



Banking regulation, credit supply, and Uneven regional development. An exploratory comparison of Italy and Germany

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ABSTRACT

In the wake of the 2008 global financial crisis, first, and of the 2011 European financial crisis, and second, important changes have been brought to the European banking regulatory framework. Banking capital requirements (capital adequacy ratios) have been tightened on a global scale - through the “Basel III” agreements. New liquidity and leverage requirements have been imposed on all European banks, to strictly curtail risk and indebtedness, rightly identified as two significant causes of the 2008 financial crisis.

As for any case of regulatory tightening, these changes in banking regulation have been resented by the regulators as excessive constraints on banks’ business - in particular their lending business, especially small and medium-sized firms, which have little access to capital markets, because of significant information asymmetries characterizing credit relations.

In this paper, we aim to analyse the implications of these modifications in banking regulation which tend to favor banks organized in the form of joint stock companies to the detriment of banks organized as non-profit enterprises such as credit cooperatives.

Thus, the question we are addressing in this paper is the following: to what extent have recent European banking regulatory changes affected regional economic development? We will answer the question by analysing descriptive statistics concerning the structure of the banking system and credit supply in two countries, Italy and Germany. These two countries share important characteristics, which underline the relevance of a strong nexus between banking sector development and growth on a local scale.

In particular, both countries are characterized by a high number of small and medium-sized firms and both have a fragmented banking system, with a sizeable number of not-for-profit and local banks.

The hypothesis formulated here is that changes in banking regulation can affect local and regional economic development through two channels: a first, direct channel, through which regulatory changes directly and negatively affect banks’ credit supply to small and medium-sized firms; and a second, indirect channel, through which regulatory changes induce changes in the structure of the local and regional banking system, which, in turn, affect (among other things) credit supply. A comparison between Italy and Germany will allow us to assess the relative strength of these two channels, identify those factors, which may allow us to explain outcomes differentials, and thus help identify policy implications.

KEYWORDS: Italian Banking System; German Banking System; Regional Development

1. Introduction

In the wake of the 2008 global financial crisis, first, and of the 2011 European financial crisis, and second, important changes have been brought to the European banking regulatory framework. Banking capital requirements (capital adequacy ratios) have been tightened on a global scale - through the “Basel III” agreements. New liquidity and leverage requirements have been imposed on all European banks, to strictly curtail risk and indebtedness, rightly identified as two significant causes of the 2008 financial crisis.

As for any case of regulatory tightening, these changes in banking regulation have been resented by the regulators as excessive constraints on banks’ business in particular their lending business. However, there are additional concerns, specific to banking regulation. Indeed, banks (and financial intermediaries in general) play a key role in financing the economy; thus, any significant change in regulation is bound to generate effects on firms’ and households’ financing.

One issue that has received scant attention, on the part of policymakers and regulators alike, is the potential impact of such regulatory changes on regional economic disparities throughout

Europe. There is now a consolidated economic literature tying local and regional banking development to local and regional economic development (see, for instance, Guiso et al., 2004; and the discussion in the next section). The main mechanism underlying the finance-and-growth nexus is banks’ lending to firms - small and medium-sized firms, which have little access to capital markets, because of significant information asymmetries characterizing credit relations (see Brewer, 2007).

The banking-and-growth literature emphasizes the importance of small and medium-sized, local and regional, and not-for-profit banks in the provision of funds to small and medium-sized enterprises (see Hakenes et al., 2009; and the discussion in the next section). Indeed, small, local, and not-for-profit banks are more willing and more able to engage in relationship lending with those firms. Since small and medium-sized firms are particularly important for local and regional economic development (Storey, 1985), the presence, at the local or regional level, of a strong and healthy system of local and not-for-profit banks is therefore a direct factor of local and regional economic development.



Thus, the question we are addressing in this paper is the following: to what extent have recent European banking regulatory changes affected regional economic development? We will answer the question by analyzing descriptive statistics concerning the structure of the banking system and credit supply in two countries, Italy and Germany. These two countries share important characteristics, which underline the relevance of a strong nexus between banking sector development and growth on a local scale. In particular, both countries are characterized by: (i) the high number and critical economic importance of small-and-medium-sized firms; (ii) deeply entrenched regional differences in growth and, more broadly, economic performance; (iii) a fragmented banking system, with a sizeable number of not-for-profit and local banks.¹ Furthermore, both countries have been exposed to similar changes in banking regulation (and monetary policy, the two countries being part of the euro area) over the past 12 years.

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The paper is structured as follows: section 2 below reviews the important literature linking the banking system to local and regional economic growth; section 3 discusses the channels through which banking regulatory changes may affect local and regional economic development, with a particular focus on the potential "ecological effects" of such changes; section 4 briefly describes the main changes brought to European banking regulation in the past 12 years; sections 5 and 6 present evidence on both direct and indirect channel. In particular, section 5 discusses changes in the structure of the national and regional banking systems in Italy and Germany; and section 6 presents evidence of changes in credit supply in both countries. Section 7 discusses the policy implications of our analysis and concludes.

2. Local banking and regional economic development: a literature review.

The relationship between finance and development, or, more precisely, between national financial development, on the one hand, and economic development, on the other hand, has been the object of a very rich empirical and theoretical literature in the past twenty-five years, which has mostly fallen within the neo-Schumpeterian framework delineated by King and Levine in their seminal 1993 article (King and Levine, 1993).

Within this framework, considerable attention has been paid to the comparative impact of various financial systems on economic growth. Early on, finance-and-growth scholars contrasted stock market-dominated financial systems and bank-dominated financial systems (Levine and Zervos, 1998).

The basic assumption behind such studies was that financial relationships are plagued with information asymmetries and agency problems. In such a context, financial intermediaries are viewed as being better able than capital markets to build close relationships with lenders and borrowers, thus reducing information asymmetries. In other words, banks are better able to select and monitor investment opportunities (Greenwood and Jovanovic, 1990), ease firms' access to external finance (Bencivenga and Smith, 1991), and, ultimately, reduce information asymmetries (Dow and Rodriguez-Fuentes, 1997).

Furthermore, the nature and types of banking institutions seem to have a relevant impact on small business financing. In other words, banking firm characteristics are important determinants of banks' lending behavior (Berger and Udell, 2002; La Porta et al., 2002).

