The Beauty of Being Involved: The Case of Cooperative Banks

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Is greater stakeholder engagement associated with greater stability? We provide readers with novel empirical evidence that this is indeed the case. Cooperative banks (where stakeholders are involved in the business by law) are an excellent case to study the association between stakeholder engagement and stability. Focusing on Italy, we show that cooperative banks differ substantially in risk-taking from each other, and these differences are mostly related to the engagement of stakeholders. A greater overlap between shareholders, borrowers and depositors is associated with lower non-performing loans, suggesting that greater stakeholder engagement reduces problems of asymmetric information and bank risk appetite.

Introduction

Over past decades, the academic literature has discussed widely whether modern corporations should focus on maximizing shareholder value (SHV) or considering every stakeholder's interests. The classical theory takes an SHV maximization perspective, which holds that company directors have the fiduciary duty to conduct the company's affairs in the interests of shareholders. Corporations are accountable only to profit-maximizing shareholders and, apart from their contractually determined obligations, are not responsible for considering other stakeholders' interests or enhancing the welfare of society (Bénabou and Tirole, 2010; Friedman, 1972). In this theory, engaging in environmental and social initiatives can destroy shareholder wealth and have negative financial implications, diverting managers' attention to issues that are not central to the company and increasing costs to the advantage of competitors (e.g. Brown, Helland and Smith, 2006; Jensen, 2001).

Conversely, the stakeholder view attempts to balance the interests of everyone with a stake in the company; the management of a business requires the balancing of the stakeholders' interests, such as providing employee benefits, investing in environmentally friendly production processes, selecting suppliers that avoid child labour and organizing projects to help the poor in less-developed countries (Gamble and Kelly, 2001). This alternative view is based on the belief that meeting the needs of all stakeholders can also enhance SHV creation, for example, avoiding consumer boycotts, reputational damage, government fines and the inability to attract the most talented staff (e.g. Freeman *et al.*, 2010; Serafeim, 2013).

There is no conclusive evidence proving whether greater stakeholder engagement is beneficial or detrimental to companies. The management literature has several papers investigating whether directors' fiduciary role is to conduct business in the interests of shareholders or other stakeholders (e.g. Cumming, Tingle and Zhan, 2021;

Ding *et al.*, 2022; Tingle and Spackman, 2019). Moreover, some authors (e.g. Thakor and Quinn, 2013) suggest that organizations oriented to wealth maximization – in an exclusive way – and organizations pursuing a 'higher purpose' are not necessarily alternatives. They may be complementary to each other and have a symbiotic relationship. Chronopoulos, Yilmaz and Wilson (2022) underline that the impact of stakeholderism on various firm-level outcomes has been the subject of vibrant debate for non-financial firms, while it remains substantially overlooked in the banking industry. This is particularly surprising since banks operate with a more heterogeneous group of stakeholders than non-financial firms – including depositors, households, small and medium enterprises (SMEs), corporate and sovereign borrowers, employees, regulators, supervisors, shareholders, debt holders, other banks and monetary authorities – facing unique challenges in balancing their conflicting interests (Cumming, Girardone and Sliwa, 2021). Moreover, Leung, Song and Chen (2019) outline that the banking sector is a particularly interesting setting to analyse the diverging risk preferences of shareholders and stakeholders because banks are highly leveraged and opaque, face limited disciplining from insured depositors and have implicit government guarantees, promoting excessive risk-taking by shareholders.

Finally, the banking industry is a particularly interesting case as it is characterized by a high level of 'biodiversity', with the coexistence of SHV banks (whose primary business focus is maximizing shareholder interests) and stakeholder value (STV) banks, whose broader focus is on the interests of a wider group of stakeholders (Ayadi *et al.*, 2010). Cooperative banks are STV banks, in which profitability is neither the primary nor the exclusive goal, even though it is necessary to survive and finance growth in their reference area.

While commercial banks are private firms that essentially aim to create value for shareholders (Fiordelisi and Molyneux, 2006), cooperative banks aim to meet the needs of their shareholders (most of whom are also depositors and borrowers) and support non-profit agents (e.g. hospitals and charity organizations) in local areas rather than focusing on profit maximization. Girard and Sobczak (2012) outline the peculiarity of cooperative shareholders, observing that they are difficult to categorize in the most commonly used stake-holder mapping since they are both shareholders and clients, and occasionally even bank employees, playing more roles at the same time. This is why shareholders in cooperative banks are also called 'members'. In SHV banks, there is a conflict of interest between shareholders and depositors since the former have limited liabilities and may benefit from upside gains and higher risk exposure. In STV banks, this particular aspect of the agency problem is absent as owners and customers are largely one and the same. Furthermore, cooperative banks comply with the key cooperative principle of 'one person, one vote' regardless of the number of shares held.

Cooperative banks have both advantages and disadvantages compared to commercial banks. As consumer-owned institutions, managers of cooperative banks are more subject to accountability than managers of commercial banks (Fama and Jensen, 1983). Moreover, cooperative banks are viewed as overcoming the asymmetric information problem typical of financial intermediation (Fonteyne, 2007) and reducing moral hazard (Fonteyne and Hardy, 2011) better than commercial banks; a large number of cooperative banks' shareholders are also borrowers, and thus banks can rely on a larger set of information resulting in a lower adverse selection problem. Similarly, because the owners are also depositors, cooperative banks avoid cost of agency conflicts (see Mayers and Smith, 1988 for mutual insurance companies and Rasmusen, 1988 for mutual banks), resulting in a lower moral hazard problem. The close relationship between bank staff and customers also reduces such agency conflicts, whereas large complex banks do not engage in relationship banking (Boot and Thakor, 2000; Stein, 2002). These features give cooperative banks a low-risk profile and high capitalization relative to commercial banks (Groeneveld, 2014). However, cooperative banks are smaller in size and customer number, possibly resulting in lower managerial skills (e.g. risk management and compliance departments are less developed than those of commercial banks) and lower diversification opportunities. Overall, these factors may lead to lower profits and, especially, unintentional and excessive risk-taking.

The comparison between cooperative and commercial banks provides researchers with a good setting to compare firms with shareholders' and stakeholders' orientations. Unsurprisingly, a large

number of papers[1] have analysed how the different institutional–legal business models reflect on bank performance by comparing commercial and cooperative banks across various business characteristics (e.g. efficiency, stability and market power) and have found mixed evidence. The main limitation of these studies is that cooperative banks are treated as a homogenous group, thus assuming that the stakeholder engagement in cooperative banks is similar. This assumption is not the case, and cooperative banks display different levels of stakeholder engagement that varies across countries, regions and banks; we argue that this is the reason why conclusive insights cannot be drawn from past papers.

Our paper focuses on the Italian cooperative banking sector, one of the largest worldwide with 6 million clients and more than 30,000 full-time employees in almost 300 institutions. The main reason for the focus on Italy is that we can rely on a unique dataset from the Italian Federation of Cooperative Banks that enables us to go beyond the simple comparison based on institutional–legal business models (i.e. commercial banks as SHV-oriented companies vs. cooperative banks as STV-oriented companies) by analysing the role played by the stakeholder engagement in a firm. This enables us to address the following research question: Is greater stakeholder engagement associated with greater stability? To this end, we measure stakeholder engagement by the overlap between borrowers and shareholders and measure bank stability by focusing on the quality of their loan portfolio. We do not focus on profitability since profit maximization is not the primary goal for cooperative banks; on the contrary, minimizing bad loans is undoubtedly a primary goal for all banks (both cooperative and commercial). By analysing a large sample of banks, we show that non-performing loans (NPLs) decline as stakeholder engagement increases. Our results strongly support that the quality of cooperative banks' loan portfolios is not necessarily different from those of commercial banks; rather, we show that the loan portfolio quality is positively correlated to stakeholder engagement. This positive link supports the view that greater stakeholder engagement reduces adverse selection and moral hazard problems generated by

asymmetric information between banks and borrowers. Our results indicate that cooperative banks are a heterogeneous group and greater stakeholder engagement is associated with enhanced stability.

