et al., 2016; Di Liberto and Sideri, 2015; Lasagni et al, 2015; Nerozzi et al., 2015; Raspe and Van Oort, 2011; Fazio and Piacentino, 2010), the role of sub-national institutional quality on firms' financial choices and, more specifically, on the choice about number of bank relationships to hold remains almost unexplored. Among relevant exceptions, Sarno (2009) analyzes the relationship between the degree of enforcement at provincial level and the functioning of the financial system, confirming the role of local institutions in determining firms' choices and local development. In the same vein, La Rocca et al. (2010) explain how local financial development and the connected institutional differences affect the financing decisions of Italian SMEs. Consistent with these findings, Agostino et al. (2010) show how better local institutions create a favorable business environment and a legal structure favouring a more effective credit protection, which in turn facilitate both firms to gain a better access to financial debt, and intermediaries to be more inclined to provide funds. Similarly, Ferri and Messori (2000) show that geographical differences in productive and socio-economic structures among Italian regions are paralleled by differences in the relationship banking patterns. Correlating the number of banking relationships with the local socio-economic structure, they find closer and longer-lasting customer relationships in Southern regions, where smaller banks and firms prevail. Likely, Cosci and Meliciani (2002) and Elsas (2002) find that the riskier business environment, the more firms engage in multiple banking relationships. Both the latter papers point out that contexts characterized by informational asymmetries, lack of transparency, higher uncertainty, corruption, excessive bureaucratization, lack of security and weak law enforcement – typically connected to poor institutional quality – give rise to incomplete contracts that encourage opportunistic behaviors and enhance the degree of contractual riskiness, thus increasing the number of firm-bank relationships. Fitting in this strand of the literature, we aim to evaluate the role of local institutional quality in determining the number of firms' banking relationships. In doing this, we connect the number of banking relationships to local institutional quality as measured by the Institutional Quality Index (IQI) constructed by Nifo and Vecchione (2014, 2015). This index evaluates institutional quality in Italian provinces and regions as a composite indicator derived by 24 elementary indexes grouped into five institutional dimensions (corruption, government effectiveness, regulatory quality, rule of law, voice and accountability).

To carry out the econometric investigation, we build an unbalanced panel of 5,137 SMEs for the period 2003-2006, for a total of 16,460 observations, by matching qualitative and balance sheet data from the 9^{th} and the 10^{th} waves of UniCredit-Capitalia survey "*Indagine sulle Imprese Manifatturiere"* and other data drawn from Bank of Italy and the Italian national statistics institute ISTAT. Estimations are carried out by applying several different estimators: Probit, Poisson, Arellano and Bover (1995), Blundell and Bond (1998) GMM (*System*

GMM), to address concerns of unobserved heterogeneity and potential endogeneity.
In different specifications, controlling for individual firm-level characteristics and contextual variables possibly conditioning firms' performance, our robust results confirm that institutions matter, as they prove to be one of the main drivers of firms' choices about the number of bank relationships: the lower level of provincial institutional quality, the higher number of bank relationships firms choose to hold. As Southern Italian provinces systematically show poorer institutions, Southern firms have a relatively high number of banking relationships.
The rest of the paper is organized as follows. Section 2 deals with the methodology used for the empirical investigation. In particular, section 2.1 presents the model; section 2.2 focuses on our explanatory variables, i.e. controls (2.2.1) and the IQI index (2.2.2). Section 2.3 illustrates the dataset and some descriptive statistics. Section 3 provides the main empirical findings and the robustness analysis (section 3.1). The main conclusions are discussed in section 4.

2 Methodology

This section is devoted to provide evidence about the factors driving the firm's choice on the number of banking relationships in Italy, and in particular to single out the role of provincial institutional quality in determining this choice. To perform this task, we carry out an econometric investigation, where the number of bank relationships is the dependent variable and individual firm's features, bank-firm relationship characteristics, local economic variables and institutional quality are explanatory variables. Our investigation finds that an institutional improvement leads to lower shares of multiple borrowing firms, thus showing that institutional quality negatively affects the number of banking relationship per firm. To properly address concerns of unobserved heterogeneity and potential endogeneity of some regressors, we alternatively adopt several estimation methods.

2.1 Estimation strategy and methods

The firm's choice to be multiple banked can be investigated by using various estimation models.[5] First of all, it may be seen as a dichotomous choice (whether or not to be multiple banked), appropriately modeled through a binary response model. Alternatively, the number of bank relationships held by a firm can be considered as

[5] In this study, the Heckman selection model could be also employed, modelling both the probability of being multiple banked and the number of banking relationships for a firm. Unfortunately, in the dataset we use, only three firms are characterized by a number of banking relationships equal to zero, discarding the adoption of the Heckman model.

a count variable, hence another suitable model may be a count data model such as the Poisson model. Moreover, since the dependent variable tends to be persistent over time (the past number of banking relationships is likely to influence the present number), the SYS-GMM seems to be an appropriate model as well, since it also allows to control for unobserved heterogeneity and the presence of endogenous (or predetermined) explanatory variables.[6] In the present paper we employ all the three mentioned models by estimating the following equations:

$$P(y_{it} = 1|X) = \Phi(\alpha + \beta_1 IQI_{jt} + \gamma X'_{it} + \sum_s \delta_s S_s + \sum_j \gamma_j P_j + \sum_t \varphi_t T_t) \quad (1)$$

$$NBANK_{it} = \alpha + \beta_1 IQI_{jt} + \gamma X'_{it} + \sum_s \delta_s S_s + \sum_j \gamma_j P_j + \sum_t \varphi_t T_t + v_{ijt} \quad (2)$$

$$NBANK_{it} = \alpha + \beta_0 NBANK_{i,(t-1)} + \beta_1 IQI_{jt} + \gamma X'_{it} + \sum_s \delta_s S_s + \sum_j \gamma_j P_j + \sum_t \varphi_t T_t + v_{ijt} \quad (3)$$

where indices i, j and t refer to firms, provinces and time, respectively.
In equation (1), we adopt a Probit model: the dependent variable is a dummy y_{ijt} assuming value 1 if a firm i located in province j at time t holds a number of bank relationships greater or equal two (and zero otherwise), and Φ is the cumulative density function of the normal distribution[7].
In models (2) and (3), the dependent variable NBANK is the number of per firm bank relationships. To estimate equations (2) and (3), we adopt the Poisson model and the Arellano and Bover (1995) and Blundell and Bond (1998) GMM (SYS-GMM) estimators, respectively.
On the right hand side of equations (1), (2) and (3), we consider IQI as our main explanatory variables using first provincial (IQI) and regional (IQI_REG) and then provincial and regional IQI sub-indexes in place of the overall indexes. The vector X contains the control variables we introduce in the following sub-sections.
In all equations, T, S and P are set of time, sector and provincial fixed effects, respectively, while, for equations (2) and (3), $v_{ijt} = \eta_i + w_j + e_{it}$ is a composite error, where η_i and w_j summarize time-invariant unobserved firms'

[6] The GMM method consists in two following steps 1) data are transformed in order to delete the unobserved individual effects, 2) valid instruments are used to cope for the endogeneity probem. In particular, Arellano and Bond (1991) propose a GMM technique that, under the assumption of white noise errors, exploits the entire set of internal instruments that the model produces. However, being the explanatory variables probably persistent over time, the lagged level may be poor instruments. Therefore, we adopt the SYS-GMM estimator of Arellano and Bover (1995) and Blundell and Bond (1998) that next to the moment conditions of the difference GMM, also employs the lagged instruments as instruments for the equation in levels assuming that the unobserved effects are not correlated with changes in the error term. These extra orthogonality conditions "remain informative even for persistent series, and it has been shown to perform well in simulations" (Bond et al. 2001, page 4), increasing the efficiency of the estimation.

[7] We consider as multiple banked all firms maintaining a number of bank relationships greater or equal two, roughly corresponding to the tenth percentile of the distribution of the number of bank relationships in our sample. By contrast, Cosci e Meliciani (2002, 2005) consider as multiple banked a firm maintaining a number of bank relationships greater than three and seven, respectively.

characteristics and provincial fixed effects, and e_{it} captures idiosyncratic shocks to the number of bank relationships.
The results of estimations of equations (1), (2) and (3) are shown in the following Section 3. As we will see, they seem robust to the choice of estimation method.

2.2 The explanatory variables

Explanatory variables convey information on: i) firms' individual and bank-firm relationship characteristics, such as size, age, indebtedness, credit rationing, duration of the relationship and share of debt held by the main bank; ii) macroeconomic conditions, i.e. the development of the local banking market, provincial GDP and the number of bank branches over total population; iii) provincial institutional quality considered in terms of the value of both overall IQI and its single specific dimensions.
The vector X of equations (1), (2) and (3) includes a number of different regressors concerning firms' features, according to the various model specifications. To account for firm's size, we consider the number of firm's employees (EMP). Size is considered relevant to firms' choice by a wide literature, arguing in favour of a positive impact on the number of bank relationships. That because, on one side, banks prefer to diversify credit risk by inducing large borrowers to engage in multiple relationships (Detragiache et al., 2000; Pelliccioni and Torluccio, 2007), and on the other side, small firms avoid multiple relationships due to the existence of fixed costs of borrowing (Guiso and Minetti, 2007).
Besides, we comprise the firm's age (AGE) among regressors as a proxy of firms' transparency, to acknowledge that for older firms the possibility for lenders to access information relevant to gauge riskiness and reliability is greater. However, more generally, the effect of firm's age on the decision of multiple banking is controversial. A few studies argue that mature firms surviving the critical start-up phase and having a known history about past performance are less opaque and therefore may enjoy more and cheaper credit by a larger number of banks (Diamond, 1991). On the contrary, other scholars state that being less subject to adverse selection, mature firms with a "track record" may consistently prefer to maintain a smaller number of bank relationships (Detragiache et al., 2000).
We also consider indicators of product/process and organizational innovation (INPP, INORG respectively), a dummy (HT) to take into account whether the firm belongs to a HiTech industry, and the ratio of intangible to total assets (INTAS). According to Elsas (2004), the firm's attitude to innovate is a proxy of informational transparency. More innovative firms tend to prefer close banking relationships to avoid the diffusion of information to direct competitors (Yosha, 1995). On the other hand, they may prefer multiple relationships to prevent the *hold up* problem[8]. Moreover, firms operating in high-tech sectors and firms with a

[8]The *hold up* problem may arise in close banking relationships, as the main bank may take

higher ratio of intangible to total assets may be subjected to multiple-banking due to the propensity of banks to carry out a higher differentiation of credit to risky and opaque borrowers (Pelliccioni and Torluccio, 2007).