Moreover, it is not only individual banking characteristics that matter: there is evidence that banking diversity which we may define here, following Michie (2011) and Michie and Oughton (2013), as the significant presence of not-for-profit banking institutions alongside joint-stock banks at the local or regional level (see also Butzbach, 2016) has beneficial effects on local economic development (Guiso et al., 2004; Hakenes and Schnabel, 2006; Hakenes, Schmidt and Xies, 2009). This might be due to the specific business model of not-for-profit banks such as cooperative and savings banks (Ayadi et al., 2009, 2010; Coco and Ferri, 2010).

The relationship between financial systems or structures and growth has been increasingly explored at the infra-national level, in what we may call a "local finance and growth" stream of studies (for an early review, see Dow and Rodriguez-Fuentes, 1997).

In this perspective, financial variables have been used to investigate cross-regional variation in economic growth, especially in economies such as Italy, where such variation may be large and durable. The regional focus in the finance and growth literature can be justified on at least two grounds: more homogeneous samples (given the lower infra-national variation across a range of variables such as the legal system) and a better ability of regional models to deal with the problem of endogeneity, notoriously significant in finance and growth studies (Rioja and Valev, 2004).

Regional studies of the relationship between finance and growth are also based on the observation that many firms especially smaller ones in any given country are more dependent on their funding on regional rather than national financial markets. In addition, it has been noted that financial intermediaries banks especially matter even more at the local level, given the greater difficulty of local firms to access capital markets.

¹ Although, as we will show later, a key difference between the two countries in recent years has been, precisely, the distinct fate of banking diversity, which has declined much more in Italy than in Germany.



Small firms are central to local and regional economic development (Storey, 1985). Small firms are also more informationally opaque than larger firms, and for that reason have more difficult access to external finance, which is necessary for their growth and survival (Brewer, 2007). Hence the particular importance of financial intermediaries may generate and use soft information to decrease informational opacity (Berger and Udell, 2002). This provides the key causal link between financial development and economic growth at the local or regional level.

The existence of a strong nexus between local financial development and local growth is especially relevant for countries such as Germany and Italy, both characterized by a decentralized political and institutional system and, as pointed out above, by significant cross-regional economic differences, the importance of small and medium-sized business firms, and the significant presence of small, local and not-for-profit banks exactly the kinds of banks that, as discussed above, may make facilitate credit access for small firms. These conditions explain why, together with Spain, Germany, and Italy have attracted the attention of literature on the nexus between finance and growth on the local scale (see Guiso et al., 2004, for an early overview).

In particular, both Italy and Germany are historically characterized by a high number of banks and banking relationships (for Germany, see Chrinko and Elston, 1996; Flögel and Gärtner, 2018; for Italy, see Usai and Vannini, 2005; Aristei and Gallo, 2017); and by the prevalence of the “local bank” model (Stefani et al., 2016). “Local banks” are defined by Stefani and colleagues as small banks with circumscribed territorial operations that are specialized in retail lending to households and small firms.

According to the same authors, the local importance of small banks (measured by market shares) has increased in Italy over the past decade (Stefani et al., 2016). Prominent among Italian small banks are the *Banche di Credito Cooperativo* (credit cooperatives; henceforth BCC), which constitute the most numerous group of financial intermediaries in Italy, even though much smaller than larger joint-stock banks, and usually much more local (Ferri and Mattesini, 1997). In 2018, Italy had 268 credit cooperative banks, which represented 53.1% of all banks, and a lending market share of 7.1% (Coccorese and Shaffer, 2020).

Germany, on the other hand, had 213 savings banks and 524 cooperative banks. There is overwhelming evidence that local, not-for-profit banks have a positive impact on local economic growth (Cosci and Mattesini, 1997; Ferri and Mattesini, 1997; Usai and Vannini, 2005; Vaona, 2008; Vaona and Patuelli, 2008; Barra, 2014; Caporale et al., 2014; Butzbach et al., 2019). In a 2015 study on Germany, Hakenes et al. (2015) show that, during the 1995-2014 period, German savings banks enhanced local economic development, especially in underdeveloped regions with little access to external funding. In a recent study of Italian municipality-level data for the 2001-2011 period, Coccorese and Shaffer find that local, cooperative banks are associated with enhanced income, employment, and firms’ growth rates (Coccorese and Shaffer, 2020).

However, as mentioned in the introduction above, Italian and German banks have faced a significant transformation of their competitive and regulatory environment over time, in line with what has happened in other European countries a transformation consisting of the de-segmentation of credit markets, far-reaching regulatory reforms, and the privatization of public banks and the internationalization of European financial markets.

Given the importance of banks for firm financing, it is logical to expect changes in banking regulation to impact firms’ access to funding. In particular, given the importance of small firms’ relationships with small, local, and not-for-profit banks, one can expect regulatory tightening on the latter to potentially significantly hinder the former’s capacity to access external funds.

As mentioned above, small and medium-sized firms are important for local and economic development. Thus, it is reasonable to expect that bank regulatory reforms that significantly reduce small, local, and not-for-profit banks’ ability to lend to small firms will negatively impact economic development in those regions or provinces where (i) small, local and not-for-profit banks are mostly located; (ii) small and medium-sized firms play an important economic role.

These are, as we have seen in the introduction above, the characteristics of the German and Italia regions. Potentially, therefore, bank regulatory reforms at the national or international level (which will be presented in more detail in section 4 below) may increase uneven regional development. In this paper (especially in sections 5 and 6 below), we seek to describe this potential impact. What, however, does the literature say about the banking regulation - local economic growth nexus?

3. The potential impacts of changes in banking regulation on local and regional development

We formulate the hypothesis that bank regulatory tightening may negatively affect small and medium-sized business’s access to external funds through two distinct channels, which we call the “direct channel” and the “indirect channel”. The “direct channel” is pretty straightforward and consists in the direct effects new bank regulations may generate on banks’ lending, by influencing banks’ business models and therefore their lending behavior. There is, however, a second, indirect channel, which consists of the changes in the structure of local and regional banking systems brought about by regulatory reforms. These changes may, in turn, affect credit access at the local and regional levels. What does the empirical literature say about these effects?