Our empirical approach has various challenging issues. The first is how to measure stakeholder involvement in the bank. When conducting a large-scale empirical investigation, we cannot use soft information that is obtainable through interviews or focus group discussions with an organization, which is usually adopted in other field studies. Rather, we rely on two measures at the bank level, capturing to what extent banks internalize stakeholders' interests: the quota of loans provided to shareholders and the quota of deposits made by shareholders. These data have been obtained using a confidential database managed by the Italian Federation of Cooperative Credit Banks (Federcasse), and thus we focus on the Italian banking market, which is one of the largest markets in Europe and has one of the largest cooperative systems worldwide. Our main hypothesis is that banks' internalizing stakeholder needs have an advantage in stability. Regarding lending, a greater quota of loans given to shareholders alleviates asymmetric information problems inherent in credit exposures. Regarding deposits, a greater quota of deposits collected by shareholders decreases the bank's risk appetite: the quota of funds provided by shareholders (both as shares and deposits) increases and this alleviates the moral hazard problem.

The second challenge is the development of a clean empirical strategy to face model misspecification and endogeneity problems. To this end, we complement our baseline model (based on a panel-data regression model using fixed effects to account for omitted variable and reverse causality problems) with a battery of robustness checks wherein we use alternative measures of loan portfolio quality (our main dependent variable), stakeholder engagement (the independent variable of main interest) and bank capitalization (the main control variable). We also face possible endogeneity concerns by running an instrumental variable approach. The stakeholder engagement may be driven by local economic conditions; thus, we run a two-stage least-squares (2SLS) model by instrumenting our stakeholder engagement measure by socioeconomic variables at the local geographical area.

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[1]Recently, Wilson *et al.* (2020) reviewed more than 200 papers on cooperative banking.

The main contribution of this paper is its provision of novel empirical evidence to readers that a greater stakeholder engagement is beneficial to companies. Different from previous papers that have compared commercial and cooperative banks taken as a whole (considering that all cooperative banks are similar), in this paper, we show that cooperative banks differ significantly from each other, and the differences are mostly related to the engagement of stakeholders in the bank. Specifically, we show that a greater overlap between shareholders, borrowers and depositors is associated with lower NPLs, suggesting that a greater stakeholder engagement reduces asymmetric information problems between borrowers and reduces bank risk appetite. Overall, our results reconcile the mixed evidence from previous papers; cooperative banks are generally no better or worse than commercial banks. Rather, it is the different stakeholder engagement that enhances their stability.

The remainder of this paper is structured as follows. The next section reviews previous papers dealing with cooperative banking and discusses the development of our research hypotheses. The third section describes the main features of cooperative banking in Italy. The fourth section describes the data and summary statistics. The fifth section discusses our empirical strategy. The sixth and seventh sections report the main results and robustness checks, respectively. The final section provides the conclusion.

Literature and hypothesis development

The stakeholder and shareholders' firm orientation is a traditional area of research in management. Stakeholder theory suggests that the business is seen as a set of relationships among groups that have a stake in the firm's activities (Freeman, 1984; Jones, 1995; Walsh, 2005), such as customers, suppliers, employees, stockholders, bondholders, banks, local communities and managers. The interaction among them leads firms to generate profits and create value. Where stakeholders' interests conflict, executives need to find a solution and meet the needs of stakeholders. If they are successful, this results in value creation for each (Harrison, Bosse and Phillips, 2010); if they are not successful, executives need to figure out how to face the tradeoff among stakeholders (Freeman *et al.*,

2010).[2] Various business–stakeholder engagement models (e.g. corporate social responsibility, corporate social performance, creating shared value, etc.) have been proposed to connect businesses with their stakeholders.[3]

The comparison of shareholders' and stakeholders' orientations has been analysed in terms of the fiduciary duty of corporate managers (either favouring shareholders or a broader 'stakeholder' approach), which is well known as 'The Great Debate'. How the fiduciary duty is conceived has a profound impact on the real-world operations of companies and, not surprisingly, the management literature is rich in papers investigating whether the directors' fiduciary role is to conduct business in the interests of shareholders or other stakeholders (e.g. Cumming, Tingle and Zhan, 2021; Tingle and Spackman, 2019).

The comparison based on institutional–legal business models (commercial banks as SHV-oriented companies vs. cooperative banks as STV-oriented companies) across various business characteristics (e.g. efficiency, stability and market power) provides researchers with a good setting to compare firms with shareholders' and stakeholders' orientations. The main limitation of these papers is that cooperative banks are treated as a homogenous group, assuming that the stakeholder engagement is similar. Unfortunately, this is not the case; we argue that this is the reason why conclusive insights cannot be drawn from past papers.

Our paper adopts a different perspective from these studies and goes beyond the comparison based on institutional–legal business models by focusing on the role played by the stakeholder engagement in a firm. Specifically, we address a research question that, as far as we are aware, has not been empirically explored by past studies: Is greater stakeholder engagement associated with greater stability? To this aim, we focus on the cooperative banks that provide us with an excellent case to study. The cooperative banks' institutional model requires them to meet the needs of their members (most of whom are depositors, borrowers and shareholders at the same time) and support economic agents (e.g. hospitals, charity

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[2]For a review of studies dealing with the stakeholder view, see Parmar *et al.* (2010).

[3]For a review of studies dealing with corporate social responsibility, see Latapí Agudelo, Jóhannsdóttir and Davídsdóttir (2019).

organizations) in the local area where they are based rather than focusing on profit maximization.[4] Thus, cooperative banks are characterized by a significant overlap between different groups of stakeholders. Conversely, commercial banks are private firms, and their institutional model requires them to generate profits and create value for shareholders (Fiordelisi and Molyneux, 2007). Thus, commercial banks do not have significant overlap between shareholders, borrowers and depositors. Wilson *et al.* (2020) discuss that there is a substantial number of papers comparing commercial and cooperative banking in terms of profitability, credit quality, default risk and development of regional economics.

The first group of papers focuses on firm efficiency, reaching contrasting results. Various papers find that cooperative banks are more efficient than commercial banks (e.g. Makinen and Jones, 2015; Spulbar, Nitoi and Anghel, 2015). Recently, Pacelli, Pampurini and Labini (2019) have compared the cost efficiencies of cooperative and commercial banks in Italy, Germany, France and Spain between 2011 and 2016, thus capturing the European sovereign debt and NPL crises. They find that the business model of cooperative and mutual banks is strong during bad times, exhibiting higher efficiency levels than commercial banks.[5] However, other papers (e.g. Altunbas, Evans and Molyneux, 2001; Girardone, Nankervis and Veletnza, 2009) found that commercial banks are more cost-efficient than cooperative and savings banks.

The second group of papers focuses on bank stability, looking at either the quality of portfolio loans or bank failures. In terms of portfolio loan quality, the results are mixed. Some papers suggest that the main success factor of cooperative banks is their relationship with their customers, which enables them to have superior credit quality, lower NPLs and thus lower risk than commercial banks (e.g. Iannotta, Nocera and Sironi, 2007). In the same vein, other papers show that cooperative banks are more stable during the years surrounding the financial crisis (Aiello and Bonanno, 2016; Chiaramonte, Poli and Oriani, 2015; Henselmann, Ditter and Lupp, 2016; Stefancic,

2016). Conversely, other papers suggest that cooperative banks have a lower credit quality than commercial banks (e.g. Mattei, Miglietta and Labini, 2011) since their customers are mainly SMEs, which suffered the most during the financial crisis. The results are also mixed when bank stability is measured in terms of failure. Focusing on US credit unions, some papers suggest that younger, smaller and less well-capitalized credit unions in the United States are more likely to fail (Goddard *et al.*, 2014; Wilcox, 2005). Conversely, other papers show that credit unions are less exposed than commercial banks to fluctuations in the business cycle (Smith and Woodbury, 2010).

The third batch of papers compares cooperative and commercial banks looking at other business features, such as market share (Chatterji, Luo and Seamans, 2015), lending rate (Angelini, Di Salvo and Ferri, 1998), deposit growth (Smith and Rothbaum, 2013), home equity line (Maskara and Neymotin, 2019), asset risk (Esty, 1997; Fraser and Zardkoohi, 1996; Rasmusen, 1988), asset diversification (Fonteyne, 2007), corporate governance (Yamori, Harimaya and Tomimura, 2017), the relationship between bank stability and competition for these credit institutions (Fiordelisi and Mare, 2014) and monetary policy transmission (De Santis *et al.*, 2013).