Concerning financial variables, we consider as an additional regressor the ratio of financial liabilities to equity (LEVER), in accordance with the hypothesis that more leveraged firms establish a higher number of bank relationships (Carletti et al., 2004), also considering that the problem of adverse selection might be more severe for them than other firms (Detragiache et al., 2000). Variables accounting for credit rationing (CRED), duration of the relationship with the main bank (DURAT) and share of debt held by the main bank (MAIN) are also included. In order to minimize the risk of being credit rationed, firms may be more willing to establish and maintain multiple relationships (Detragiache et al., 2000); time duration and the relative weight of the main bank may be relevant too, considering that on one side asymmetric information problems are mitigated in the case of a single relationship, and on the other side, a strong bargaining power of the main bank may push it to apply worse conditions to borrowers (Sharpe, 1990; Rajan,1992).

Finally, local macroeconomic conditions are accounted for by including the variables RGDPC, i.e. the provincial per-capita real GDP, and BRANCH, i.e. the number of bank branches over total population. Through the first variable, we try to account for the fact that firms located in highly developed areas on one hand may need to establish more banking relationship to satisfy their needs of multiple financial services, and on the other hand may more easily finance their investment projects through internal financial resources, and not need to resort to many lenders. Even the impact of BRANCH is a priori ambiguous: indeed, if the presence of new banks in provincial credit markets induces better monitoring and screening processes, thus increasing soft information collected by intermediaries (Benfratello et al., 2008), multiple banking relationships may arise, but it is also true that a closer proximity can induce higher market power allowing banks to charge higher interest rates (*hold up* problem).

Moreover, we include some other control variables to account for observable firm-specific characteristics. First, we control for firm belonging to a group (GROUP) or taking part in a consortium (CONS) which may involve less need to hold multiple relationships, thanks to the chance of receiving credit from other members, or benefitting from a main bank financing all firms of the group/consortium (Detragiache et al., 2000). Second, we include the dummy variable COOP to detect if co-operative firms hold a lower number of bank relationships given that they are generally financed by cooperative and popular banks, with which they engage close banking relationships (Ferri and Messori,

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advantage from exclusive information and the consequent bargaining power, by practicing interest rates higher than the ones consistent with the real credit worthiness of the firm (Sharpe 1990, Rajan,1992).

2000; Cosci and Meliciani, 2005). Third, internationalized firms may need a higher number of bank relationships to manage their foreign transitions. Thus, we include the variable EXP coded one if a firm exports its products to foreign countries (and zero otherwise). Also, to check whether firms having more liquidity keep a lower number of bank relationships, we include the variable QUICK defined as the ratio of current asset and inventories to current liabilities. Finally, all estimations include industry dummies to control for heterogeneity at industry level (2-digit Ateco classification).

The explanatory variables we employ in the econometric investigation are listed in the following Table 1, reporting also the main summary statistics.

Finally, it is worth highlighting that the provincial GDP of a geographical area is likely correlated with its institutional quality. In particular, the institutional quality of a province may be an effect of the economic development characterizing the same area. Consequently, GDP might tend to absorb the effect that institutional quality may have on multiple banking relationships. Therefore, trying to isolate the impact of institutional quality on multiple banking, we carry out several sensitive checks. As a first, we run all the regressions excluding the variable RGDPC (Provincial real per capita GDP). Second, we re-run all the regressions including this variable. Third, we carry out the regressions including the variable RGDPC, but considering only firms located in the North of Italy, where economic development is more homogeneous.

Table 1: Summary statistics

	Variables	Description	Years	Obs	Mean	Std.	Min	Max
Firm's characteristics	NBANK	Number of bank relationships per firm	03-06	14433	4.784	2.986	0	15
	EMP	Number of firm's employees	03-06	14862	45.399	45.124	0	250
	AGE	Current year – year of foundation(in years)	03-06	14981	25.624	19.531	0	110
	INPP	Dummy =1 if firm innovations in product/ process, 0 otherwise	03-06	15250	.583	.493	0	1
	INORG	Dummy =1 if firm organizational innovations in product/ process, 0	03-06	15250	.172	.378	0	1
	HT	Dummy =1if firm belongs HiTech sector, 0 otherwise	03-06	15254	.043	.203	0	1
	INTAS	Intangible Fixed Assets/ tot.assets (in %)	03-06	14994	2.367	4.331	0	25.45
	TGAS (r check)	Tangible Fixed Assets/ tot.assets (in %)	03-06	14774	20.996	15.871	.579	67.30
	LEVER	Financial liabilities/(Financial liabilities+equity)(in %)	03-06	14994	27.605	32.643	0	96.39
	BANKD (r check)	Bank debt/total debt (in %)	03-06	14773	20.269	24.155	0	77.16
	QUICK	Current asset - inventories/ current liabilities	03-06	14990	1.075	.939	.233	21.57
	LIQUI (r check)	Current asset/ current liability	03-06	14770	1.480	1.157	.506	26.52
	FIND (r check)	Equity/ total liabilities (in %)	03-06	14774	25.467	18.448	1.076	78.20
	GROUP	Dummy =1 firm belongs to a group, 0 otherwise.	03-06	15250	.172	.377	0	1
	CONS	Dummy =1 firm belongs to a consortium, 0 otherwise	03-06	15133	.038	.192	0	1
	COOP	Dummy =1 firm is co-operative, 0 otherwise	03-06	15107	.012	.111	0	1
	EXP	Dummy =1 firm has exported its products to for count, 0 otherwise	03-06	15245	.620	.485	0	1
Bank	CRED	Dummy =1 firm whished more credit same interest rate, 0 otherwise	03-06	12755	.059	.237	0	1
	DURAT	Duration of the relationship with the main bank(in years)	03-06	12054	15.999	11.422	0	53
	MAIN	Share of the debt hold by the main bank (in %)	03-06	9649	24.495	24.402	0	100
Context	BRANCH	Number of branches for province/ provincial population	03-06	15254	6.433	1.473	2.193	10.49
	RGDPC	Provincial real GDP (per capita)(in thousands of €)	03-06	15254	20217.37	4033.258	9086.10	27414.37
	IQI	Institutional quality index at the provincial level	04-06	14368	.711	.148	0	1
	IQI_REG	Institutional quality index at the regional level	04-06	14368	.709	.138	.0973	.932
	RULAW	IQI Dimension, Rule of Law at the provincial level	04-06	14368	.590	.164	0	1
	GOVERN	IQI Dimension, Government at the provincial level	04-06	14368	.422	.133	0	1
	REGUL	IQI Dimension, Regulatory Quality at the provincial level	04-06	14368	.620	.173	0	1
	VOICE	IQI Dimension, Voice & Accountability at the provincial level	04-06	14368	.505	.218	0	1
	CORR	IQI Dimension, Corruption at the provincial level	04-06	14368	.849	.142	0	1

The last variables we employ are indicators of institutional quality, the focus of our analysis, proxied by the IQI index built by Nifo and Vecchione (2014, 2015) on a yearly basis, at the provincial (NUTS3) level. Inspired by the WGI framework (Kaufmann et al., 2011), IQI evaluates institutional quality in Italian provinces as a composite indicator derived by 24 elementary indexes grouped into five institutional dimensions (corruption, government effectiveness, regulatory quality, rule of law, voice and accountability). Full technical details on these aspects are given in Nifo and Vecchione (2014). The analysis of the geographical pattern of IQI in Italy depicted in Figure 1 shows that, like for a broad range of socio-economic conditions, even for institutional quality a clear North-South divide emerges, since most of provinces of the South are characterised by lower levels of institutional quality than the rest of Italy (Nifo and Vecchione, 2015).

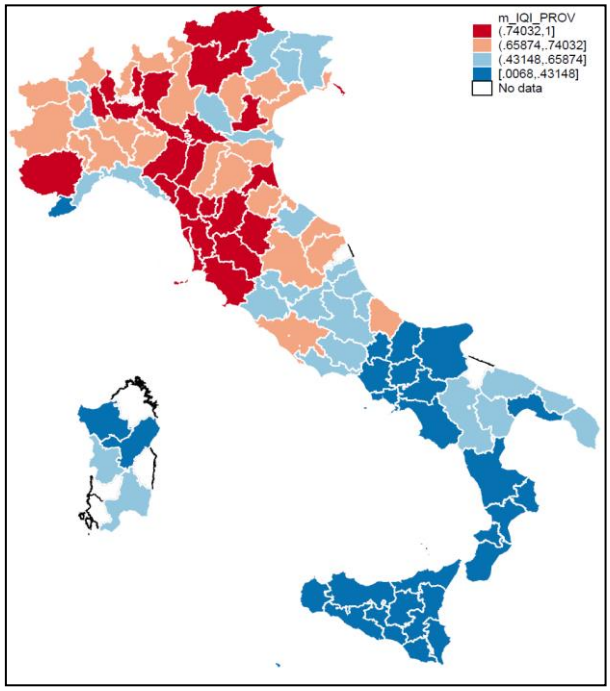

Figure 1: Average Institutional Quality Index (IQI) in the Italian provinces

2.3 Data and descriptive statistics

The empirical investigation is based on data retrieved from several sources. Firm-level information on Italian manufacturing small and medium enterprises (SMEs) is drawn from the 9th and the 10th waves of UniCredit-Capitalia survey "*Indagine sulle Imprese Manifatturiere*". Each issue refers to three years: the 9th supplies data for 4,289 firms for the period 2001-2003; the 10th reports data for a panel of 4,126 firms for the period 2004-2006. Information collected is both qualitative and quantitative: the year of establishment, group membership, size, industry, firm's legal form. Information on the firm's financial structure (such as

the number and length of bank relationships) and balance sheet data are also provided [9]. By matching survey and balance sheet data retrieved from both issues, we obtain an unbalanced panel of 5,137 firms and 16,460 observations for the period 2003-2006[10]. We focus on Italian manufacturing SMEs, for which bank lending constitutes the major source of financing (Bank of Italy, 2007; European Commission, 2010), and thus we drop from our sample 240 firms, i.e. the biggest ones, with more than 250 workers, and those listed on the Stock Exchange.