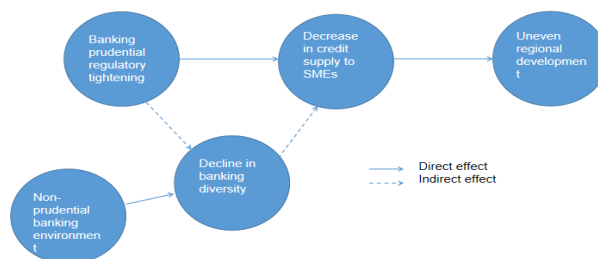
There is a sizeable literature on the impact of banking regulatory changes on firms. According to Amore, Schneider, and Zaldokas, in a study of the United States, banking deregulation has had a positive impact on the innovative behavior of firms, measured by the latter’s patenting activity (Amore et al., 2013). The authors of the study attribute this positive relationship to banks’ increased ability to geographically diversify their risks (after de-regulation) and, as a consequence, their greater



willingness to supply credit to innovative firms. By contrast, two studies, one by Cornaggia, Mao, Tian, and Wolff (2015), and the other by Chava, Oettle, Subramanian, and Subramanian (2013), find a negative relationship between banking deregulation and corporate innovation; these two studies, however, have a more micro focus than the one by Amore et al., focusing on public companies and young, private firms, respectively.

The only study that, to our knowledge, investigates this issue in either the German or the Italian context is the study by Haskamp (2016), which analyzed the effects of post-crisis bank levies on lending rates by regional banks. The study did find negative effects on the cost of credit; more importantly perhaps, Haskamp found spillover effects of bank levies, whereby lending rates increased for banks not targeted by levies but operating in the same geographical area (Haskamp, 2016).

Figure 1-Direct and indirect spatial effects of changes in banking regulation



To our knowledge, little empirical research has been dedicated to this “indirect effect” of bank regulatory changes. In particular, as pointed out in the introduction above, very few studies address the potentially significant (negative) impact on the local economic growth of a decline in banking diversity triggered by bank consolidation. In the only work that studies this relationship for Italy, Perri finds that banking consolidation is not linearly linked to cross-regional differences in economic growth (Perri, 2014). Perri’s study relies on a dynamic panel analysis (drawing on Generalized Moments Method) over 20 years, stopping in 2007, before the financial crisis.

Yet Italy, like other European countries, following the 2007-08 global banking crisis and the 2011 sovereign debt crisis, has undergone a credit crunch. As Barone, de Blasio, and Mocetti have shown, the credit crunch has determined a negative effect of a decline in credit supply on value added at the county level (Barone et al., 2016). Working on more recent data encompassing the 2007-08 crisis, Butzbach et al. (2019) find that exogenous shocks may change the relationship between banking consolidation and local economic growth. Neither study, however, singles out regulatory changes as the main independent variable.

Traditional explanations of the negative relationship between bank mergers and credit supply to firms emphasize the loss of soft information and subsequent decline in relationship lending, which previously allowed small firms to reduce informational opacity, thus encouraging bank lending (Berger and Udell, 2002).

The second potential effect of banking regulatory tightening on local or regional economic development is indirect, for two reasons: first, there is no direct link between tightening bank regulation and changes in the structure of local or national banking systems. Rather, tightening capital and liquidity requirements further strengthen the trends towards banking consolidation - trends that are also due to other factors that are unrelated to regulatory changes (or specifically to changes in capital requirements) such as increased bank competition and banking market de-segmentation. Secondly, this effect is indirect because structural changes in the local or national banking market do not necessarily (directly) lead to decreased credit supply. Both the direct and indirect effects are indicated in figure 1 below.

A more recent and innovative approach has focused, instead, on the greater distance between bank management and borrowers implied by banking consolidation (Alessandrini et al., 2008; Alessandrini et al., 2016). For instance, Presbitero, Udell, and Zazzaro find evidence of a “home bias” on the part of Italian banks during the credit crunch: the decrease in credit supply observable in the aftermath of the crisis was larger in counties with a larger share of branches owned by distantly managed banks (Presbitero et al., 2016).

The latter may be the key mechanism linking bank regulatory changes to structural changes in banking, to changes in credit supply, and bank-firm relationships more generally. Indeed, a few works on German banking emphasize the importance of “functional distance”, i.e., the physical distance between the borrower’s headquarters and the lender’s headquarters, behind small, not-for-profit banks’ continuous funding of small and medium-sized firms (Flögel, 2018; Flögel and Gärtner, 2018).

4. Changes in international banking regulation

In the wake of the 2008 global banking and financial crisis, significant changes have been brought to international banking regulation, imposing new constraints on credit institutions ostensibly to reduce systemic financial risk. This new regulatory model has inspired both international banking regulatory standards (the so-called “Basel III” framework, discussed below) and national legislative reforms, such as the Dodd-Frank Act passed by the United States in 2010.

The new model aims at reducing systemic and individual bank risk by shoring up banks’ prudential profiles (in terms of



capital, liquidity, and financial leverage); and increasing the transparency and fairness of banks' behavior towards their clients. Both regulatory goals have trade-offs, however. Indeed, the new regulations may hamper banking systems' ability to face an external shock; and weigh on banking businesses, restricting its scope and thus endangering economic development.

In particular, a large strand of theoretical and empirical literature has proved the role of exogenous changes in bank capital in influencing credit conditions and, subsequently, economic dynamics. Scholars found that tightening capital constraints on the financial sectors induce intermediaries to reduce lending, rise interest rate differentials on loans, and modify the composition of assets. As a consequence, business revenues, investments, and occupation levels are negatively influenced by restrictions imposed on credit supply conditions (Conti et al., 2018).

As mentioned above, the Basel III regulations were introduced in response to the turmoil caused by the 2008 financial crisis. In December 2009, through a consultation paper, the Basel Committee on Banking Supervision proposed to deeply reform the regulation on capital and liquidity (Basel Committee on Banking Supervision, 2009). The final version of this reform (Basel III) was, finally, introduced by the end of 2010 (Basel Committee on Banking Supervision, 2010). Indeed, financial institutes anticipated the introduction of the Basel III reform, by upward modifying their capital buffers once the Committee started to discuss it. Following the announcement of the Reforms, Italian banks rose their "Tier 1 equity" a measure of internal financial solidity by €24 billion overall, corresponding to almost 16% of the initial equity.