All these past papers have a common trait: commercial and cooperative banks are compared based on their different institutional–legal business model. Specifically, each of the two groups of banks is assumed to be homogenous and the differences shown by the studies arise from different aims (profit maximization for shareholders for commercial banks; profit redistribution to members and support for local areas for cooperative banks) and different governance (voting powers are proportional to investments for commercial banks; a 'one person, one vote' mechanism for cooperative banks). Conversely, our paper does not assume that cooperative banks are homogenous (based on a common institutional–legal business model); rather, we argue that these banks differ strongly from each other due to different stakeholder engagement. This idea is suggested by a handful of past papers. Amess and Howcroft (2001) underline that the organizational form of mutual banks, thanks to its emphasis on membership rather than shareholders and dividends, has an advantage compared with the joint stock firm in establishing trust and cooperation. In their

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[4]For a review of papers on cooperative banking, see Wilson *et al.* (2020).

[5]Please see Ayadi *et al.* (2023) for a review of the role of business models in banking.

opinion, 'This advantage stems from the fact that for individuals there is a cognitive distinction between being a member of an institution as opposed to being merely a customer. Membership can reinforce the stakeholder relationship that customers have with an *organisation* by conferring ownership rights' (Amess and Howcroft, 2001, p. 62). The overlap between members and customers may also facilitate management decisions: 'Collective decision making is always difficult. But it is more difficult the more the interests of the parties diverge. A group with common interests will have a much easier time to reach a good decision than a group with highly divergent interests' (Holmström, 1999, p. 407).

Focusing more specifically on the lending relationship, Hansmann (1996) outlines the advantage of building societies with respect to commercial banks, due to the better information on each other's creditworthiness shared in a group of individuals who work together and live in the same community. This information is also important to determine who is permitted to join the bank and hence also influence membership.

The idea of a reduced default risk when lending relationships happen in a restricted 'common bond' and when borrowers are members has also been suggested in other studies. Proposing an integrated model of pricing and dividend policies, Emmons and Schmid (2002) conclude that the larger the portion of business done with members in an open cooperative, the stronger the incentive to provide favourable terms for financial services. Moreover, Catturani and Venkatachalam (2014) outline that members are safer than non-members given the lower level of information asymmetry with respect to non-members and that the member-to-non-member ratio is an important strategic choice for cooperative banks. They also underline that collecting soft information is increasingly difficult for members due to softer community links, larger membership and privacy laws; however, ceteris paribus, members can still be considered more secure since they are also owners directly involved in the cooperative bank's result.[6] Aiello and Bo-

nanno (2016), studying cooperative banks' efficiency, conclude that they save on costs, thanks to their relationship with their member-customers, which are long-dated, based on the use of soft information and able to protect cooperative banks from market riskiness. However, within our knowledge, there is no empirical evidence, based on a large sample, showing that the proportion of business done with members decreases the exposure to credit risk. The economic channel investigated in this paper is straightforward – a greater overlap between shareholders and borrower alleviates asymmetric information problems (decreasing the adverse selection and moral hazard problems) and aligns stakeholders' and shareholders' interests within the bank.

The research hypothesis development reflects our main point: shareholder engagement is the key factor to enhance stability and not the institutional–legal business model. In this respect, first, we replicate past papers by positing:

H1: Commercial and cooperative banks (taken as a whole) display a different quality of the loan portfolio.

The higher quality of loans for cooperative banks is not an obvious result and it is worthy of investigation. Becchetti, Ciciretti and Paolantonio (2016) outline that the peculiarities of cooperative banks and their mission to finance local businesses may have advantages and drawbacks. On the one hand, the small size and the focus on relationship banking should reduce informational asymmetries between lenders and borrowers and increase the quality of credit. On the other hand, cooperative banks may be more exposed to the risk of local political capture, insufficient diversification and lighter credit conditions for local firms, reducing the quality of credit. Past papers find mixed evidence, and we argue that differences are driven by shareholder engagement in the bank that varies across countries and times. As such, we do not expect to find statistically significant differences between cooperative and commercial banks. Next, we consider explicitly the role played by stakeholder engagement measured by the overlapping between shareholders, depositors and borrowers. Thus, we suggest:

Cooperative banks in which there is a greater stakeholder involvement have a higher loan portfolio quality than commercial banks.

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[6]Angelini, Di Salvo and Ferri (1998, p. 947) highlight that, with respect to Italian credit cooperative banks (CCBs), 'Should the CCB fail, its members would lose all privileges presumably associated with their status; accordingly, they should have an incentive to screen applicants for membership and to monitor borrowers'.

To test this hypothesis, we still compare cooperative and commercial banks, but cooperative banks are not considered homogenous; rather, we explicitly account for the stakeholder engagement. We expect to find a positive association between the quality of the banks' loan portfolio and stakeholder engagement. Finally, we restrict the focus to cooperative banks only and argue:

Cooperative banks with a greater stakeholder engagement display a better loan portfolio quality.

Italian cooperative credit banks: Features and importance

Cooperative banks are small firms characterized by mutualism and local roots. These banks are usually owned by their customers and provide services (savings and loans) to both members and non-members. Thus, cooperative bank members are, in most cases, shareholders, depositors, bondholders and borrowers. In terms of governance, cooperative banks generally follow the cooperative principle of 'one person, one vote'.

The Italian cooperative banking system is one of the oldest and most established banking systems worldwide. Cooperative banks were founded as rural banks in the late nineteenth century, thanks to the efforts of people inspired by the social doctrine of the Catholic Church, which played a significant role in urging the poorer members of the rural population (especially farmers and artisans who at that time were particularly vulnerable) to defeat poverty and widespread usury. The Italian legal framework of cooperative banks (aiming to support inclusive governance, low risk profile and local banking behaviour) relies on the following main rules: (a) abide by the principle 'one person, one vote';[7] (b) at least 51% of risk-weighted assets have to be related to members; (c) members' domicile and/or business is within the area where the bank operates; (d) there are limits to holding cooperative shares (maximum of €100k) and to proxy voting;[8] (e) at least 95% of the loans must be granted in the bank operating area; (f) at least 70% of profits must be allocated to equity reserves – these reserves cannot be distributed to members even in the case of winding up of the bank; and (g) derivatives may be used only to reduce the risk of loss (hedging).

These basic rules and the mutualistic nature of the Italian cooperative banks have remained unaltered after the reform of their organizational structure initiated by the Italian regulator in 2016 and fully implemented in 2018. Most Italian cooperative banks were integrated into two cooperative banking groups,[9] to overcome the main weaknesses shown during the financial crisis, in terms of risk management and access to market financing. The shift to the integrated model should also strengthen scale and scope economies, by centralizing production and control functions and reinforcing solvency protection (Beccalli, Rossi and Viola, 2022).

As of June 2021, most of the independent local banks in Italy (246 out of 465) were cooperative banks, with over 1.3 million members and 4187 branches (18.6% of the total branches) located in 2592 municipalities. Cooperative banks are the only provider of bank services in 687 Italian municipalities, which are mostly characterized by having less than 5000 permanent residents. Overall, cooperative banks supply 7.6% of the total loans in Italy. The market share rises to more than 20% in various important industries, such as agriculture (22.4%), tourism (21.9%) and artisan firms (24.5%), and in loans to small enterprises and micro-enterprises (25.3% and 19.6%, respectively).

In terms of riskiness, cooperative banks have an overall higher gross NPL ratio in lending to large companies compared with the mean NPL ratio in the Italian banking industry (including both cooperative and commercial banks), but have lower NPL ratio levels in lending to households and small firms, medium-sized firms and micro-firms compared to the Italian mean levels (see Figure 1).

This is due to two main reasons: a different loan portfolio composition and a different NPL disposal rate. About the loan portfolio

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[7]The quality and effectiveness of cooperative banks' governance is assessed by Federcasse under the delegated power of the Ministry of Economic Development.

[8]The Italian Civil Code (article 2539) establishes a maximum number of 10 proxy votes per member; the statute of cooperative banks fixes this proxy equal to three.