To supplement this dataset, we also use data on the territorial distribution of branches for each Italian bank (Bank of Italy, 2010 and 2011) and provincial data for per capita GDP and industrial specialization (ISTAT, 2010 and 2011). Finally, we exploit the information on local institutional quality in Italian regions contained in the Institutional Quality Index (IQI) by Nifo and Vecchione (2014, 2015), described in the section above.

Tables 2 and 3 supply some information and descriptive statistics on the number of bank relationships respectively by region and class of employees.

[9]As information about the number of lending banks (NBANK), the length of the relationship with the main bank (DURAT), and the share of the firm's total bank debt held by the main bank (MAIN) is available only for the last year of each survey, we assign the same figure to the previous two years. In the presence of missing or inconsistent values, following Gambini and Zazzaro (2010) and Agostino et al. (2012), we impute suitable values for DURAT by taking the value reported for the last year of the first survey (2000) and adding the number 1 for 2001, the number 2 for 2002 and so on.

[10] To meet econometrics requirements, we consider only a sample over four years.

Table 2: Number of bank relationships by region

Region	Mean	Sd	Median	min	max	1	2	3-7	> 7	total
Piedmont	4.562	3.046	4	1	15	8.27%	20.21%	58.36%	13.16%	100.00%
Valle D'Aosta	3.625	2.163	4.5	1	6	37.50%	0.00%	62.50%	0.00%	100.00%
Lombardy	4.947	3.040	4	1	15	6.26%	14.16%	62.36%	17.22%	100.00%
Trentino A.A.	4.262	3.159	3	1	15	9.45%	22.44%	59.06%	9.06%	100.00%
Veneto	4.870	2.681	4	1	15	4.93%	11.57%	66.37%	17.13%	100.00%
Friuli V.G.	5.406	2.894	5	1	15	4.00%	9.71%	66.10%	20.19%	100.00%
Liguria	4.914	3.196	4	1	15	10.40%	12.14%	61.85%	15.61%	100.00%
Emilia Romagna	5.489	3.242	5	0	15	5.81%	9.92%	61.33%	22.95%	100.00%
Tuscany	5.212	2.804	5	1	15	5.98%	9.25%	66.07%	18.70%	100.00%
Umbria	6.501	3.628	6	1	15	2.04%	5.10%	58.16%	34.69%	100.00%
Marche	5.297	2.845	5	1	15	6.95%	7.44%	65.38%	20.22%	100.00%
Lazio	4.349	3.136	4	1	15	8.76%	24.09%	54.01%	13.14%	100.00%
Abruzzo	5.197	3.108	5	1	15	7.28%	10.92%	60.92%	20.87%	100.00%
Molise	4.375	3.252	3	1	12	6.25%	25.00%	50.00%	18.75%	100.00%
Campania	4.379	2.705	4	1	15	9.09%	16.26%	63.11%	11.54%	100.00%
Puglia	4.668	3.111	4	1	15	12.13%	12.13%	58.20%	17.53%	100.00%
Basilicata	3.465	1.084	4	1	5	7.50%	7.50%	85.00%	0.00%	100.00%
Calabria	3.047	1.690	3	1	7	11.54%	34.62%	53.85%	0.00%	100.00%
Sicily	4.674	3.679	4	1	15	13.18%	13.18%	55.74%	17.91%	100.00%
Sardinia	3.847	2.424	3	1	15	11.11%	16.67%	66.67%	5.56%	100.00%
Italy	4.963	3.024	4	0	15	6.76%	13.30%	62.40%	17.54%	100.00%

Table 3. Number of bank relationships by class of employees

Employees	Mean	sd	median	min	max	1	2	3-7	> 7	Total
1-9	3.038	2.160	2	1	13	30.87%	32.10%	30.76%	6.26%	100.00%
10-49	4.395	2.471	4	0	15	8.25%	19.13%	59.36%	13.27%	100.00%
50-250	6.341	3.472	6	1	15	3.85%	8.44%	51.43%	36.29%	100.00%

In particular, Table 2 indicates that on average at the national level sampled firms hold about 5 bank relationships. About 20% of them have 1 or 2 bank relationships, 62.5% between 3 and 7 and 17.5% more than 7. A striking evidence is that Northern (except Liguria) and Southern (except Abruzzo) regions show values lower than the national average. Conversely, for all the regions of Central Italy (except Lazio) the average number of bank relationships is well above the national average. Second, the regions with the highest share of firms with 7 or more bank relationships are Umbria (34.69%) in the Centre, Abruzzo (20.87%) in the South and Friuli Venezia Giulia (20.19%) in the North. Third, as we can see in Figure 2, in most cases (Campania, Puglia, Lombardy, Sicily and Piedmont) the variability within each region is high, since some provinces show on average 7 or

more firm-bank relationships, while others have less than 3-4. Inspection of Figures 1 and 2, illustrating the provincial values of IQI and average number of bank relationships, allows to have a first glance at the connection between the two variables.

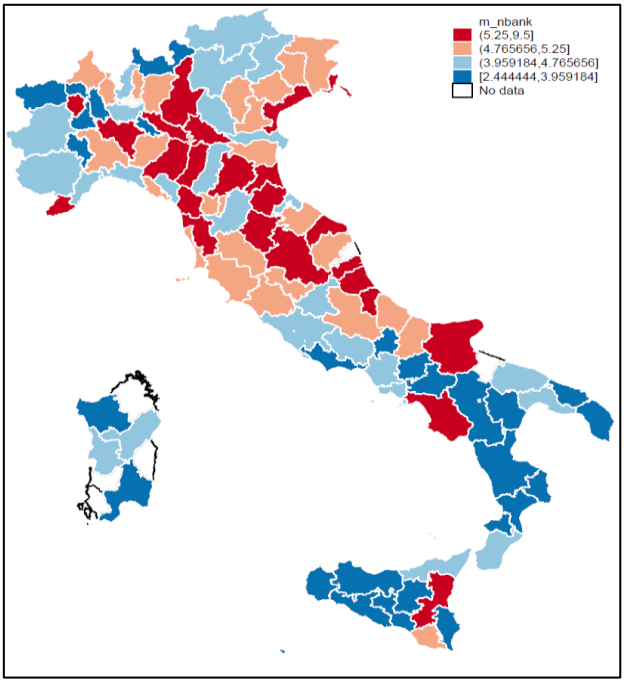

Figure2: Average number of bank relationships in the Italian provinces.

Table 3 shows that the number of bank relationship increase with firm's size: firms with 1-9 employees have 3 bank relationship, firms with 10-49 around 4.4 and firms with 50-250 around 6.3. A similar pattern emerges when looking at the distribution within each size class: firms choosing to have only 1 or 2 banks are 63% in the class 1-9 employees, 28% in the class 10-49 and only 12% in the size 50-250. Inversely, while 36% of firms belonging to the class 50-250 employees prefer to have more than 7 banks, only 13% in the size 10-49 and 6% in the size 1-9 share the same choice. Table 4 reports the average values of the regional IQI index (IQI_REG) and the number of banking per firm (NBANK) by region in 2006.

Table 4: Bank relationships and regional IQI: overall indicator and sub-indexes

Region	NBANK	IQI_Reg	CORR	GOVERN	REGUL	RULAW	VOICE
Piedmont	4.567	0.720	0.911	0.431	0.589	0.636	0.444
Valle D'Aosta	3.625	0.770	0.852	0.311	0.785	0.748	0.594
Lombardy	4.950	0.788	0.810	0.510	0.637	0.567	0.635
Trentino A.A.	4.264	0.840	0.929	0.446	0.854	0.766	0.455
Veneto	4.870	0.700	0.927	0.452	0.712	0.559	0.408
Friuli V.G.	5.417	0.715	0.771	0.516	0.562	0.500	0.375
Liguria	4.931	0.519	0.760	0.394	0.410	0.313	0.571
Emilia Romagna	5.489	0.718	0.963	0.429	0.759	0.474	0.589
Tuscany	5.213	0.880	0.913	0.451	0.722	0.854	0.518
Umbria	6.493	0.672	0.959	0.331	0.577	0.672	0.425
Marche	5.284	0.661	0.895	0.299	0.675	0.635	0.432
Lazio	4.360	0.638	0.825	0.239	0.367	0.691	0.546
Abruzzo	5.216	0.620	0.845	0.172	0.578	0.822	0.383
Molise	4.375	0.337	0.645	0.068	0.385	0.506	0.316
Campania	4.399	0.328	0.412	0.199	0.231	0.546	0.200
Puglia	4.670	0.463	0.763	0.244	0.287	0.598	0.274
Basilicata	3.450	0.477	0.698	0.182	0.353	0.659	0.304
Calabria	3.154	0.125	0.511	0.156	0.156	0.147	0.170
Sicily	4.723	0.278	0.639	0.166	0.262	0.383	0.225
Sardinia	3.847	0.404	0.782	0.171	0.454	0.428	0.443
Italy	4.969	0.709	0.850	0.423	0.620	0.590	0.506

Regions are sorted in Table 4, whence the institutional quality divide between the country's North and South clearly emerges. Indeed, while the lowest 8 IQI scores are always associated with Southern regions, the highest 12 ones conversely refer to regions located in Centre-North. Both these results seem mainly driven by the values of rule of law (RULAW), government effectiveness (GOVERN) and the voice and accountability (VOICE), particularly weak in the South compared to the regions of Centre-North. Conversely, the sub-index Corruption (CORR) seems to be characterized by values largely homogeneous in all the country. Finally, Table 5 shows the correlation matrix among the variables considered in Table 4: number of banks (NBANK), IQI at provincial and regional level (IQI and IQI_REG) and the IQI dimensions at provincial level: corruption (CORR), government effectiveness (GOVERN), regulatory quality (REGUL), rule of law (RULAW) and voice and accountability (VOICE).