Basel I and II the predecessors to Basel III² already subjected regulated banks to capital requirements. In particular, under Basel I and II, banks had to comply with capital adequacy ratios consisting in demanding a minimum amount of equity being constituted in front of a certain amount of risk-weighted assets (RWAs). Basel III has made these capital adequacy ratios much more stringent than in previous iterations of the Basel international rules. In particular, Basel III capital ratios are constituted of three components:

- (i) A minimum capital ratio of 4.5% of "common equity" to RWAs;
- (ii) An additional "capital conservation buffer" comprising common equity equal to 2.5% of RWAs;
- (iii) A countercyclical buffer comprising common equity equal to between 0% and 2.5% of RWAs, is to be applied when regulatory authorities assess the bank's credit.

The numerator of the Basel III capital adequacy ratio (called "Tier 1 capital") is represented by "Common Equity Tier 1" (CET1) i.e., common shares, stock surpluses resulting from the issue of common shares, retained earnings, common shares issued by subsidiaries and held by third parties, accumulated other comprehensive income and "Additional Tier 1 capital" (AT1) including tools which might not be considered common

equity but are suitable to be included, such as contingent convertible or hybrid securities, with unlimited term and convertible into equity at the occurrence of a trigger event. The denominator is represented by RWAs, providing a risk-weighted measure of total bank assets (including off-balance-sheet exposures).

In addition to new capital adequacy ratios, imposed on all regulated banks, Basel III regulations also include (a) a non-risk related leverage ratio, designed to limit banks' indebtedness; (b) a liquidity coverage ratio requiring financial intermediaries' sufficient high-quality liquid assets to face a 30-day stressed funding scenario that is specified by supervisors; (c) a net stable funding ratio designed to encourage banks to stabilize their long-term funding sources. Finally, Basel III regulations have also streamlined banks' risk assessment procedures, by adding new constraints on internal risk assessment models, which had been authorized under Basel II and were held to be inconsistent to minimize systemic risk.

Altogether, the *tightening* of capital adequacy ratios, the introduction of stricter liquidity and leverage requirements, and the streamlining of risk assessment have represented severe constraints on banks' activities (Banca d'Italia, 2018, pp. 44-49). Moreover, and of key concern here, the European Union's post-2008 approach to banking regulation and supervision has strictly followed Basel III rules with little consideration of the sometimes significant differences in the size and business model of regulated banks.

Thus, by and large, the same regulatory constraints have been imposed on large banks with exposure to international financial markets and a strong profit orientation and on small and medium-sized banks following a conventional banking model and catering to a more local or regional clientele of (among others) small and medium-sized firms.

This approach runs counter to increasing calls for the "proportionality" of banking regulation, i.e., the tailoring of regulatory requirements to the size and business model characteristics of individual banks. While EU banking regulation does accommodate for some flexibility concerning, in particular, the liquidity coverage ratio and the additional regulatory constraints on very large financial institutions, it is still far from a fully proportional regulatory framework distinguishing categories of banks as is the case for instance in Brazil, Japan or Switzerland (Castro Carvalho et al., 2017).

In addition, Basel III requires, calculating RWAs, and risk premiums to be proportional to the risk associated with the borrower's activities and the area where it operates. This represents an additional adverse condition for SME's access to bank lending.

Moreover, in December 2017 the Basel Committee updated the Basel III rules - so much so that some have called the updated rules "Basel IV" in particular about the minimum capital requirement for those banks relying on internal models for assessing risk³. To calculate operational risk capital, the

² The Basel I rules were published in 1988; the Basel II rules, which gave large banks considerable leeway in the risk assessment associated with the capital adequacy ratios, were published in 2004 and were in the process of being implemented in the most advanced economies when the global financial crisis struck in 2008.

³ Since the Basel II agreements, banks can calculate their RWAs in two alternative ways: either by relying on a "standard" model for assessing the riskiness of assets or by applying a tailored, "internal" model for assessing risk.



Committee introduced a novel methodological approach, not involving an underlying model. This standardized approach has been applied since January 1st, 2022.

In particular, the Committee introduced an “*Output Floor*”, consisting of a minimum share of provisions for risks corresponding to a percentage of the provisions calculated based on the standard approach. Following lengthy negotiations, the Committee decided on a maximum discount rate equal to 27,5% of those provisions identified by the standard approach, thus choosing a minimum level of provision equal to 72,5% of the standard model calculations.

In other words, in case a bank resorted to internal risk-evaluation methodologies might not be allowed to apply a discount rate of up to 27,5%, thus not benefitting in terms of *risk-weighted assets* (RWA). Compared to both the standard approach and current discount rates (averagely higher), this new rate requires higher risk provisions for covering the issued loans. Based on this new framework, banks are asked to decide whether to increase their capital (at a cost) or curtail credit supply, to limit assets in the balance sheet (Barucci and Milani, 2017).

These regulatory modifications must not be seen only as a drag on bank lending to small firms: they can equally induce a greater awareness, on the part of borrowers, of the need for a more balanced risk sharing between borrowers and lenders. The Basel III and IV reforms can provide the most dynamic and competitive firms an opportunity to re-assess their credit dependency on the banking system, and seek alternative funding sources. However, for smaller firms (with less easy access to capital markets) and businesses operating in challenging environments, such as poorer regions, Basel III and IV have made access to credit even more difficult. Alternative sources of funding may simply be wanting for a large number of small firms, especially in the underdeveloped regions of Europe.

Moreover, European and national regulatory authorities have made increasing use of “guidelines”, of a more prescriptive than informative nature, to further constrain banks’ ability to

supply a credit to the economy. In 2018 ECB introduced the “addendum” for supporting large banks in managing NPLs (ECB, 2018): it is considered exemplary of the potential depressing effects that “para-regulatory” instruments may have on banks’ credit supply, though, first, greater prudence in the provision of loans to firms and households and, subsequently, a rise of interest rates for taking into account the increased credit risk.

We now turn to an examination of preliminary evidence to assess whether, indeed, the changes in prudential regulation described above have had adverse effects on the structure of banking, and credit supply and, ultimately, whether these effects have a spatial dimension. i.e. whether they may reinforce trends of uneven development.