[9]ICCREA and Cassa Centrale Banca. The 39 banks of Bolzano province did not join one of the two banking groups and opted for the creation of an institutional protection scheme.
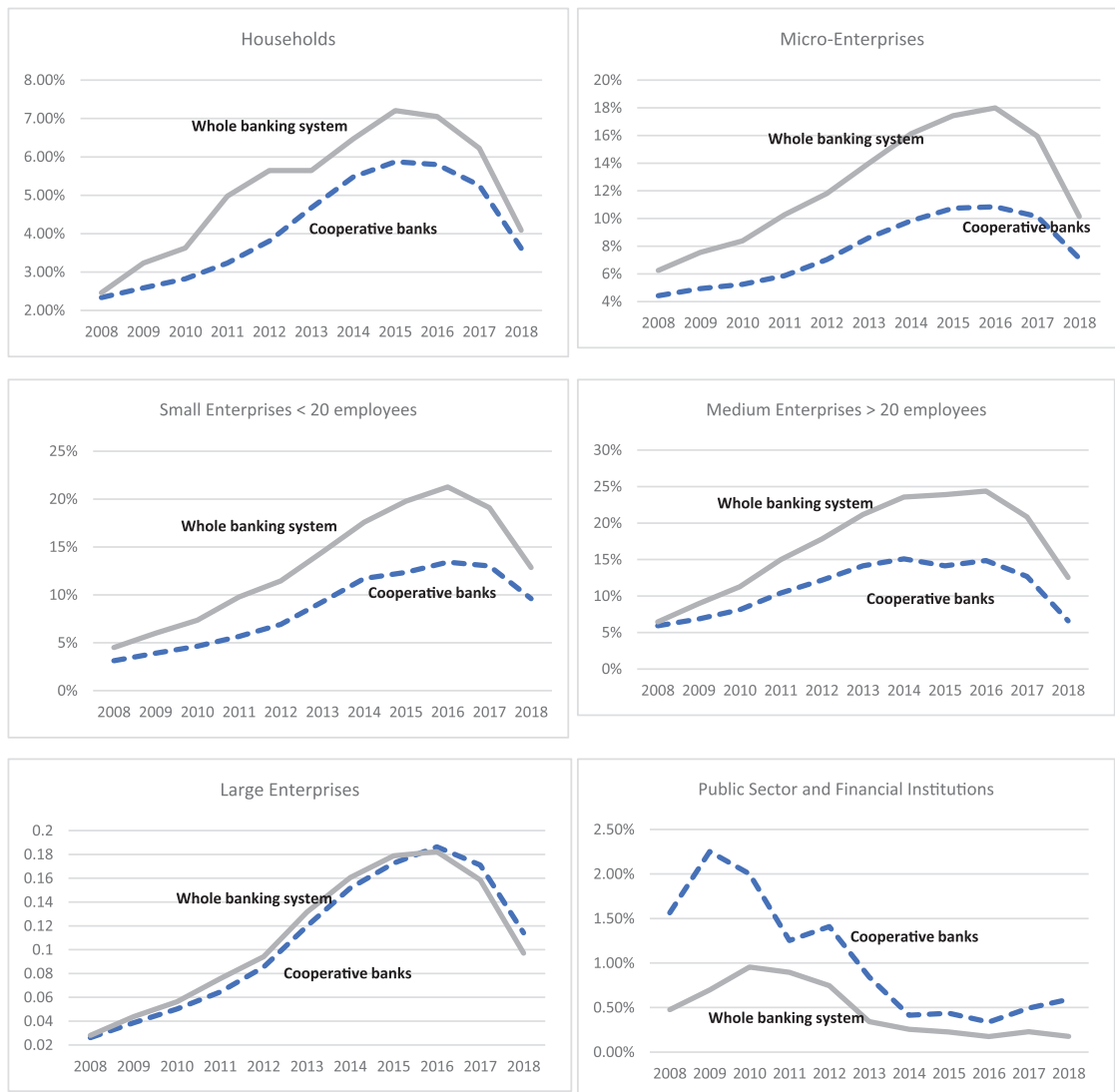
Figure 1. The evolution of non-performing loans over time by borrowers' industry. In this table, we plot the evolution of the mean gross NPL ratio (i.e. gross NPLs on total loans) by distinguishing the cooperative banks from the whole Italian banking market and focusing on five types of borrowers: householders, micro-firms (individuals or groups of individuals as entrepreneurs with less than six employees), small firms (quasi-corporations with less than 20 employees), medium-sized firms (quasi-corporations with more than 20 employees) and large firms (corporations). Source of data: Bank of Italy [Colour figure can be viewed at wileyonlinelibrary.com]

composition,[10] cooperative banks supply more loans to small and micro-firms compared to the Italian banking industry (10.6% vs. 3.3% and 12.1% vs. 4.7%, respectively) and fewer loans to the public sector (3.3% vs. 24.3%). Regarding the disposal rate, large commercial banks rapidly decreased bad loans after the 2016 NPL peak by disposing of bad loans through securitization and

selling out; conversely, cooperative banks disposed of their bad loans at a slower rate.

An important factor influencing the NPL ratio of cooperative banks is the degree of stakeholder involvement. Figures 2 and 3 show that the quality of the loans provided to members is substantially higher than that of the loans provided to non-members across time and geographical regions. This confirms that the research hypothesis is relevant and important, and it deserves to be tested.

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[10]Data reported are as at the end of 2018. Source for data: Bank of Italy.
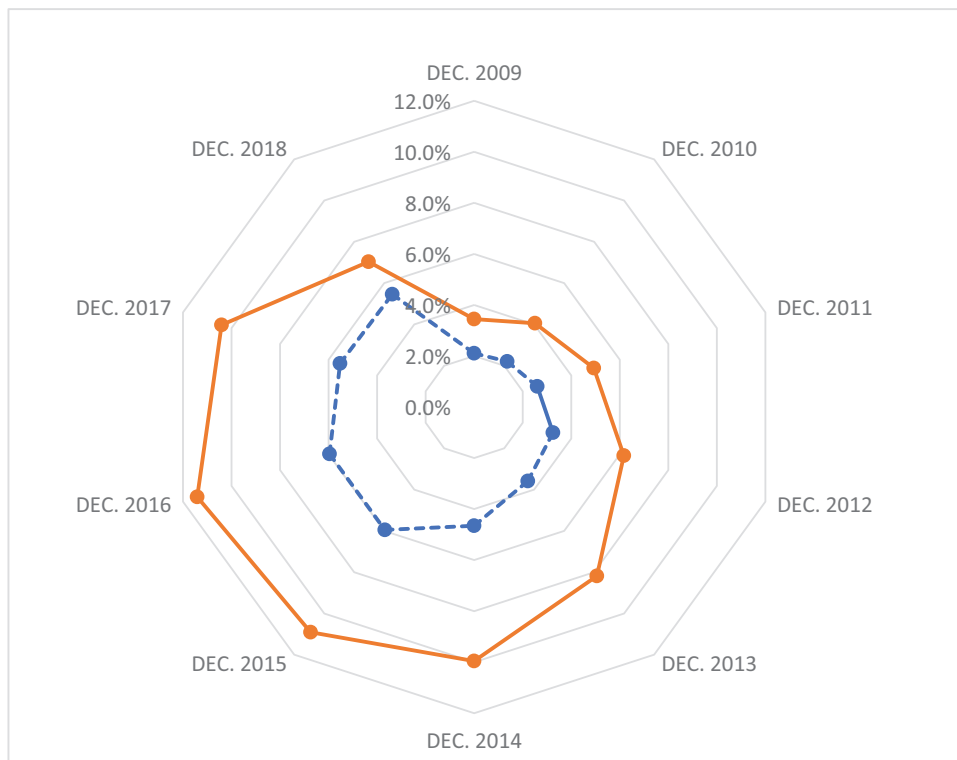
Figure 2. The quality of cooperative banks' lending: members vs. non-members. In this table, we plot the evolution of the mean gross NPL ratio (i.e. gross NPL on total loans) by distinguishing loans to members (dashed line) from loans to non-members (solid line). Source of data: Bank of Italy [Colour figure can be viewed at wileyonlinelibrary.com]
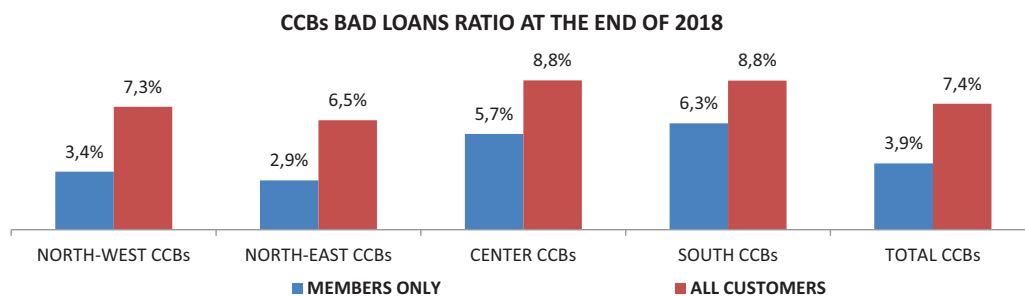
Figure 3. The quality of cooperative banks' lending across Italian geographical areas. In this table, we plot the evolution of the mean gross NPL ratio (i.e. gross NPLs on total loans) at the end of 2018 for Italian cooperative banks (CCBs) by distinguishing loans to members from loans to non-members in five Italian geographical areas. Source of data: Federcasse [Colour figure can be viewed at wileyonlinelibrary.com]

Data and variables

Our paper focuses on the Italian cooperative banking industry since this is one of the largest worldwide and, especially, we can rely on a unique dataset from the Italian Federation of Cooperative Banks that enables us to measure the stakeholder engagement in a firm. With this aim, we select all cooperative and commercial banks over the largest time period available in the dataset (2007 and 2017).