Table 5: Correlation Matrix

	NBANK	IQI_REG	IQI	CORR	GOVERN	REGUL	RULAW	VOICE
NBANK	1							
IQI_REG	0.046	1						
IQI	0.041	0.926	1					
CORR	0.053	0.475	0.435	1				
GOVERN	0.026	0.617	0.699	0.153	1			
REGUL	0.050	0.637	0.627	0.510	0.333	1		
RULAW	0.011	0.353	0.349	0.325	-0.158	0.047	1	
VOICE	0.010	0.404	0.486	-0.094	0.405	0.372	-0.405	1

3 Results

Table 6 reports the results obtained by estimating model (1), (2) and (3) by Probit, Poisson and SYS-GMM estimators, respectively. In the case of Probit and Poisson estimations, marginal effects are reported (for both pooled and panel forms), in order to have a more immediate interpretation of results[11]. For the SYS-GMM regressions, the estimated coefficients are reported[12]. All regressions are performed including provincial, year and sector fixed effects. The standard errors are clustered at province level (NUTS3) and consistent with the presence of any pattern of heteroskedasticity.

Column 1 of Table 6 displays results obtained when excluding the control variable RGDPC. In this case, our variable of interest IQI (the provincial institutional quality) is negative and statistically significant in most models. Whence, a better institutional quality turns out to decrease both the propensity to be multiple banked and the number of bank relationships for firms.

Looking at the control variables, we found that the coefficients of variables EMP, AGE, LEVER, QUICK, HT, INPP and EXP assume the expected sign and are in most cases statistically significant at 1% level. On the other hand, the variables INTAS, INORG, MAIN, CRED and BRANCH turn out significantly affect the dependent variables only in a few cases. The other control variables are not statistically significant.

[11] To compare the pooled and the panel estimator, we perform a likelihood-ratio test, showing that panel (Probit and Poisson) estimators are appropriate.

[12] According to Roodman (2009), the GMM estimator is appropriate when the number of observations is larger than the number of moment conditions. To meet this requirement, we consider a sample over four years assuming that between 2003 and 2004 the value of IQI remains unchanged. This may be acceptable considering that " *the process of institutional change occurs slowly, and appreciable changes in institutional quality occur only in the medium to long-term*" (Nifo and Vecchione, 2014, pp. 6). For consistency, we use the same sample for Probit and Poisson regressions too.

Column 2 of Table 6 displays results obtained when excluding the control variable RGDPC and considering IQI at the regional level (IQI_REG). The results above discussed are substantially confirmed.

We run separate diagnostics test for Probit, Poisson and GMM model. For the Probit model we look for mis-specified functional form. As a whole, it seems the functional form of Φis appropriate[13]. To test for the Poisson equidispersion assumption, we perform a likelihood ratio test of over-dispersion, showing no evidence of it. Regarding GMM estimations, the Hansen test does not reject the null hypothesis of validity of the over-identifying restrictions, while the difference-in-Hansen test turns out to be not significant, thus supporting the validity of extra instruments used by the SYS-GMM estimator.[14] Besides, the values of the Arellano-Bond tests for autocorrelation in first (AB test AR1) and second differences (AB test AR2) tend to support the assumption of lack of autocorrelation in the errors in levels.

An interesting question is whether the negative relationship between institutional quality and multiple banking could be specifically attributed to one or more of the dimensions included in the synthetic index. To study the possible different effects of each dimension composing IQI, we estimate five supplementary sets of regressions by using in turn one of the IQI dimensions as regressors instead of the overall index. Table 7 reports the results obtained by estimating model (1), (2) and (3) with the Probit, Poisson and SYS-GMM estimators, respectively[15]. Column 1 and 2 show the output for each sub-index at the provincial and regional level, respectively, obtained when not including the control variable RGDPC.

According to the results of Table 7, the sub-index GOVERN (Government Effectiveness) is negative and statistically significant in most models, appearing to be the most important sub-index in explaining multiple banking. On the other hand, the sub-indexes RULAW (Rule of Law), VOICE (Voice and Accountability) and REGUL (Regulatory Quality) are negative and statistically significant only in few cases, while the sub-index CORR is never statistically significant[16].

Column 2 of Table 7 displays results obtained when considering the sub-indexes at the regional level. The results above discussed are substantially confirmed.

Our results show that institutional quality negatively affect multiple banking

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[13] We assess the Probit functional form using parametric and semiparametric methods.

[14] We treat as endogenous the variables that are likely to be determined simultaneously along with the number of banking relationships (EMP, AGE, INTAS, LEVER, QUICK and IQI_PROV with its sub-indexes). The remaining regressors are treated as predetermined or exogenous.

[15] To economize on space in Table 7 we present all regressions of the above models showing only marginal effects (Probit and Poisson models) and coefficients (SYS-GMM) for IQI subcomponents at provincial and regional level.

[16] In particular, the sub-indexes: GOVERN is not statistically significant only for the Probit (pooled) regression; RULAW is significant only for the Probit (pooled) regression; VOICE is statistically significant for the Probit panel regression; REGUL is significant only for the SYS-GMM estimator.

relationships. This is probably because good institutions are associated to an environment where banks and firms favourably interact to exchange information and promote close banking relationships. In other words, institutions may create good conditions in mitigating asymmetric information allowing firms and banks to catch all benefits deriving from close banking relationships. More in detail, the institutional quality dimensions that appear to be significant are GOVERN, RULAW, and VOICE.

Regarding the relevance of Government Effectiveness (GOVERN) and REGUL (Regulatory Quality), our results point out that the administrative capacity of local governments in terms of quality of policies and public services, decreases the number of bank relationships and the firm's propensity to be multiple banked. This outlines the impact that intermediate government bodies (primarily local political and administrative institutions) play in a more active and positive way, thus influencing firms' financial decisions. So, as more effective public policies in (say) health, waste management and environment, transport and education are found to affect the business environment, reduce transaction costs and informational asymmetry (Kneller and Misch, 2010; Datta, 2008; Shirley and Winston, 2004), they make also easier close banking relationships.

When considering the IQI dimension Rule of Law (RULAW), the interpretation of this evidence hinges on the fact that "*Transaction costs are far higher when property rights or the rule of law are not reliable. In such situations private firms typically operate on a small scale, perhaps illegally in an underground economy, and may rely on bribery and corruption to facilitate operations*" (Aron, 2000). This view is in line with the main theoretical and empirical literature that widely acknowledges the role of "Rule of Law" in fostering economic development and firms' choices (Ayres, 1998; Buvinic and Morrison, 2000; Islam, 2003; Dam, 2006; World Bank, 2006; Lorentzen et. al, 2008; Nifo et al., 2016) meaning that institutional contexts characterized by a relatively high incidence of crime, tax evasion, shadow economy, poor law enforcement and higher judicial costs, negatively influence the firms' propensity to maintain multiple bank relationships.

What is more, the results of regressions obtained with the significant IQI sub-index Voice and Accountability (VOICE) confirm the crucial role of social participation on the business environment and than on firms' behaviour (Powell and Owen-Smith 2004; Sorenson 2003; Tallman et al. 2004). Particularly when the asymmetric information problem is severe, favourable social interactions might represent an indirect form of control to avoid opportunistic and anti-social behaviors leading banks and firms to establish close lending relationships being easier for banks to gain firm's qualitative information and benefit from its use.

Finally, when IQI is replaced by the sub-index Corruption (CORR), we do not find significant effects on multiple banking relationships. The CORR sub-index has the expected sign across all models (negative), but the coefficients are never statistically significant. According to other scholars, a possible explanation is that the level of corruption is quite similar across Italian regions (De Rosa et al., 2010; Lasagni et al., 2015; Nifo et al., 2016), and small differences are unlikely to be

associated with differentials at firm level.
The evidence we present on the Italian case seems to confirm the validity of our working hypothesis. As a matter of fact, our econometric investigation, controlling for firms' individual characteristics (size, age, leverage, export, hi-tech, etc.) , bank-firm characteristics (credit rationing, duration of the relationship and share of debt held by the main bank) and geographical variables (the number of bank branches over total population), recognizes a significant role to institutional quality in the number of banking relationships.