5. Structural changes in the Italian and German banking system

Post-2008 changes in banking regulation cannot be singled out as the main cause for structural changes in European banking: such changes, which include banking consolidation, increasing banking market de-segmentation and increased concentration, and the privatization of most state-owned banks, have been ongoing since at least the early 1980s in most countries - the early 1990s in Italy. According to one estimate, between 1995 and 2006 70% of Italian banks’ total assets were involved in mergers and acquisitions (Saccomani, 2007; see also Alessandrini and Presbitero, 2009; and Alessandrini et al., 2016). However, as argued in section 3 above, changes in prudential banking regulation can still be held as at least indirectly responsible for the decline in the number of banking institutions and the consolidation of banks throughout Europe.

What, then, do we observe? One trend is clear: following the introduction of tighter prudential banking regulation, banking consolidation has continued in both countries (see table 1 below). Notwithstanding such consolidation, which led to the near extinction of the not-for-profit banking sector in Italy, the traditional “three pillars” of banking have persisted in Germany.⁴

Table 1 -Number of Banks

Year	Italy			Germany			
	Joint Stock Banks	Cooperative Banks	Mutual Banks	Big Banks	Regional Banks	Saving Banks	Cooperative Banks
2007	248	39	440				
2008	247	38	432	5	10	438	1,197
2009	248	37	421	4	10	431	1,157
2010	234	36	415	4	10	429	1,138
2011	214	37	411	4	10	427	1,121
2012	197	37	394	4	9	423	1,102
2013	182	37	385	4	9	421	1,078
2014	171	37	376	4	9	416	1,047
2015	164	33	365	4	9	414	1,023
2016	162	25	334	4	9	408	976
2017	147	23	289	4	8	391	917
2018	136	22	268	4	6	386	878
2019	126	22	259	4	6	380	844
2020	123	21	248	3	6	377	818

Source: Deutsche Bundesbank and Banca d'Italia.



Why is that so? Prudential regulatory changes have been accompanied, in the Italian case, by radical legal changes in the status and mission of local and regional not-for-profit banks; whereas in Germany, banking consolidation has essentially taken place within the distinct so-called “banking pillars”, mostly preserving banking diversity at the local and regional level. In Italy, the statutory homologation of the “Banche Popolari” (large regional cooperative banks) and of the “Banche di credito cooperativo” (small, local credit cooperative banks) has taken place in two steps.

In 2015, the Italian Parliament reformed the Banche Popolari⁵, forcing those with a turnover higher than euro 8 billion to modify their status into joint-stock companies. Subsequently, eight out of the ten Banche Popolari (to which the new regulation applied) changed their statutes into joint-stock company ones. In 2016, a law reforming local credit was passed as well.⁶ Indeed, it was not aimed at changing the nature of cooperative bank's legal personality, while it forced their merger into holding groups led by a joint-stock company. Larger credit cooperatives i.e., reporting more than 200 million euros of equity were granted an opt-out option, but they were required to become joint-stock companies. Both reforms clearly show the preference of Italian lawmakers for joint-stock companies and private equity ownership.

In both cases, the reforms were presented and justified because smaller, not-for-profit banks had to change status to strengthen their capital ratios in light, therefore, of the tighter capital and liquidity requirements demanded following regulatory changes at European and global levels.

In Germany, by contrast, banking consolidation has mostly occurred within broad sector lines, within each pillar of the system, thus explaining the remarkable persistence of a functioning and efficient not-for-profit banking sector constituting the second and third pillars (Schmidt et al., 2014).

This persistence, we may hypothesize, is mostly due to institutional factors, and in particular the so-called “regional principle”. Based on this, savings banks are not allowed to establish their branches outside the territories of their authority (municipalities) and have to prioritize lending to institutions, firms, and citizens of their territory. As pointed out by Flögel (2018) and by Flögel and Gärtner (2018), the regional principle is codified by the savings banks legislation of the federal states (for instance, in § 3 of the Sparkassengesetz Nordrhein-Westfalen) specifying the geographic area in which savings banks are allowed to lend.

Similarly, a voluntary application of the regional principle can be noticed on the part of a large share of cooperative banks (Schmidt et al., 2014). In addition, and most importantly, the geographical and functional decentralization of the German banking system is supported by strong redistribution of financial flows within each sector (Schmidt et al., 2014).

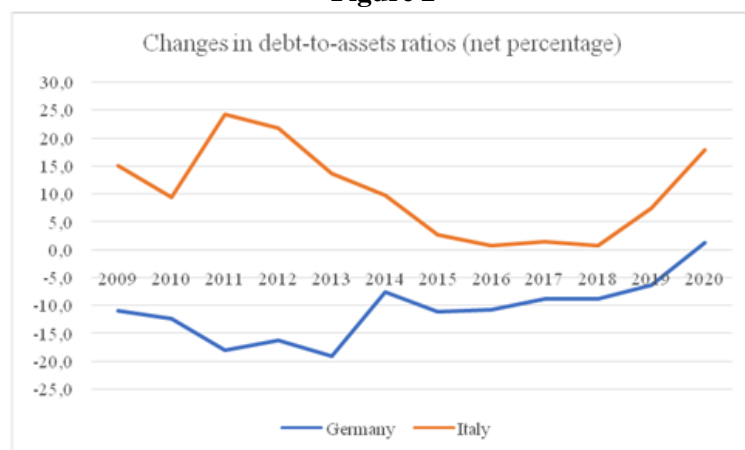
The different fates of German and Italian small and not-for-profit banks, however, are but one piece in the puzzle of the relationship between bank regulatory changes and uneven regional development. To complete our examination of the such puzzle, one must now turn to one of the key outcomes of bank behavior linking the functioning of the banking system to local and regional economic development: credit supply.

6. Credit access in Italy and Germany

A good starting point for a comparative analysis of credit supply is the European Survey on the access to finance of enterprises (SAFE), conducted twice a year by the European Central Bank⁷. The answers provided by business firms to each question of the survey are summarized in an indicator, the “net percentage”, capable of converting qualitative evaluations into quantitative indices. The net percentage corresponds to the difference between the percentage of replies indicating a positive change in a certain variable and the percentage of responses indicating an opposite change. The index ranges between -100 and 100.