Data have been collected from various sources. Bank financial statements are taken from the 'ABI banking data', a detailed database managed by the Italian Banking Association. Data about the stakeholder engagement in cooperative banks have been obtained using a confidential database managed by Federcasse. Data related to the socioeconomic

Table 1. Descriptive statistics

Panel A. Sample including both commercial and cooperative banks

	Commercial banks			Cooperative banks			
	No. obs.	Mean	St. dev.	No. obs.	Mean	St. dev.	t-Test
Bad	772	0.0364	0.0305	1951	0.0367	0.0257	−0.0003
UTP	772	0.0521	0.0468	1951	0.0651	0.0433	−0.0130***
PDue	772	0.0538	0.0490	1951	0.0686	0.0463	−0.0148***
Stakeh_eng_loans	772	0.0000	0.0000	1951	0.5028	0.1443	−0.5028***
T1/TA	772	0.0486	0.0429	1951	0.0966	0.0413	−0.0480***
GDP_gr	772	0.0031	0.0153	1951	−0.0032	0.0192	−0.0063***
Crim	772	0.1708	0.0474	1951	0.1412	0.0460	0.0296***
Prod	772	7.4650	9.6620	1951	4.3064	1.3701	3.1585***
Loan_gr	772	1.0424	0.2280	1951	1.0234	0.1323	0.0190***
Ineff	772	0.0247	0.0163	1951	0.0213	0.0050	0.0033***
Size	772	14.8307	1.8777	1951	12.7546	0.9883	2.0760***

Panel B. Only cooperative banks

	Count	Mean	St. dev.	Min	p50	Max
Bad	2569	0.0985	0.0772	0.0014	0.0776	0.3612
UTP	2569	0.1488	0.0791	0.0207	0.1354	0.3685
PDue	2569	0.1609	0.0826	0.0259	0.1465	0.3904
Stakeh_eng_loans	2569	0.4967	0.1388	0.1630	0.4975	0.8434
Stakeh_eng_dep	2569	0.0596	0.0505	0.0017	0.0432	0.2251
Prod	2569	1.3365	0.3120	0.5654	1.3757	2.0122
Loan_gr	2569	1.0428	0.1112	0.9111	1.0201	1.6209
Ineff	2569	0.0215	0.0060	0.0114	0.0204	0.0424
Size	2569	12.7620	1.0014	10.4710	12.8050	14.8840
CorpLoans	2569	0.6354	0.1000	0.3570	0.6454	0.8439
T1/Rwa	2569	0.1730	0.0705	0.0629	0.1571	0.4744
T1_gr	2569	1.0303	0.0837	0.7400	1.0286	1.4066
T1/TA	2569	0.1037	0.0389	0.0397	0.0954	0.2322
GDP_gr	2569	0.0125	0.0174	−0.0262	0.0145	0.0489
Crim	2569	0.1376	0.0710	0.0282	0.1266	0.4433
Ind	2330	0.1571	0.0766	0.0321	0.1316	0.3562
Exp	2330	0.2511	0.1645	0.0082	0.2060	0.7048
Agr	2330	0.1013	0.1792	0.0079	0.0293	0.6082
Ch	2569	0.4611	0.2190	0.1649	0.4312	1.0168
Web	2569	0.6841	0.1056	0.4396	0.6919	0.9035

Note: This table shows the summary statistics for the sample banks over the period 2010−2017. Panel A presents the sample of commercial and cooperative banks collected by the ABI banking data. Panel B presents data for the universe of cooperative banks obtained by Federcasse. This panel includes all Italian cooperative banks (this is the reason why the number of observations is greater than in Panel A) and it provides readers with statistics (standard deviation, difference between mean and median, and the min–max range) to assess the heterogeneity of cooperative banks. All variables are described in the Appendix.

conditions of Italian provinces have been collected by the Italian National Institute of Statistics (IS-TAT). The period analysed ranges from 2010 to 2017.

We provided two different samples. First, we include both commercial and cooperative banks. As shown in panel A of Table 1, we have 2723 observations (772 commercial banks and 1951 cooperative banks). Cooperative banks show a slightly lower credit quality than commercial banks, as shown in panel B: 'bad' accounts for 3.7% of the total loans provided (3.6% for commercial banks), UTP for 6.5% (5.2% for commercial banks) and PDue for 6.9% (5.4% for commercial banks). The mean stakeholder engagement (Stakeh_eng_loans) is 50% for cooperative banks, suggesting that loans to members account for 50% of the loan portfolio. Cooperative and commercial

Table 2. Cooperative vs. commercial banks: baseline model results

	(1) y = Bad	(2) y = Bad	(3) y = UTP	(4) y = UTP	(5) y = PDue	(6) y = PDue
Coop	−0.0035	−0.0042	−0.0012	0.0014	0.0007	0.0033
	(0.0061)	(0.0061)	(0.0101)	(0.0100)	(0.0105)	(0.0105)
$(T1/TA)_{t-1}$		−0.0814***		0.0687*		0.1052***
		(0.0235)		(0.0387)		(0.0406)
$Prod_{t-1}$		−0.0010***		0.0003		0.0006
		(0.0003)		(0.0005)		(0.0005)
$Loan\_gr_{t-1}$		−0.0018		−0.0049*		−0.0059**
		(0.0017)		(0.0028)		(0.0030)
$Ineff_{t-1}$		−0.3865***		−0.1939		−0.2349
		(0.1090)		(0.1790)		(0.1881)
$Size_{t-1}$		−0.0032		0.0082**		0.0079*
		(0.0024)		(0.0040)		(0.0042)
GDP_gr_t		0.0877***		0.2594***		0.2270***
		(0.0228)		(0.0374)		(0.0393)
$Crim_t$		0.0108		−0.0355		−0.0356
		(0.0150)		(0.0245)		(0.0258)
Observations	2723	2723	2723	2723	2723	2723
R-squared	0.8537	0.8577	0.8540	0.8588	0.8580	0.8620
Cluster SE	Bank	Bank	Bank	Bank	Bank	Bank
Time effects	Yes	Yes	Yes	Yes	Yes	Yes

Note: In this table, the results of the model in Equation (1) using the sample including both Italian cooperative and commercial banks are reported. The dependent variables are three measures of NPLs, with increasing severity of default. The variable of main interest is Coop, a dummy variable taking the value 1 for cooperative banks and 0 otherwise. We control for bank capitalization and various macro-economic and micro-economic variables that may influence the bank loan portfolio quality. Standard errors are clustered at the bank level and presented in parentheses. *, ** and *** indicate significance at the 1%, 5% and 10% levels, respectively. All variables are described in the Appendix.

banks display statistically significant differences in the mean of almost all variables used in the empirical analysis; unsurprisingly, commercial banks display a greater asset size and loan growth than commercial banks. All variables are defined in the Appendix.

The second sample includes the universe of Italian cooperative banks by exploiting a confidential dataset managed by Federcasse including supervisory data. Overall, our dataset includes 2569 observations (30% greater than the coverage of cooperative banks in the 'ABI banking data'). As shown in panel B of Table 2, we have 2569 observations. On average, 'bad' accounts for 9.9% of the total loans provided by cooperative banks, UTP for 15.0% and PDue for 16.0%. The mean stakeholder engagement (Stakeh_eng_loans) is 50% when measured on loans (loans to members on total loans) and 6% when measured on deposits (deposits from members on total deposits). The descriptive statistics suggest that cooperative banks are a heterogeneous group. Focusing on the variable of main interest, the shareholder overlap with borrowers (Stakeh_eng_loans) ranges between 16% and 84%,

and that with depositors (Stakeh_eng_dep) ranges between 0.2% and 23%. A similar heterogeneity is shown for capital level (e.g. T1/Rwa) and the quality of the loan portfolio (bad, UTP, PDue).