3.1 Robustness

For robustness purposes, we carry out several sensitive checks of our findings. First, estimation is also made considering regional GDP per capita (RGDPC). Our findings (Table 8, column 1) seem to confirm the hypothesis that local institutional quality plays a significant role in determining firms' choice of number of banking relationship. As a matter of fact, once controlled for firms' individual characteristics (size, age, leverage, export, hi-tech, etc.), bank-firm characteristics (credit rationing, duration of the relationship with the main bank and share of debt held by it) and the economic condition of firms' province of origin (regional per-capita GDP and the number of bank branches over total population), we find that institutional quality is relevant to the choice of the number of banking, with relatively high marginal effects.
As a second robustness check, we re-run all the models considering only the firms located in the Centre and North of Italy and including the variable RGDPC, where observations are more homogeneous in term of GDP and, hence, where the variation of GDP may be smaller. Again, as shown in Table 8, column 2, results are substantially unchanged for the IQI at the provincial level (IQI) and for all the control variables.[17]
We carry out the robustness checks above, even considering each sub-index composing IQI when including RGDPC but considering only the Centre and North of Italy. The results appear not systematically different from the above results. For the sake of conciseness, we omit the results above depicted making them available upon request.
Moreover, the results above discussed remain substantially unchanged when we substitute some control variables with alternative proxies (in detail, INTAS is replaced with TGAS; LEVER is substituted by BANKD; the control variable LIQUI is replaced by QUICK and FIND)[18].
As further and final robustness check, we address concerns of endogeneity relating to the main variable IQI and its sub-indexes likely to be endogenous, as variation in

[17]For the second robustness check, the variable IQI is not statistically significant for the Probit and Poisson (panel) regressions. Besides, in all models, the control variables confirm their sign and significance.
[18]This output is available upon request.

the error term may affect both institutional quality and the firm's number of banking relationships. So far, in our regressions, we have limited potential endogeneity problems by lagging the variable IQI, its sub-indexes, and by exploiting the entire set of internal instruments that the SYS-GMM generates. Here, we apply an Instrumental Variable (IV) probit, IV poisson and an IV random-effects estimators using as external instruments some variables defined at provincial level at the end of the 1800s, soon after the political unification of Italy. As historical fact, while Italy is unified in 1861, Rome and Venetia become part of the Kingdom of Italy respectively in 1866 and 1870. A significant heterogeneity in the economic development, number of illiterate people and institutional quality characterize the years around 1800s[19]. This differences at provincial level are supposed to be correlated with later institutional development, but not correlated with actual firm's choices to be multiple banked. Looking at the Table 9 the results remain substantially unalteredwhen excluding the control variable RGDPC.[20]

4 Concluding remarks

In this paper we investigate on the effect of provincial institutional quality on the number of banking relationships in Italian manufacturing firms for the period 2003-2006. In doing this, we measure institutional quality by the IQI index, a composite indicator of provincial institutional quality derived by 24 elementary indexes grouped into five institutional dimensions (Corruption, Government Effectiveness, Regulatory Quality, Rule of Law, Voice and Accountability).
The robust result, in line with our hypotheses, is consistent with most of the existing literature that ascribes a key role to the business environment and institutional context in determining firms' behaviours. In our estimations, institutional quality

[19]As the literature show, the accumulation of human capital may determine institutional development over time. In fact, "educated people are more likely to resolve their differences through negotiation and voting than through violent disputes. Education is needed for courts to operate and to empower citizens to engage with government institutions. Literacy encourages the spread of knowledge about the government's malfeasance" (Glaeser et al. 2004, page 272). With the above points in mind, we consider the provincial number of illiterates in 1871. Moreover, we use a dummy variable equal to 1 if the province in 1870 adopted a "geometric" (Napoleonic or Hapsburg) cadastre, and zero if the cadastre was "descriptive". Since the geometric cadastre was more precise respect to the descriptive one, it is expected that provinces adopting this cadastre were more able to assess more precise tax given the better administration.

[20]To economize on space in Table 9 we present all regressions of the model without including the variable RGDPC showing only marginal effects (IVProbit and IVPoisson models) and coefficients (IV Random Effects) for IQI, IQI_REG and subcomponents at provincial level. The Sargan test cannot reject the null hypothesis that the excluded instrument are valid instruments, in the majority of the estimations. The instruments employed in our estimations are: the number of illiterates in 1871; its squared, and the dummy "geometric" cadastre. Moreover, these instruments are strongly correlated with the IQI regressor. We cannot employ a fixed effects estimator because of the time invariant characteristic of our external instruments.

turn out to explain a proportion of the variation left unexplained by firm and industry variables: we show that firms have more bank relationships in Southern Italian regions, as these are characterized by lower level of institutional quality. The results seem to suggest that typical close banking relationship problems encouraging multiple borrowing, such as hold-up, soft budget constraint and liquidity problems may be mitigated in environments characterized by a high institutional quality setting. Indeed, to avoid the hold up problem, a firm may threaten its main bank to interrupt the relationship and move to another bank. This is a credible threat only in high social capital context and efficient legal-financial and government systems, where moving to another bank is easier, given that information asymmetries are less strong and exchangeability of information is wider. The same may happen for the soft budget constraint problem: good institutions make it unprofitable for firms to behave in an antisocial way (e.g. practicing strategic default) since they may lose benefits deriving from networking. Similarly, the liquidity problem may be overcome as other banks could have easily access to firms' information.

More specifically, we find that: 1) better local institutions are drivers of firms' choices increasing their propensity to maintain single bank relationships; 2) considering the IQI sub-indexes, the dimension GOVERN, summarizing the administrative capacity of local governments in terms of quality of policies and public services, decreases the number of bank relationships and the firm's propensity to be multiple banked; the dimension RULAW, specifically accounting for aspects related to legal certainty, exerts a significant impact on firms banking decisions; the sub-index VOICE, accounting for the social capital endowment at the local level, reduces the firm's propensity to be multiple banked; 3) interestingly and - in some way - surprisingly, but in line with previous studies, Corruption (CORR) does not seem to exert any impact on firms' decisions.

The main conclusion of this paper, i.e. institutional quality is a major determinant of firms' decisions on the number of banking relationships, suggest that future research should carefully consider the possible consequences of alternative institutional settings on a set of economic variables larger than those usually taken into account. The presence of invaluable spillovers connected to good quality institutions and the incentive mechanisms activated by them is one of the main channels through which macroeconomic factors positively impact on the business environment, investment climate and competitiveness, indicating to policy makers a strategic tool (i.e. institutional and regulatory reform, especially about Government Effectiveness, Rule of Law and Voice and Accountability) to enhance the ability of lagging regions to better exploit development opportunities.

References

[1] Agostino M., La Rocca M., La Rocca T. and F. Trivieri, Do local financial and legal systems affect SMEs capital structure?, *Economics Bulletin*, 32 (1), (2012), 260-271.

[2] Aiello F., Pupo V. and F. Ricotta, Explaining TFP at firm level in Italy. Does location matter?, *Spatial Economic Analysis*, 9 (1), (2014), 51-70.

[3] Arellano M. and O. Bover, Another look at the instrumental variable estimation of error components models, *Journal of Econometrics*, 68, (1995), 29–5.

[4] Arellano M. and S. Bond, Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations, *Review of Economic Studies*, 58 (2), (1991), 277–297.

[5] Aron J., Growth and institutions: A review of the evidence, *The World Bank Research Observer*,15(1), (2000), 1203-1228.

[6] Banca d'Italia, Relazione Annuale per l'anno 2009, *Banca d'Italia*, Roma, (2010).

[7] Banca d'Italia, Relazione Annuale per l'anno 2010, *Banca d'Italia*, Roma, (2011).

[8] Banca d'Italia, Relazione Annuale per l'anno 2006, *Banca d'Italia*, Roma, (2007).

[9] Benfratello L., Schiantarelli F. and A. Sembenelli, Banks and innovation: Microeconometric evidence on Italian firms, *Journal of Financial Economics*, 90, (2008), 197-217.

[10] Bianco, M. (1997). Vincoli finanziari e scelte reali delle imprese italiane: Gli effetti di una relazione stabile con una banca, in Angeloni, I:, Conti, V. Passacantando, F. (Eds), Le banche e il finanziamento delle imprese, Il Mulino, Bologna.

[11] Blundell R. and Bond S., Initial conditions and moment restrictions in dynamic panel data models, *Journal of Econometrics*, 87(1), (1998), 115–143.

[12] Bond S., Temple J. and A. Hoeffler, GMM Estimation of Empirical Growth Models. *Economics Papers*, 21, (2001), 2001-W21.

[13] Buvinic and Morrison, Living in a more violent world. *Foreign Policy*, 118, (2000), 58-72.

[14] Carletti E., The structure of bank relationships, endogenous monitoring and loan rates, *Journal of Financial Intermediation*, 13(1), (2004), 58-86.

[15] Chinn M.D. and H. Ito, What Matters for Financial Development? Capital Controls, Institutions, and Interactions, *Journal of Development Economics*, 81 (1), (2006), 163-192.

[16] Claessens S., Demirgüc-Kunt A. and H. Huizinga, How Does Foreign Entry Affect Domestic Banking Markets?, *Journal of Banking and Finance*. 25, (2001), 891–911.

[17] Cole, R. A., The importance of relationships to the availability of credit, *Journal of Banking and Finance*, 22 (6-8), (1998), 959-977.