Figure 2 highlights the dynamics of the debt-to-assets ratio for Italian and German firms, showing how such an indicator evolved unfavorably to Italian firms, tending to widen during the most acute phases of the sovereign debt crisis. Subsequently, a more favorable evolution, characterized by a gradual decrease, showed in the Italian economy until 2018, when the debt-to-asset ratio started to increase, peaking during the first year of the Covid-19 pandemic shock (+17.9%). Similar trends characterized Germany's debt-to-asset ratio, reporting positive values for the first time since 2009. However, much lower values characterize German firm's activities in comparison with Italian ones (+1.2%).

Figure 2



Source: ECB, SAFE various years.

⁴ The first pillar is constituted of for-profit, commercial banks; the second pillar consists of savings banks and regional public banks (the Landesbanken, tied to savings banks); the third pillar is made of cooperative banks. See Schmidt et al., 2014, for an overview.

⁵ Legislative decree n.3 of January 24, 2015, converted into law with Law n. 33 of March 24, 2015.

⁶ Legislative decree n.49 of February 14, 2016, converted into law with Law n. 49 of April 8, 2016.

⁷ The SAFE questionnaire is administered to 10,750 companies operating in the Euro area, of which 1,337 are located in Germany and 1,500 in Italy. 38% of the entire sample includes companies with less than 10 employees (MIC); 28% includes companies with a number of employees comprised between 10 and 49 (SML); 25% with employees between 50 and 249 (MED); and 9% companies with 250 and more employees (LAR). <https://www.ecb.europa.eu/stats/money/surveys/html/index.en.html>



To understand to what extent firms have trouble obtaining credit, it is necessary to consider how firms evaluate banks' attitudes concerning decisions on the volume of credit to be provided. In this regard, Figure 3 shows different perceptions in the two countries. The availability of credit, especially in terms of volume, has long been perceived as lower in Italy compared to that perceived by German business firms, at least until 2019. Indeed, following the financial crisis, the flows of credit to Italian firms have tended to reduce (assuming negative values until 2014). On the opposite, quantitative changes in bank loans granted by German banks to firms have always been positive, over the whole timespan considered. A noticeable data refers to the last year of the series, i.e., 2020, when the quantities of loans granted to Italian firms have grown more than those provided to German ones.

These data are probably influenced by the large differences characterizing firm's credit support measures implemented by the European government during the pandemic.

During this period, both Italy and Germany adopted government-backed credit support under various programs, broadly falling into three categories, according to the main beneficiary (i.e., small and medium-sized firms, large companies, and/or all companies).

As of end-2020, the Italian government committed around 146 billion euros (with an increasing trend throughout the year), while the German one limited its interventions to 50.5

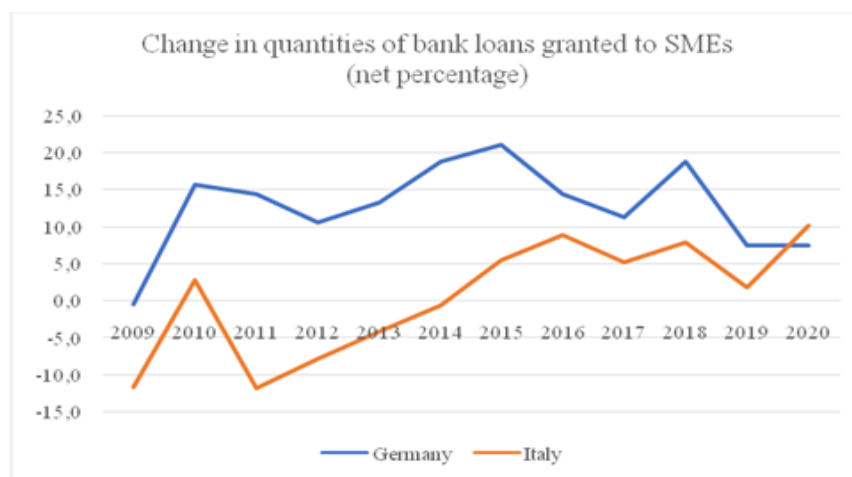
billion (mainly concentrated in the first pandemic wave period) (Anderson et al., 2021). What emerges from the analysis carried out by Anderson et al. (2021) is that, in the case of almost all EU countries (comprehending Italy), SMEs have captured around 70% of total resources committed; differently, the proportion of credit granted to large firms in Germany is close to 50%, thus pointing that German small firms used these programs less than in rest of Europe.

The different attractiveness of these programs for SMEs is deemed to mainly rely on the difference in interest rates, as well as on the different eligibility constraints. The latter, the German government set stricter rules for SMEs willing to access government-backed credit measures, in comparison to Italy (Anderson et al., 2021).

Indeed, concerning the former, the Italian government stated that rates for SMEs accessing the market under credit support measures had to be set at the market rate. During the pandemic, thanks to ECB interventions, market-set interest rates have significantly decreased (2%), thus granting lower costs for lending and borrowing money. On the opposite, Germany stands as a unique case in the EU and has seen a significant increase in the interest rate cap under the 100% guarantee program, rising to 3.1%.

Therefore, it is clear that access to credit support measures was more costly and restrictive for German SMEs rather than for Italian ones and, thus, less attractive.

Figure 3



Source: ECB, SAFE various years.

The segmentation of the credit market in Europe is also documented by observing a) the percentage of firms for which access to credit represents the most relevant problem they are facing; and b) the percentage of companies that in the last six months preceding the survey have seen their bank loan application turned off.

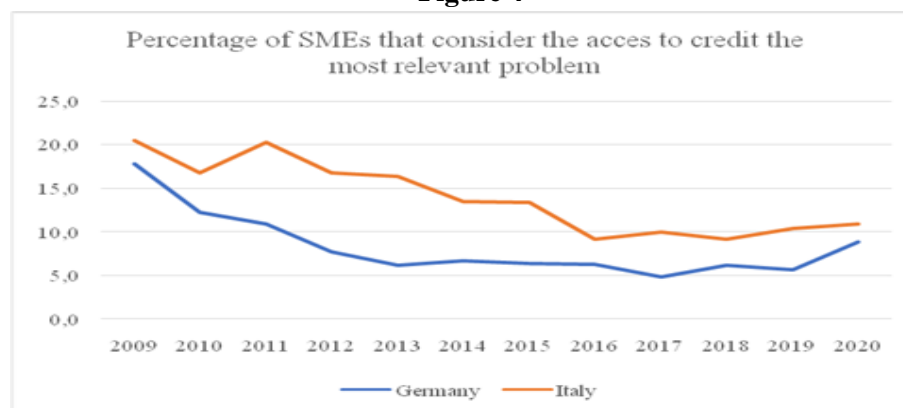
Figure 4 shows that, despite a sensible improvement in the access to credit for Italian firms, they still perceive it as a relevant problem, more than German ones. Even when looking at

Figure 5, a constant decrease in the percentage of Italian SMEs that have seen rejected their credit request can be noticed.