Empirical strategy

To test our research hypotheses, we employ a three-step empirical strategy. First of all, we replicate previous papers examining the difference between commercial and cooperative banks in terms of bank stability. Specifically, we follow their approach by using the following (baseline) panel-data model to validate such differences (taken as a whole) and test our first research hypothesis (*H1*):

$$y_{i,t} = \beta_0 + \beta_1 Coop_{i,t-1} + \beta_2 Cap_{i,t-1} + \beta_3 X_{i,t-1} + \beta_4 GEO_{p,t-1} + \theta_t + \varepsilon_{i,t} \quad (1)$$

where i and t denote the bank and year, respectively. The dependent variable is a measure of bank loan portfolio quality. Specifically, similar to past studies dealing with Italian cooperative banks (e.g.

Affinito and Meucci, 2021; Bolognesi *et al.*, 2020; Cucinelli *et al.*, 2021), we use three measures: bad, UTP and past-due loans. Coop is a dummy variable that takes the value 1 for cooperative banks and 0 for commercial banks. Cap is a measure of bank equity capitalization. X is a vector of bank-level variables (bank total assets, productivity index, loan growth, inefficiency ratio and corporate loan ratio). GEO is a vector of socioeconomic variables capturing the local (the province where the bank headquarters is located) market conditions. We include year-fixed effects (θ_t) to capture time-invariant unobservable factors.

In the second step of our analysis, we continue to use a sample including both cooperative and commercial banks, but we replace the dummy variable with a new (unique) measure of the overlap between borrowers and shareholders. This enables us to test our second research hypothesis that cooperative banks with greater stakeholder involvement display a greater loan portfolio quality than commercial banks (*H2*). Specifically, we replace the Coop dummy variable in our baseline model in Equation (1) with our main variable capturing the stakeholder engagement (Stakeh_eng_loans). As for the baseline model, our sample includes both commercial and cooperative banks: thus, Stakeh_eng_loans takes the value 0 for all commercial banks but does not take the value 1 for all cooperative banks (as the variable Coop); rather, it ranges between 0 (no overlap between borrowers and shareholders, that is, the bank does not lend to shareholders) and 1 (a perfect overlap between borrowers and shareholders, that is, all loans are given to the banks' shareholders). In this model, we include both year-fixed (θ_t) and bank-fixed (θ_i) effects to capture unobservable factors that are time- and firm-invariant. This model enables us to test our second research hypotheses (banks with a greater stakeholder involvement display a greater loan portfolio quality than commercial banks).

In the third stage, we remove commercial banks from the sample and run the same panel-data model using data from the Italian Federation of Cooperative Credit Banks (Federcasse) for the universe of cooperative banks. Moreover, we add various controls for capturing socioeconomic characteristics of the local geographical area (as the micro-criminality index and the annual growth rate of the GDP per capita) in which a cooperative bank works, following previous studies documenting the relevance of local environmental con-

ditions (e.g. Battaglia *et al.*, 2010). In such a way, we were able to test our third research hypothesis (cooperative banks with a greater stakeholder involvement display a greater loan portfolio quality than cooperative banks with a lower stakeholder engagement) using a sample of fully comparable banks (only cooperative banks) and controlling for local economic conditions that may have an impact on their loan portfolio quality. By exploiting data in the Federcasse database, we run various robustness checks: first, we used an alternative measure of stakeholder engagement based on the overlap between depositors and shareholders (Stakeh_eng_dep) to check the sensitivity of our main results to the construction of the main variable of interest (Stakeh_eng_loans) and also have a measure of stakeholder engagement that is fully exogenous in comparison with the dependent variable (bad loans). Second, we change the variable used to control bank capitalization by removing the Tier 1 ratio with two alternative measures: Tier 1 on risk-weighted assets and Tier 1 growth rate.

Results

We first present the results of our baseline model in Equation (1), using a sample of both commercial and cooperative banks, to replicate past students. Our baseline model follows the empirical approach of past papers focusing on a dummy capturing differences of cooperative banks relative to commercial banks. We run various models saturated by time- and firm-fixed effects to capture invariant factors across time and banks. This model enables us to test our first research hypothesis (commercial and cooperative banks do not necessarily display different loan portfolio qualities). Our dependent variable captures the loan portfolio quality, and we use three alternative NPL measures based on the severity of the borrowers' insolvency (bad, UTP and past-due loans). As can be seen from Table 2, there is no statistical evidence to support our first research hypothesis. Our results are consistent with mixed evidence obtained from previous papers. Overall, there is no statistically significant evidence that cooperative banks (as a category) display a different credit quality from commercial banks. This is not surprising, since we argue that it is not the institutional setting that makes cooperative banks different from commercial banks but the greater stakeholder involvement.

Table 3. Linking stakeholder engagement and credit quality using a sample of both commercial and cooperative banks

	(1) y = Bad	(2) y = Bad	(3) y = UTP	(4) y = UTP	(5) y = PDue	(6) y = PDue
Stakeh_eng_loans	−0.0469***	−0.0480***	−0.0571***	−0.0530***	−0.0567***	−0.0528***
	(0.0078)	(0.0078)	(0.0130)	(0.0129)	(0.0136)	(0.0135)
$(T1/TA)_{t-1}$		−0.0850***		0.0642*		0.1005**
		(0.0233)		(0.0385)		(0.0405)
$Prod_{t-1}$		−0.0009***		0.0003		0.0006
		(0.0003)		(0.0005)		(0.0005)
$Loan\_gr_{t-1}$		−0.0018		−0.0050*		−0.0059**
		(0.0017)		(0.0028)		(0.0030)
$Ineff_{t-1}$		−0.3929***		−0.2010		−0.2420
		(0.1081)		(0.1783)		(0.1874)
$Size_{t-1}$		−0.0035		0.0080**		0.0077*
		(0.0024)		(0.0040)		(0.0042)
GDP_gr_t		0.0821***		0.2523***		0.2197***
		(0.0226)		(0.0372)		(0.0391)
$Crim_t$		0.0198		−0.0238		−0.0235
		(0.0148)		(0.0244)		(0.0257)
Observations	2723	2723	2723	2723	2723	2723
R-squared	0.8561	0.8601	0.8553	0.8599	0.8591	0.8629
Cluster SE	Bank	Bank	Bank	Bank	Bank	Bank
Time effects	Yes	Yes	Yes	Yes	Yes	Yes
Bank effects	Yes	Yes	Yes	Yes	Yes	Yes

Note: In this table, the results of the model in Equation (1) using the sample including both Italian cooperative and commercial banks are reported. The dependent variables are three measures of NPLs with an increasing severity of default. The variable of main interest is Stakeh_eng_loans (loans to shareholders on total loans) capturing stakeholders' engagement. We control for the bank capitalization and various macro-economic and micro-economic variables that may influence the bank loan portfolio quality. Standard errors are clustered at the bank level and reported in parentheses. *, ** and *** indicate significance at the 1%, 5% and 10% levels, respectively. All variables are described in the Appendix.

In the second step of our analysis, we replace the dummy variable capturing differences between cooperative and commercial banks (Coop) with a new (unique) measure of the overlap between borrowers and shareholders (Stakeh_eng_loans). In such a way, we are able to test our underlying idea that credit quality depends on the different degrees of stakeholder engagement measured by the overlap between shareholders, depositors and borrowers, as posited in our second research hypothesis. The coefficient estimates for Stakeh_eng_loans are always negative and statistically significant at the 1% confidence level (Table 3), suggesting that, whatever measure of NPL is adopted, bad loans decline as banks do business with their stakeholders. Our results strongly support our second research hypothesis that bank credit quality is higher for banks with greater stakeholder engagement.

In our third step, we would like to increase the homogeneity in the sample analysed. Thus, we run the same panel-data model on a sample including only cooperative banks and excluding commercial banks. To this end, we select the universe of cooperative banks in Italy using a confidential database managed by Federcasse, which includes supervisory data. Our results (Table 4) confirm that NPLs decline as stakeholder engagement increases: the coefficient estimates for Stakeh_eng_loans are always negative and statistically significant at the 1% confidence level, suggesting that, whatever measure of NPL is adopted, bad loans decline as banks do business with their stakeholders. Our results strongly support our third research hypothesis that bank credit quality is higher for cooperative banks with greater stakeholder engagement. Our results suggest that cooperative banks are a heterogeneous group, and it is inaccurate to compare commercial and cooperative banks taken as a whole.