[18] Cosci S. and Meliciani V., Multiple banking relationships and over-leverage in Italian manufacturing firms, *The Manchester School*, 74, (2006), 78–92.
[19] Cosci S. and Meliciani V., Multiple banking relationships: Evidence from the Italian experience. *Manchester School Supplement*, 70, (2002), 37–54.
[20] Dam, K., The Judiciary and Economic Development, *John M. Olin Law & Economics Working Paper*, 287(2), The Law School, University of Chicago, (2006).
[21] De Rosa, D., Gooroochurn, N., Gorg, H., Corruption and Productivity: Firm-Level Evidence from the Beeps Survey, *Kiel Working Paper*, 1632, (2010).
[22] Del Monte A. and Giannola A., Istituzioni economiche e Mezzogiorno, *La Nuova Italia Scientifica*, Roma, (1997).
[23] Demirgüç-Kunt, A. and Maksimovic, V., Law, Finance, and Firm Growth, *The Journal of Finance*, 53, (1998), 2107–2137.
[24] Demirguc-Kunt, Asli and Vojislav Maksimovic, Institutions, Financial Markets And Firm Debt Maturity, *Journal of Financial Economics,* 54(3), 1999, 295-336.
[25] Detragiache E., Garella E. and L. Guiso, Multiple versus single banking relationships: theory and evidence, *Journal of Finance*, 55, (2000), 1133-1161.
[26] Di Liberto, A. and Sideri, M., Past dominations, current institutions and the Italian regional economic performance. *European Journal of Political Economy*, 38, (2015), 12-41.
[27] Diamond, Douglas, Monitoring and Reputation: The Choice between Bank Loans and Directly Placed Debt, *Journal of Political Economy*, 99(4), (1991), 689-721.
[28] Elsas R., Heinemann F. and M. Tyrell, Multiple but asymmetric bank financing: the case of relationship lending, *CESifo Working Paper Series 1251*, (2004).
[29] Fabrizio Erbetta and Carmelo Petraglia, Drivers of Regional Efficiency Differentials in Italy: Technical Inefficiency or Allocative Distortions?, *Growth and Change*, Wiley Blackwell, 42(3), 2011, 351-375.
[30] Farinha, Luisa A. and Santos, Joao, Switching from Single to Multiple Bank Lending Relationships: Determinants and Implications, *Journal of Financial Intermediation*, 11(2), (2002),124-151.
[31] Fazio, G. and D. Piacentino, A Spatial Multilevel Analysis of Italian SMEs' Productivity, *Spatial Economic Analysis*, 5(3), (2010), 299-316.
[32] Ferri, G. and M. Messori, Bank-firm relationships and allocative efficiency in northeastern and central Italy and in the South, *Journal of Banking and Finance*, 24, (2000), 1067-1095.
[33] Foglia A., Laviola S., P. Marullo Reedtz, Multiple banking relationships and the fragility of corporate borrowers, *Journal of Banking and Finance*, 22, (1998). 1441-1465.
[34] Gambini, A. and A. Zazzaro, Long-lasting bank relationships and growth of firms, *Small Business Economics*, Springer, 40(4), (2013), 977-1007.

[35] Ganau, R. and A. Rodríguez-Pose, Industrial Clusters, Organised Crime and Productivity Growth in Italian SMEs, *Journal of Regional Science*, 00, (2016), 1–23.
[36] Garretsena, H., Lensinkb, R. and E. Sterkenb, Growth, financial development, societal norms and legal institutions, *Journal of International Financial Markets, Institutions and Money*, 14, (2004), 165-183.
[37] Giannola A., Petraglia C. and D. Scalera, Net fiscal flows and interregional redistribution in Italy: A long-run perspective (1951-2010), *Structural Change and Economic Dynamics*, 39, (2016), 1-16.
[38] Giordano L., Imbriani C. and A. Lopes, *Analysis of the Italian Banking System Efficiency: a Stochastic Frontier Approach*, in A.G.S. Ventre, A. Maturo, S. Hoskova-Mayerova, J. Kacprzyk (edited by), Multicriteria and Multiagent Decision Making with Applications to Economic and Social Sciences, 310, (2013), 20-45.
[39] Glaeser Edward L, Rafael LaPorta, Florencio López-de-Silanes, and Andrei Shleifer, Do Institutions Cause Growth?, *Journal of Economic Growth* 9 (3), (2004), 271-303.
[40] Guiso L, Sapienza P, and Zingales L, Does local financial development matter? *Quarterly Journal of Economics*, 119, (2004), 929–969.
[41] Guiso, L. and R. Minetti, Multiple creditors and information rights: theory and evidence from Us firms, *CEPR Discussion Paper 4278*, (2004).
[42] Haroff, D. and T. Korting, Lending Relationships in Germany: Empirical Results from Survey Data, *Journal of banking and finance*, 22, (1998a), 1317-1353.
[43] Hernandez-Canovas G. and J. Koeter-Kant, The institutional environment and the number of bank relationships: an empirical analysis of European SMEs, *Small Business Economics*, 34, (2010), 375-390.
[44] Islam, R., Institutional Reform and the Judiciary: Which Way Forward, *World Bank Policy Research Working Paper*, 3134, (2003), 7-8.
[45] Istituto nazionale di statistica, Conti economici regionali 1995–2009. *ISTAT*, Rome, (2010).
[46] Kaufmann D., A. Kraay, and M. Mastruzzi. The Worldwide Governance Indicators: Methodology and Analytical Issues, *Hague Journal on the Rule of Law*, 3(02), (2011), 220–246.
[47] La Rocca M., La Rocca T. and A. Cairola, The influence of local institutional differences on the capital structure of SMEs: Evidence from Italy, *International small business journal*, 28(3), (2010), 234-257.
[48] Lasagni A., Nifo A. and G. Vecchione, Firm productivity and institutional quality: Evidence from Italian industry, *Journal of Regional Science*, 55(5), (2015), 774-800.
[49] Lorentzen. P., MacMillan, J., Wacziarg, R., Death and Development, *Journal of Economic Growth*, 13, (2008), 81-124.
[50] Malanima, P. and V. Zamagni 150 years of the Italian economy, 1861-2010, *Journal of Modern Italian Studies*, 15(1), (2010), 1–20.

[51] Mannarino L., Pupo V. and F. Ricotta, Family firms and productivity: the role of institutional quality, *WP DESF*, 5, (2016).
[52] Masciarelli F., The Strategic Value of Social Capital: How Firms Capitalize on Social Assets, *Edward Elgar Pub*, (2011).
[53] Nerozzi, S., Pipitone, V. and G. Ricchiuti, Social capital and firm's productivity in Italy: a multilevel approach. *AISRE Annual Conference*, University of Calabria, (2015).
[54] Neuberger D., Pedergnana, M., Räthke-Döppner, S., Concentration of banking relationships in Switzerland: The result of firm structure or banking market structure?, *Journal of Financial Services Research*, 33 (2), (2008), 101-126.
[55] Nifo A. and G. Vecchione, Do institutions play a role in skilled migration? The case of Italy, *Regional Studies*, vol. 48(10), (2014), 1628-1649.
[56] Nifo A., Scalera D. and G. Vecchione The rule of law and educational choices. Evidence from Italian regions, *Regional Studies*, 51(7), (2016), 1048–1062.
[57] Nifo, A., and G. Vecchione, Measuring institutional quality in Italy, *Rivista economica del Mezzogiorno*, Il Mulino, Bologna, (2015).
[58] Ongena S. and D.C. Smith. What determines the number of number of bank relationships? Cross-country evidence, *Journal of Financial Intermediation*, 9, (2000), 26-56.
[59] Pelliccioni, G. and G. Torluccio, Il rapporto banca-impresa: le determinanti del multiaffidamento in Italia, *Il rapporto banca-impresa in Italia*, Bancaria Editrice, (2007).
[60] Petersen M. and R.G. Rajan, The benefits of lending relationships, *Journal of Finance*, 49, (1994), 3-37.
[61] Rajan, R.G., Insiders and outsiders: The choice between informed and arm's-length debt, *Journal of Finance*, 47(4), (1992), 1367-1399.
[62] Raspe, O. and F. van Oort, Firm Heterogeneity, Productivity, and Spatially Bounded Knowledge Externalities, *Socio-Economic Planning Sciences*, 45, (2011), 38-47
[63] Roodman, D., How to do xtabond2: An introduction to difference and system GMM in Stata, *Stata Journal*, 9 (1), (2009), 86-136.
[64] Sapienza, P. (1997). Le scelte di finanziamento delle imprese italiane, in Angeloni, I:, Conti, V. Passacantando, F. (Eds), Le banche e il finanziamento delle imprese, Il Mulino, Bologna.
[65] Sarno, D., *Sviluppo finanziario e crescita economica nel Mezzogiorno*, Franco Angeli, (2009).
[66] Scalera D. and Zazzaro, A., L'economia del Mezzogiorno. Nuova politica regionale, crisi globale e federalismo fiscale. Universita' Politecnica delle Marche (I), Dipartimento di Economia, *Working Paper*, (2010).
[67] Sharpe, S.A., Asymmetric information, bank lending, and implicit contracts: A stylized model of customer relationships, *Journal of Finance* 45(4), (1990), 1069−1087.

[68] Sierra G.E., Talmor, E., Wallace, J.S., An examination of multiple governance forces within bank holding companies, *Journal of Financial Services Research*, 29 (2), (2006), 105-123.
[69] World Bank Enterprise Survey. *Policy Research Working Paper Series* 6918, The World Bank, (2006).
[70] Yosha, O., Disclosure costs and the choice of financing source, *Journal of Financial Intermediation*, 4, (1995), 3–20.