However, it remains higher for Italian companies than for German ones and does not report a significant difference over the next two years. In 2020, the percentage of Italian SMEs seeing rejected their credit request was lower than German ones, still reducing in comparison to 2019, as a probable consequence of the effectiveness of government-backed measures.

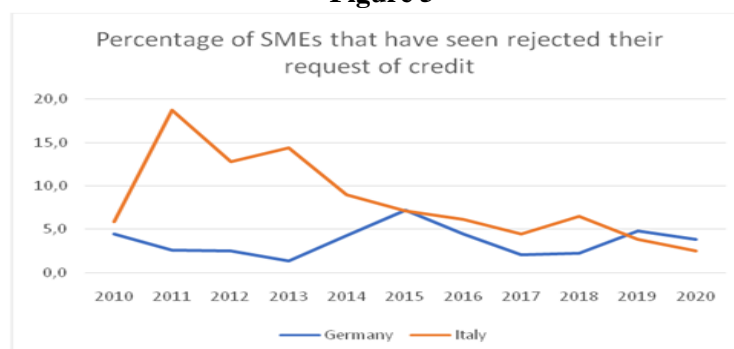


Figure 4



Source: ECB, SAFE various years.

Figure 5



Source: ECB, SAFE various years.

Over time and especially in the wake of the 2008 global financial crisis, first, and the 2011 euro-area crisis, afterward, the macroeconomic situation worsening has negatively affected the financial situation of business firms, gradually deteriorating the quality of bank credit. In addition, while the United States has experienced, since 2008, a long period of monetary expansion, including direct central bank intervention and public guarantees to re-absorb banks' non-performing loans (NPLs) through extended forms of securitization, the ECB has mostly refrained from such actions (Imbriani and Lopes, 2016; 2017; 2018)

European banks have responded to deteriorating macroeconomic conditions with increasingly stringent provisioning policies, as requested by the supervisory bodies (and in line with the new regulations discussed above), and simultaneous limitations on credit. In doing so, a negative spiral involved solid but illiquid firms, thus further increasing the stocks of non-performing loans.

The persistent unevenness of monetary conditions in the euro area has had a further negative impact on the firms-banks linkages in Italy, where business lending has further contracted more so than in Germany. Symmetrically, we are witnessing a tightening of the conditions for loan granting: therefore, diverging tendencies in European credit flow patterns have emerged in the last few years.

Such differences between the two countries can be observed by looking at the growth rates of business lending, broken down by the category of banks.

Table 2 reports data on credit provided by the largest banks to business firms in Italy, during the 2012-2020 period. We observe that the credit granted by the largest banks has grown by an average of 2.9%, while we note the downsizing of the credit granted by medium-sized banks (-4.4%) and above all by the smaller banks which also includes institutions.

Table 3 instead shows that in Germany, in the period between 2012 and 2020, on average, all categories of banks increased their lending to businesses. However, unlike what has happened in Italy, we observe that even the smaller banks such as regional banks, saving banks, and cooperative banks significantly increase lending to businesses with annual growth rates equal to 2.2%, 2.4%, and 2.2% respectively.

Such data is consistent with more specific studies, such as the 2010 paper by Schmiuder, Marsch and Foster van Arsten showing that bank consolidation in Germany has not hampered savings banks' lending ability (Schmiuder et al., 2010); or Bley (2018), showing the remarkable stability of German cooperative banks' business model over time.



Table 2 - Annual credit growth rates for Italian Banks

Year	Largest Banks	Others large and Medium size banks	Small and minor banks (including Mutual banks)
2012	6,4	-1,2	-5,2
2013	-3,4	-3,3	-3,0
2014	-0,6	2,7	-3,6
2015	6,1	10,2	-24,7
2016	1,2	-2,3	-6,2
2017	5,4	-15,8	-4,0
2018	8,8	-17,0	-15,2
2019	3,0	-13,8	-3,1
2020	-0,6	1,1	3,9
Annual Average Growth rate	2,9	-4,4	-6,8

Source: Bank of Italy.

Table 3 - Annual credit growth rates for German Banks

Year	Commercial banks	Big Banks	Regional Banks	Savings banks	Cooperative banks
2012	-6,2	-3,8	1,1	1,1	1,5
2013	-2	0,5	-1,9	-1,9	-0,8
2014	0,9	-0,3	-3,6	-1,4	-0,5
2015	5,7	0,2	7	1,6	0,4
2016	-5,7	-4,6	-3,2	2,9	0,4
2017	16,1	3,2	36,7	2,3	4,2
2018	5,1	24,3	-14,8	6,7	5,3
2019	3,3	4,1	4,3	3,9	5,1
2020	2,9	4,5	-3,6	4,9	6
Annual Average Growth rate	2,2	3,1	2,4	2,2	2,4

Source: Deutsche Bundesbank.

This brief overview of recent trends in credit access and supply in Germany and Italy confirms the importance of credit for business firms, especially European SMEs. In addition, it confirms the key role played by local, small, not-for-profit banks in providing access to credit, especially in adverse macroeconomic conditions (such as in the early 2010s). It seems that, in adverse macroeconomic conditions, and faced with tight capital and liquidity regulations, larger banks tend to reduce their traditional credit business and diversify their activities towards trading and asset management largely than local banks, more significantly involved in local economic activities.

The data also shows significant differences in credit supply/ access in Germany and Italy. Such differences may be

caused, in part, by the divergent trajectories of banking system developments, in the two countries, over the past decade or so different trajectories that may or may not be attributable to institutional factors offsetting the impact of banking regulation on the viability of small, not-for-profit banks.