Robustness checks

We run various robustness checks: first, we use an alternative measure of shareholder engagement based on the overlap between the depositors and

Table 4. Linking stakeholder engagement and credit quality focusing on cooperative banks

	(1) y = Bad	(2) y = Bad	(3) y = UTP	(4) y = UTP	(5) y = PDue	(6) y = PDue
Stakeh_eng_loans$_t$	−0.2371***	−0.2279***	−0.1776***	−0.1670***	−0.1797***	−0.1693***
	(0.0211)	(0.0208)	(0.0209)	(0.0208)	(0.0209)	(0.0209)
(T1/TA)$_{t-1}$		−0.5473***		−0.2982***		−0.2261***
		(0.0767)		(0.0767)		(0.0769)
Prod$_{t-1}$		−0.0512***		−0.0527***		−0.0528***
		(0.0101)		(0.0101)		(0.0101)
Loan_gr$_{t-1}$		0.0081		−0.0011		−0.0048
		(0.0081)		(0.0081)		(0.0081)
Ineff$_{t-1}$		1.0673**		1.2788***		1.2667***
		(0.4223)		(0.4225)		(0.4236)
Size$_{t-1}$		−0.0337***		−0.0001		0.0060
		(0.0083)		(0.0083)		(0.0084)
CorpLoans$_{t-1}$		−0.0186		−0.0270		−0.0209
		(0.0260)		(0.0260)		(0.0261)
GDP_gr$_t$		0.0849		−0.0031		−0.0028
		(0.0709)		(0.0709)		(0.0711)
Crim$_t$		−0.0525**		−0.0249		−0.0274
		(0.0236)		(0.0237)		(0.0237)
Observations	2569	2569	2569	2569	2569	2569
R-squared	0.8140	0.8225	0.8262	0.8306	0.8402	0.8438
Cluster SE	Bank	Bank	Bank	Bank	Bank	Bank
Time effects	Yes	Yes	Yes	Yes	Yes	Yes
Bank effects	Yes	Yes	Yes	Yes	Yes	Yes

Note: In this table, the results of the model in Equation (1) using the universe of Italian cooperative banks are reported. The dependent variables are three measures of NPLs with increasing severity of default. The variable of main interest is Stakeh_eng_loans (loans to shareholders on total loans) capturing stakeholders' engagement. We control for the bank capitalization and various macro-economic and micro-economic variables that may influence the bank loan portfolio quality. Standard errors are clustered at the bank level and reported in parentheses. *, ** and *** indicate significance at the 1%, 5% and 10% levels, respectively. All variables are described in the Appendix.

shareholders (Stakeh_eng_dep) to check the sensitivity of our main results to the construction of the main variable of interest (Stakeh_eng_loans). Stakeh_eng_dep is also a measure of shareholder engagement that is fully exogenous to the dependent variable (bad loans). The results in Table 5 are strongly consistent with our main results in Table 4, confirming that NPLs decline as banks do business with their stakeholders. Furthermore, we change the variable used to control bank capitalization by removing the Tier 1 ratio with two alternative measures: Tier 1 on risk-weighted assets and Tier 1 growth rate. The results in Table 6 are strongly consistent with our main results in Table 4.

Finally, we face possible endogeneity concerns by using an instrumental variable (IV) approach. Specifically, the presence of omitted variables, measurement errors and simultaneity may negatively affect the results of the estimates. The IV approach can solve the problem if the following

assumptions hold: (i) IVs are correlated with the endogenous regressors (relevance criterion), that is, $E[Z'X] \neq 0$; (ii) IVs are not correlated with the error (exogeneity, also called orthogonality condition), that is, $E[Z'U] = 0$; and (iii) IVs do not directly affect the dependent variable (exclusion criterion). If (ii) and (iii) hold, the instruments are valid. If (i) holds but the correlation between the instruments and the endogenous variable is low, the instrument is valid but weak.

We selected two instruments taken at the province level at which the cooperative bank operates: the value added in gross exports (Exp) and the domestic value added of the industry (Ind). The two variables satisfy the IV assumptions. Regarding the relevance criterion ($E[Z'X] \neq 0$), these two variables are correlated with the endogenous regressor (stakeholder engagement). From a theoretical standpoint, cooperative banks are local banks, and their geographical presence is strongly related to the local economic conditions.

Table 5. *The link between bank loan portfolio quality and an alternative measure of the intensity of mutualistic cooperation*

	(1) y = Bad	(2) y = Bad	(3) y = UTP	(4) y = UTP	(5) y = PDue	(6) y = PDue
Stakeh_eng_dep$_t$	−0.2984***	−0.3010***	−0.3166***	−0.3176***	−0.3123***	−0.3129***
	(0.0302)	(0.0299)	(0.0295)	(0.0294)	(0.0295)	(0.0296)
(T1/TA)$_{t-1}$		−0.5659***		−0.3098***		−0.2380***
		(0.0769)		(0.0758)		(0.0761)
Prod$_{t-1}$		−0.0474***		−0.0479***		−0.0481***
		(0.0101)		(0.0100)		(0.0100)
Loan_gr$_{t-1}$		0.0061		−0.0020		−0.0057
		(0.0081)		(0.0080)		(0.0080)
Ineff$_{t-1}$		1.5298***		1.6906***		1.6774***
		(0.4240)		(0.4177)		(0.4193)
Size$_{t-1}$		−0.0341***		−0.0019		0.0043
		(0.0084)		(0.0083)		(0.0083)
CorpLoans$_{t-1}$		−0.0361		−0.0378		−0.0321
		(0.0260)		(0.0256)		(0.0257)
GDP_gr$_t$		0.0683		−0.0283		−0.0272
		(0.0713)		(0.0702)		(0.0705)
Crim$_t$		−0.0544**		−0.0271		−0.0296
		(0.0237)		(0.0234)		(0.0235)
Observations	2569	2569	2569	2569	2569	2569
R-squared	0.8117	0.8211	0.8295	0.8345	0.8429	0.8470
Cluster SE	Bank	Bank	Bank	Bank	Bank	Bank
Time effects	Yes	Yes	Yes	Yes	Yes	Yes
Bank effects	Yes	Yes	Yes	Yes	Yes	Yes

Note: In this table, the results of the model in Equation (1) using the universe of Italian cooperative banks are reported. The dependent variable is three measures of NPLs with an increasing severity of default. Different from Table 5, we use an alternative measure of the stakeholders' engagement, that is, Stakeh_eng_dep (deposits from shareholders on total deposits): this is the variable of main interest. We control for the bank capitalization and various macro-economic and micro-economic variables that may influence the bank loan portfolio quality. Standard errors are clustered at the bank level and reported in parentheses. *, ** and *** indicate significance at the 1%, 5% and 10% levels, respectively. All variables are described in the appendix.

In areas with a larger presence of industrial firms (Ind), we expect a greater stakeholder involvement in local banks: entrepreneurs in these areas have the incentive to establish a link with local banks becoming shareholders and also asking for loans. This argument is fully confirmed by the results of the first-stage analysis reported in Table 7, where the Ind coefficient estimate is positive and statistically significant at the 1% level. Similarly, entrepreneurs in areas with a greater value of exports (Exp) can easily access foreign markets and do not have the incentive to establish a link with local banks. This argument is fully confirmed by the results of the first-stage analysis reported in Table 7, where the Exp coefficient estimate is negative and statistically significant at the 1% level. Moreover, the exclusion criterion is met: these two variables do not affect the dependent variable directly. There is no evidence in the Italian banking industry suggesting that the quality of the loan portfolio is linked to the borrowers'

industry. Credit quality is generally linked to borrowers' features (size, profitability, leverage, etc.) or type/conditions of financial products (collateral, credit lines, optionality, etc.). Furthermore, under-identification (Anderson–Canon), weak identification (Stock–Yogo) and over-identification (Hansen–Sargan) tests suggest the validity of the instrument selected. The correlation of our instruments with our endogenous variable is highly statistically significant for all variables, and it is positive for Ind and negative for Exp. This is consistent with the expectation that members engage more in the local cooperative banks in industrialized geographical areas but less in internationalized geographical areas. However, there is no evidence that the loan portfolio quality of a bank is directly influenced by the fact that the local area is industrialized or internationalized.