Table 6: Effect of IQI on Multiple Banking Relationships

	COLUMN 1 -IQI_PROV (NO RGDPC)					COLUMN 2- IQI_REG (NO RGDPC)				
	PROBIT[a]		POISSON[b]		SYS-GMM[b]	PROBIT [a]		POISSON[b]		SYS-GMM[b]
	pooled	panel	pooled	panel		pooled	panel	pooled	panel	
Institutions										
IQI / IQI_REG	-0.106**	-0.062***	-1.220*	-0.183	-1.710***	-0.231***	-0.022	-2.283***	-0.327	-3.612**
	0.045	*0.006*	*0.061*	*0.429*	*0.001*	*0.000*	*0.268*	*0.001*	*0.281*	*0.022*
Firm characteristics										
EMP	0.048***	0.036***	0.704***	0.137***	0.243***	0.048***	0.022***	0.704***	0.137***	0.540***
	0.000	*0.000*	*0.000*	*0.000*	*0.002*	*0.000*	*0.001*	*0.000*	*0.000*	*0.000*
AGE	0.039***	0.028***	0.253***	0.051***	-0.036	0.039***	0.016	0.253***	0.051***	-0.004
	0.000	*0.000*	*0.000*	*0.000*	*0.551*	*0.000*	*0.008***	*0.000*	*0.000*	*0.960*
LEVER	0.002***	0.001***	0.026***	0.005***	0.008***	0.002***	0.001***	0.026***	0.005***	0.015***
	0.000	*0.000*	*0.000*	*0.000*	*0.009*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
INTAS	0.002	0.0004	0.018*	0.004*	-0.005	0.002	0.0002	0.018*	0.004*	-0.005
	0.168	*0.419*	*0.062*	*0.058*	*0.634*	*0.169*	*0.646*	*0.062*	*0.058*	*0.741*
QUICK	-0.024***	-0.008***	-0.235**	-0.039***	-0.0311	-0.024***	-0.007***	-0.235**	-0.039***	-0.039
	0.001	*0.000*	*0.013*	*0.000*	*0.633*	*0.001*	*0.001*	*0.013*	*0.000*	*0.678*
GROUP	-0.012	-0.009	-0.091	-0.021	0.0310	-0.012	-0.008	-0.092	-0.021	-0.001
	0.499	*0.267*	*0.536*	*0.364*	*0.881*	*0.498*	*0.143*	*0.534*	*0.360*	*0.995*
CONS	-0.003	-0.009	0.146	0.019	0.0641	-0.003	0.0004	0.148	0.019	-0.031
	0.930	*0.433*	*0.600*	*0.687*	*0.700*	*0.931*	*0.974*	*0.597*	*0.685*	*0.882*
HT	0.102***	0.060***	1.048***	0.151**	0.382***	0.102***	0.055*	1.047***	0.151**	0.616***
	0.006	*0.007*	*0.000*	*0.019*	*0.007*	*0.006*	*0.053*	*0.000*	*0.019*	*0.008*
INORG	0.023	0.010	0.197**	0.026	0.101	0.023	0.004	0.197**	0.026	0.0738
	0.247	*0.310*	*0.048*	*0.185*	*0.452*	*0.247*	*0.409*	*0.048*	*0.185*	*0.660*
INPP	0.028**	0.017***	0.266***	0.045***	0.194	0.028**	0.011**	0.266***	0.045***	0.279*
	0.024	*0.002*	*0.005*	*0.008*	*0.132*	*0.024*	*0.019*	*0.004*	*0.008*	*0.085*
EXP	0.034**	0.030***	0.461***	0.087***	0.237	0.033**	0.017**	0.461***	0.087***	0.391
	0.049	*0.000*	*0.000*	*0.000*	*0.272*	*0.049*	*0.008*	*0.000*	*0.000*	*0.163*
COOP	-0.040	-0.031	0.051	-0.010	-0.078	-0.040	-0.026	0.053	-0.009	0.129
	0.584	*0.142*	*0.929*	*0.910*	*0.701*	*0.586*	*0.197*	*0.926*	*0.913*	*0.649*
NBANK_l					0.732***					0.488***
					0.000					*0.000*
Bank-firm relationships' characteristics										
CRED	-0.001	-0.0003	0.644***	0.097***	0.162	-0.001	-0.002	0.644***	0.097***	0.016
	0.979	*0.978*	*0.000*	*0.001*	*0.365*	*0.979*	*0.742*	*0.000*	*0.001*	*0.944*
DURAT	0.000	0.000	0.002	0.0001	0.00273	0.000	0.0001	0.002	0.000	-0.002
	0.867	*0.985*	*0.756*	*0.640*	*0.668*	*0.865*	*0.826*	*0.753*	*0.636*	*0.861*
MAIN	-0.000	-0.00003	-0.006***	-0.001**	-0.0037	-0.000	-0.0001	-0.006***	-0.001**	-0.0001
	0.418	*0.642*	*0.001*	*0.016*	*0.298*	*0.417*	*0.290*	*0.001*	*0.016*	*0.960*

(continued)

Table 6: (continued) Effect of IQI on Multiple Banking Relationships

Context characteristics										
BRANCH	-0.034	0.012***	-0.426	-0.039	0.0546*	-0.039	0.005	-0.420	-0.038	0.180
	0.576	*0.000*	*0.194*	*0.714*	*0.079*	*0.492*	*0.031*	*0.216*	*0.719*	*0.350*
Constant					0.814**					0.339
					0.029					*0.752*
PROVINCIAL FE	YES	NO	YES	YES	YES	YES	NO	YES	YES	YES
N	5687	5687	5687	5687	6,381	5687	5687	5687	5687	6,381
Number of id					2,812					2,812
Log pseudolikelihood	*-2105.878*	*-1180.414*	*-12256.36*	*-11780.62*		*-2105.5556*	*-1191.9989*	*-12431.423*	*-11780.36*	
Likelihood-ratio test of alpha=0			*1.11*					*1.11*		
			0.146					*0.146*		
AB test for AR(1)					-8.547					-7.937
					0.000					*0.000*
AB test for AR(2)					-0.967					-1.097
					0.333					*0.273*
Hansen test					295.2					261.9
					0.160					*0.627*
Difference-in-Hansen tests					30.00					52.88
					0.224					*0.088*

***, **, * indicates statistical significance at the 1%, 5%, and 10% level respectively. For the description of the variables see Table 1. In italics are reported the p-values of the tests. [a] The dependent variable is a dummy coded 1 if firms maintain a number of banking relationships greater or equal two, zero otherwise. [b]The dependent is the number of banking relationships for a firm. For the Probit and Poisson regressions the marginal effects are reported. The standard errors (not reported) are clustered at province (NUTS3) level and consistent in the presence of any pattern of heteroskedasticity.To avoid the influence of potential outliers, we winsorize some variables at 1% level. In performing the Probit and Poisson regressions, all potential endogenous and predetermined variables are lagged one year. EMPLOY and AGE are in logarithms. All estimations include ATECO sector dummies, provincial and year fixed effects. We report the AB test for AR(1) and AB test for AR(2) stand for Arellano-Bond test for AR(1) in first differences and Arellano-Bond test for AR(2) in first differences, respectively. The null hypothesis of the Hansen test is that the over-identifying restrictions are valid. The null hypothesis of the difference in Hansen test is that the additional instruments used by the SYS-GMM estimator are valid.

Table 7: Effect of IQI Sub-indexes on Multiple Banking Relationships

	COLUMN 1 - Provincial Level (NO RGDPC)					COLUMN 2 - Regional Level (NO RGDPC)				
	PROBIT[a]		POISSON[b]		SYS-GMM[b]	PROBIT [a]		POISSON[b]		SYS-GMM[b]
	pooled	panel	pooled	panel		pooled	panel	pooled	panel	
GOVERN	-0.031	-0.059**	-1.360**	-0.152*	-1.420***	-0.117*	-0.032	-2.573***	-0.375	-3.626*
	0.576	*0.025*	*0.012*	*0.054*	*0.0002*	*0.069*	*0.346*	*0.000*	*0.206*	*0.059*
RULAW	-0.115***	0.027	-0.358	-0.011	-0.114	-0.212***	-0.023	-0.765*	-0.082	-0.628
	0.002	*0.104*	*0.328*	*0.945*	*0.601*	*0.000*	*0.246*	*0.090*	*0.695*	*0.336*
VOICE	0.007	-0.080***	0.349	0.054	0.382	-0.194*	-0.045*	0.824	0.063	-1.112
	0.912	*0.000*	*0.356*	*0.821*	*0.322*	*0.08*	*0.058*	*0.285*	*0.873*	*0.368*
REGUL	0.049	-0.019	0.364	-0.047	-2.187**	0.300	-0.014	0.168	-0.106	-0.519
	0.523	*0.392*	*0.641*	*0.883*	*0.014*	*0.138*	*0.624*	*0.928*	*0.876*	*0.483*
CORR	-0.055	-0.003	0.477	-0.012	-0.667	-0.056	-0.002	0.533	0.04	-1.135
	0.366	*0.853*	*0.211*	*0.954*	*0.271*	*0.346*	*0.934*	*0.151*	*0.842*	*0.220*
PROVINCIAL FE	YES	NO	YES	YES	YES	YES	NO	YES	YES	YES

***, **, * indicates statistical significance at the 1%, 5%, and 10% level respectively. For the description of the variables see Table 1. In italics are reported the p-values of the tests. Table 7, column 1 and 2 report the results about IQI sub-indexes at the provincial and regional level, respectively. The full results are available upon request. [a] The dependent variable is a dummy coded 1 if firms maintain a number of banking relationships greater or equal two, zero otherwise. [b]The dependent is the number of banking relationships for a firm. For the Probit and Poisson regressions the marginal effects are reported. The standard errors (not reported) are clustered at province (NUTS3) level and consistent in the presence of any pattern of heteroskedasticity. To avoid the influence of potential outliers, we winsorize some variables at 1% level. In performing the Probit and Poisson regressions, all potential endogenous and predetermined variables are lagged one year. All estimations include ATECO sector dummies, provincial and year fixed effects. The values of the Arellano-Bond tests for autocorrelation in first (AB test AR1) and second differences (AB test AR2) tend to support the assumption of lack of autocorrelation in the errors in levels. The null hypothesis of the Hansen test is that the over-identifying restrictions are valid. The null hypothesis of the difference in Hansen test is that the additional instruments used by the SYS-GMM estimator are valid.