An additional, perhaps paradoxical factor behind German banks' lower tendency to reduce credit supply may be due to the characteristics previously thought of as "backward" of the German banking system, namely its high degree of fragmentation and the average low profitability of German banks (Mertens, 2017). However, one should point out that these characteristics were shared by Italian banks as well; yet the latter have



experienced a much faster de-linking from their small and local borrowers than German banks.

7. Discussion and policy implications

The present study is an exploratory comparison of the spatial effects of bank regulation on credit supply in Germany and Italy. Further testing needs to be done to assess the validity of the links between banking regulatory changes, on the one hand, and the spatial distribution of changes in credit supply, on the other.

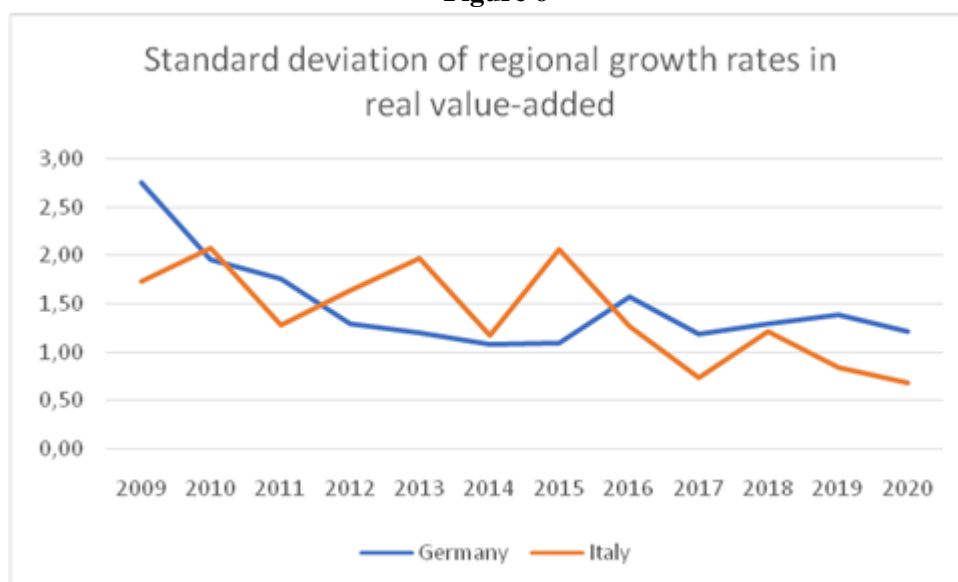
The preliminary evidence presented and discussed in sections 5 and 6 above shows a few clear trends, which we can use as a basis for further discussion of the argument presented in the first sections: (i) bank consolidation has continued apace in both Germany and Italy during the last decade; (ii) such consolidation has had two different outcomes, with the persistence of banking diversity at the local and regional level in Germany, and its erosion in Italy; (iii) these different trajectories may be attributed to institutional factors; (iv) between 2011 and 2012, German and Italian business firms' credit access has deteriorated (more so in Italy than in Germany), before improving in recent years, reflecting better macroeconomic conditions; (v) significant differences show

up in banks' credit supply: smaller, not-for-profit banks tend to maintain or expand their lending to business firms even in adverse conditions, while large banks do not.

During the pandemic crisis period (2020), an improvement in the positions of the Italian banking system can be noticed. This change might be linked to the government-backed credit support measures adopted, which are largely different from those adopted by Germany. In fact, during this period, the two governments adopted government-backed credit support schemes: The Italian government committed around 146 billion euros (with an increasing trend throughout the year), while the German one limited its interventions to 50,5 billion (mainly concentrated in the first pandemic wave period) (Anderson et al.,2021). These differentials resulted in easier access to credit for small and medium enterprises.

What can we conclude? One important piece of evidence is missing from our argument: evidence-showing trends in regional economic growth over time. Figure 6 below shows the change over time of a proxy for regional economic convergence, i.e., the standard deviation of the growth rate in regional value-added for the two countries between 2009 and 2020.

Figure 6



This evidence is not conclusive; the ten-year shows a reduction of divergences in regional growth rates, in both countries. In the aftermath of the Sovereign debt crisis, the standard deviation of the Italian region's growth was higher than the German region, thus signalling the existence of divergence processes. Following the improvement of macroeconomic conditions, growth rate differentials tend to reduce in Italy, while persisting in Germany. Indeed, over the last four years, growth differentials have been less marked in Italy, rather than in Germany, with the largest gap reported in 2020.

Again, as argued above, more conclusive evidence should be found to test the robustness of the hypotheses formulated above, that is, that banking regulatory changes potentially threaten to deepen cross-regional differences in economic development, both through a "direct" and an "indirect effect".

What is clear, however, is that the "one-size-fits-all" approach to banking regulation in Europe is especially damaging to banks' credit to small and medium enterprises, that pose as fundamental actors in regional economic development and job creation (and destruction) in Italy and other countries (Masera, 2016); and has contributed to favor the erosion of banking diversity, at least in Italy.

Overall, introducing global minimum liquidity requirements which is probably the most relevant innovation of Basel III may have significantly influenced credit provision to smaller firms. Indeed, within the new regulatory framework, credit to SMEs puts increase pressure on banks' equity. Thus, lending to those firms has become more expensive for banks, which are now required to hold an increased amount of financial



resources compared to past Basel standards. This represents a strong disincentive to finance the real economy.

Again, the evidence presented above does not enable us to draw definitive conclusions concerning the relationship between tightening banking prudential regulation, on the one hand, and uneven regional development, on the other. However, this preliminary discussion does highlight the need to investigate the spatial impact of tightening bank regulation.

Before doing so, it is already possible to draw some tentative policy implications from the previous discussion. Policymakers and regulators should be aware of the potential negative effects of across-the-board changes in the prudential regulation of banks in the provision of credit to business firms, especially small-and-medium-sized firms, which are key to balanced regional development.

In particular, both the complexity and penalizing effect of the latest prudential regulations modes on small, local, and regional retail banks should be reduced. Proportionality is not enough: the nature of bank business models should be taken into account, too. While macro-prudential regulation has been made necessary by the acknowledgment of systemic stability as a core policy objective, policymakers and regulators should be aware of its repercussions on banking diversity as well (Butzbach, 2016).

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