Table 8: Robustness Checks. Effect of IQI on Multiple Banking Relationships

	COLUMN 1 (WITH RGDPC)					COLUMN 2 (CENTRE-NORTH WITH RGDPC)				
	PROBIT [a]		POISSON[b]		SYS-GMM[b]	PROBIT[a]		POISSON[b]		SYS-GMM[b]
	pooled	panel	pooled	panel		pooled	panel	pooled	panel	
Institutions										
IQI_PROV	-0.097*	-0.022	-1.225*	-0.183	-1.525**	-0.096*	-0.002	-1.197*	-0.179	-1.608*
	0.080	*0.478*	*0.061*	*0.429*	*0.032*	*0.095*	*0.906*	*0.078*	*0.458*	*0.056*
Firm characteristics										
EMP	0.048***	0.028***	0.704***	0.137***	0.250***	0.045***	0.012***	0.720***	0.139***	0.267***
	0.000	*0.004*	*0.000*	*0.000*	*0.002*	*0.000*	*0.002*	*0.000*	*0.000*	*0.001*
AGE	0.039***	0.027***	0.253***	0.051***	-0.033	0.027***	0.009***	0.195***	0.038***	-0.053
	0.000	*0.000*	*0.000*	*0.000*	*0.583*	*0.007*	*0.016*	*0.005*	*0.006*	*0.384*
LEVER	0.002***	0.001***	0.026***	0.005***	0.008***	0.002***	0.0005***	0.027***	0.005***	0.005*
	0.000	*0.007*	*0.000*	*0.000*	*0.007*	*0.000*	*0.000*	*0.000*	*0.000*	*0.064*
INTAS	0.002	0.001	0.018*	0.004*	-0.002	0.002	0.0003	0.019*	0.004*	-0.005
	0.171	*0.277*	*0.062*	*0.058*	*0.815*	*0.259*	*0.426*	*0.076*	*0.061*	*0.615*
QUICK	-0.024***	-0.006***	-0.235**	-0.039***	-0.0381	-0.026***	-0.004***	-0.255**	-0.041***	-0.038
	0.001	*0.000*	*0.013*	*0.000*	*0.559*	*0.002*	*0.017*	*0.023*	*0.000*	*0.508*
GROUP	-0.012	-0.006	-0.091	-0.021	0.059	-0.021	-0.006	-0.125	-0.028	0.0179
	0.497	*0.480*	*0.536*	*0.364*	*0.766*	*0.246*	*0.193*	*0.417*	*0.265*	*0.930*
CONS	-0.003	-0.009	0.146	0.019	0.0617	0.017	0.010	-0.032	-0.023	-0.035
	0.930	*0.434*	*0.600*	*0.688*	*0.707*	*0.624*	*0.365*	*0.914*	*0.666*	*0.813*
HT	0.102***	0.054**	1.048***	0.151**	0.353**	0.107***	0.049**	1.190***	0.180***	0.318**
	0.006	*0.024*	*0.000*	*0.019*	*0.013*	*0.004*	*0.017*	*0.000*	*0.007*	*0.026*
INORG	0.023	0.004	0.197**	0.026	0.099	0.019	0.001	0.187*	0.024	0.061
	0.248	*0.590*	*0.048*	*0.185*	*0.449*	*0.340*	*0.695*	*0.081*	*0.248*	*0.642*
INPP	0.028**	0.013**	0.266***	0.045***	0.191	0.030**	0.007*	0.239**	0.042**	0.229*
	0.024	*0.020*	*0.005*	*0.008*	*0.134*	*0.029*	*0.089*	*0.022*	*0.020*	*0.086*
EXP	0.033**	0.027***	0.461***	0.087***	0.197	0.031*	0.012**	0.477***	0.090***	0.200
	0.049	*0.004*	*0.000*	*0.000*	*0.362*	*0.088*	*0.031*	*0.000*	*0.000*	*0.343*
COOP	-0.040	-0.044	0.051	-0.010	-0.0346	-0.092	-0.027	-0.010	-0.010	-0.008
	0.583	*0.177*	*0.929*	*0.910*	*0.863*	*0.288*	*0.238*	*0.989*	*0.919*	*0.973*
NBANK_l					0.735***					0.762***
					0.000					*0.000*

(continued)

Table 8: (continued) Robustness Checks. Effect of IQI on Multiple Banking Relationships

Bank-firm relationships' characteristics										
CRED	-0.001	0.001	0.644***	0.097***	0.155	-0.004	-0.002	0.595***	0.087***	0.315
	0.981	*0.949*	*0.000*	*0.001*	*0.383*	*0.917*	*0.707*	*0.003*	*0.005*	*0.104*
DURAT	0.000	-0.0001	0.002	0.000	0.002	0.000	0.00003	0.003	0.001	0.0005
	0.869	*0.873*	*0.756*	*0.639*	*0.737*	*0.674*	*0.886*	*0.503*	*0.383*	*0.925*
MAIN	-0.000	-0.0001	-0.006***	-0.001**	-0.003	-0.000	-0.0001	-0.008***	-0.001***	-0.002
	0.418	*0.610*	*0.001*	*0.016*	*0.359*	*0.288*	*0.182*	*0.000*	*0.004*	*0.544*
Context characteristics										
BRANCH	-0.036	0.011*	-0.424	-0.039	0.0338	-0.035	0.006**	-0.407	-0.034	-0.048
	0.565	*0.073*	*0.197*	*0.717*	*0.323*	*0.592*	*0.022*	*0.255*	*0.756*	*0.272*
RGDPC	-0.140	-0.070**	0.078	0.012	0.355	-0.208*	-0.050**	-0.194	-0.018	0.491
	0.225	*0.036*	*0.898*	*0.967*	*0.472*	*0.066*	*0.013*	*0.798*	*0.956*	*0.302*
Constant					-2.673					-3.230
					0.545					*0.438*
PROVINCIAL FE	YES	NO	YES	YES	YES	YES	NO	YES	YES	YES
N	5687	5687	5687	5687	6,381	5011	5011	5011	5011	5,611
Number of id					2,812					2,476
Log pseudolikelihood	*-2105.656*	*-1183.236*	*-12256.36*	*-11780.63*		*-1855.853*	*-1038.690*	*-10820.73*	*-10403.44*	
Likelihood-ratio test of alpha=0			*1.11*					*0.53*		
			0.146					*0.232*		
AB test for AR(1)					-8.640					-8.623
					0.000					*0.000*
AB test for AR(2)					-1.008					-0.416
					0.313					*0.677*
Hansen test					300.4					291.6
					0.418					*0.561*
Difference-in-Hansen tests					26.63					29.09
					0.374					*0.260*

***, **, * indicates statistical significance at the 1%, 5%, and 10% level respectively. For the description of the variables see Table 1. In italics are reported the p-values of the tests. [a] The dependent variable is a dummy coded 1 if firms maintain a number of banking relationships greater or equal two, zero otherwise. [b]The dependent is the number of banking relationships for a firm. For the Probit and Poisson regressions the marginal effects are reported. The standard errors (not reported) are clustered at province (NUTS3) level and consistent in the presence of any pattern of heteroskedasticity. To avoid the influence of potential outliers, we winsorize some variables at 1% level. In performing the Probit and Poisson regressions, all potential endogenous and predetermined variables are lagged one year. EMPLOY, AGE, and RGDPC are in logarithms. All estimations include ATECO, sector dummies and year fixed effects. We report the AB test for AR(1) and AB test for AR(2) stand for Arellano-Bond test for AR(1) in first differences and Arellano-Bond test for AR(2) in first differences, respectively. The null hypothesis of the Hansen test is that the over-identifying restrictions are valid. The null hypothesis of the difference in Hansen test is that the additional instruments used by the SYS-GMM estimator are valid.

Tab. 9: Robustness Checks. Effect of IQI and its Sub-indexes on Multiple Banking Relationships by using IV estimators.

	(NO RGDPC)																				
	IVPROBIT[a]							IVPOISSON[b]							IV RANDOM EFFECTS[b]						
IQI	-0.354***							-2.576***							-2.738***						
	0.000							*0.002*							*0.000*						
IQI_REG		-0.359***							-2.404***							-2.739***					
		0.000							*0.002*							*0.000*					
GOVERN			-0.285***							-2.077***							-2.346***				
			0.000							*0.004*							*0.004*				
RULAW				0.384***							3.288							3.291			
				0.000							*0.131*							*0.113*			
VOICE					-0.263***							-2.241*							-2.366*		
					0.000							*0.077*							*0.081*		
REGUL						-0.933***							-5.760							-9.18	
						0.000							*0.106*							*0.285*	
CORR							0.103							4.735							1.742
							0.394							*0.261*							*0.45*
N	5487	5487	5487	5487	5487	5487	5487	5463	5463	5463	5463	5463	5463	5463	5463	5463	5463	5463	5463	5463	5463
SARGAN TEST	*0.0417*	*0.1035*	*0.0001*	*0.0193*	*0.9001*	*0.0005*	*0.000*	*0.4173*	*0.5083*	*0.1511*	*0.233*	*0.9316*	*0.2497*	*0.2301*	*0.2714*	*0.3852*	*0.1406*	*0.261*	*0.9597*	*0.5373*	*0.1274*

***, **, * indicates statistical significance at the 1%, 5%, and 10% level respectively. For the description of the variables see Table 1. In italics are reported the p-values of the tests. [a]The dependent variable is a dummy coded 1 if firms maintain a number of banking relationships greater or equal two, zero otherwise. [b]The dependent is the number of banking relationships for a firm. For the IVProbit and IVPoisson regressions the marginal effects are reported. The standard errors (not reported) are clustered at province (NUTS3) level and consistent in the presence of any pattern of heteroskedasticity for the IVPoisson and IV Random Effect estimators. To avoid the influence of potential outliers, we winsorize some variables at 1% level. The IVPoisson estimations include ATECO sector dummies and year fixed effects. We report the Sargan test that cannot reject the null hypothesis that the excluded instrument are valid instruments, in the majority of the estimations.