Since we have two instrumental variables and only one endogenous variable, we can

Table 6. The link between bank loan portfolio quality and bank intensity of mutualistic cooperation: altering bank capitalization measures

	(1) y = Bad	(2) y = Bad	(3) y = Bad	(4) y = Bad
Stakeh_eng_loans$_t$	−0.2340***	−0.2289***	−0.2354***	−0.2337***
	(0.0209)	(0.0207)	(0.0209)	(0.0209)
(T1/Rwa)$_{t-1}$	−0.2531***	−0.3418***		
	(0.0376)	(0.0387)		
T1_gr$_{t-1}$			−0.0627***	−0.0728***
			(0.0099)	(0.0111)
Prod$_{t-1}$		−0.3668		0.0020
		(0.3920)		(0.3934)
Loan_gr$_{t-1}$		−0.0317***		−0.0132*
		(0.0081)		(0.0080)
Ineff$_{t-1}$		−0.0126		−0.0078
		(0.0258)		(0.0261)
Size$_{t-1}$		0.1041		0.0917
		(0.0704)		(0.0710)
CorpLoans$_{t-1}$		−0.0482**		−0.0598**
		(0.0235)		(0.0237)
GDP_gr$_t$		−0.0180		−0.0225
		(0.0668)		(0.0669)
Crim$_t$		−0.0207		−0.0302
		(0.0227)		(0.0227)
Observations	2569	2569	2569	2569
R-squared	0.8178	0.8246	0.8174	0.8218
Cluster SE	Bank	Bank	Bank	Bank
Time effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes

Note: In this table, the results of the model in Equation (1) using the universe of Italian cooperative banks are presented. The dependent variables are three measures of NPLs with an increasing severity of default. The variable of main interest is Stakeh_eng_loans (loans to shareholders on total loans) capturing stakeholders' engagement. Different from Table 5, we use two alternative measures of bank capitalization, that is, the Tier 1 capital ratio (T1/Rwa) and the Tier 1 capital growth (T1_gr). As in other tables, we control for various macro-economic and micro-economic variables that may influence the bank loan portfolio quality. Standard errors are clustered at the bank level and reported in parentheses. *, ** and *** indicate significance at the 1%, 5% and 10% levels, respectively. All variables are described in the appendix.

implement the Sargan–Hansen test for over-identifying restrictions: under the joint null hypothesis of this test that the instruments are valid (i.e. uncorrelated with the error term) and that the excluded instruments are correctly excluded from the estimated equation, the test statistic is distributed as chi-squared in the number of over-identifying restrictions. Moreover, we implement two other identification statistics. The first statistic is the under-identifying restriction test, under the null hypothesis that the equation is under-identified, that is, the instruments are not relevant, meaning uncorrelated with the endogenous regressors. The second statistic is the weak identification test to determine whether, under the null hypothesis, the excluded instruments are correlated with the endogenous regressors but only weakly.

As shown in Table 7, our main result is fully confirmed: the coefficient estimates for the variable shareh_eng_loans are negative and statistically significant at the 1% level, suggesting that NPLs decline as the bank lends more to their shareholders. These results fully support our third research hypothesis that greater stakeholder engagement is associated with greater loan portfolio quality. The results of the first-stage regression indicate that stakeholder engagement is positively linked to Ind and negatively linked to Exp: this shows that members engage more with the local cooperative bank in industrialized geographical areas and their engagement is lower in internationalized geographical areas. Finally, we can reject the under-identifying restriction test: we reject the null hypothesis that the IV is uncorrelated with the endogenous regressor at the 1% level. We also re-

Table 7. The link between the intensity of mutualistic cooperation on various measures of bank loan portfolio quality using an IV model

	(1) y = Bad	(2) y = UTP	(3) y = PDue
Stakeh_eng_loans$_t$	−0.6133***	−0.4015*	−0.6089***
	(0.2157)	(0.2099)	(0.2239)
(T1/TA)$_{t-1}$	−0.5631***	−0.2892***	−0.1860*
	(0.0963)	(0.0937)	(0.1000)
Prod$_{t-1}$	−0.0472***	−0.0493***	−0.0473***
	(0.0115)	(0.0112)	(0.0119)
Loan_gr$_{t-1}$	0.0005	−0.0110	−0.0113
	(0.0100)	(0.0097)	(0.0103)
Ineff$_{t-1}$	1.0307*	1.2301**	1.0034*
	(0.5263)	(0.5124)	(0.5465)
Size$_{t-1}$	−0.0417***	−0.0061	−0.0020
	(0.0100)	(0.0097)	(0.0103)
CorpLoans$_{t-1}$	0.0151	−0.0221	0.0022
	(0.0378)	(0.0368)	(0.0392)
GDP_gr$_t$	0.0665	−0.0155	−0.0494
	(0.0850)	(0.0828)	(0.0883)
Crim$_t$	−0.0764***	−0.0476*	−0.0523*
	(0.0267)	(0.0260)	(0.0277)
First-stage estimates			
Ind$_t$		0.4846***	
		(0.01014)	
Exp$_t$		−0.0787***	
		(0.0246)	
Observations	2330	2330	2330
R-squared	0.8060	0.8292	0.8228
Cluster SE	Bank	Bank	Bank
Bank effects	Yes	Yes	Yes
Time effects	Yes	Yes	Yes
Under-identification test: Anderson–Canon		29.726***	
Weak identification test: Stock–Yogo		12.503***	
Over-identification test: Hansen–Sargan		0.151	

Note: In this table, we use a two-stage instrumental variable (IV) model to control for endogeneity concerns of the stakeholders' engagement variable (Stakeh_eng_loans): in the first step, following Angrist (2001), we estimate a linear regression of the endogenous regressor on the instruments by least squares, where the endogenous variable (Stakeh_eng_loans) is used as the dependent variable and instrumental variables are the independent variables (jointly with the micro- and macro-economic variables used in all models). In the second step, we regress the outcome on the predicted value of the endogenous regressor using the least-squares approach. The variable of main interest is Stakeh_eng_loans. We control for the bank capitalization and various macro-economic and micro-economic variables that may influence the bank loan portfolio quality. Standard errors are clustered at the bank level and reported in parentheses. *, ** and *** indicate significance at the 1%, 5% and 10% levels, respectively. All variables are described in the appendix.

ject the null hypothesis of weak instruments at the 1% level, excluding instruments weakly correlated with the endogenous regressor. In all our estimations, we cannot reject the hypothesis of overidentifying restrictions. Thus, our evidence strongly suggests that our instruments are valid.

As a further robustness test, we select an alternative specification of three instrumental variables. The first is the growth rate of the number of agricultural firms (Agr). The reason is that in areas with a high growth of agricultural firms, entrepreneurs have the incentive to establish a link with local banks becoming shareholders and also asking for loans. This argument is fully confirmed by the results of the first-stage analysis reported in Table 8, where the Agr coefficient estimate is positive and statistically significant at the 1% level. The second is the intensity of churches (Chu) in the province (i.e. the number of churches for 1000 inhabitants). The reason is that catholic

Table 8. The link between the intensity of mutualistic cooperation on various measures of bank loan portfolio quality using an IV model: an alternative specification

	(1) y = Bad	(2) y = UTP	(3) y = PDue
$\text{Stakeh\_eng\_loans}_t$	−0.9271***	−0.3818***	−0.3848***
	(0.1736)	(0.1480)	(0.1487)
$(T1/TA)_{t-1}$	−0.5031***	−0.2930***	−0.2289**
	(0.1043)	(0.0890)	(0.0894)
Prod_{t-1}	−0.0455***	−0.0494***	−0.0485***
	(0.0130)	(0.0111)	(0.0111)
Loan_gr_{t-1}	0.0043	−0.0113	−0.0139
	(0.0111)	(0.0095)	(0.0095)
Ineff_{t-1}	0.7094	1.2503**	1.2329**
	(0.5715)	(0.4873)	(0.4897)
Size_{t-1}	−0.0438***	−0.0060	−0.0006
	(0.0113)	(0.0096)	(0.0096)
CorpLoans_{t-1}	0.0486	−0.0242	−0.0218
	(0.0387)	(0.0330)	(0.0332)
GDP_gr_t	0.0124	−0.0121	−0.0108
	(0.0920)	(0.0784)	(0.0788)
Crim_t	−0.0816***	−0.0473*	−0.0486*
	(0.0302)	(0.0258)	(0.0259)
First-stage estimates			
$\quad \text{Chu}_t$		−1.2116***	
		(0.2104)	
$\quad \text{Agr}_t$		0.7578***	
		(0.2497)	
$\quad \text{Web}_t$		−0.0468*	
		(0.0268)	
Observations	2330	2330	2330
R-squared	0.7493	0.8306	0.8440
Cluster SE	Bank	Bank	Bank
Bank effects	Yes	Yes	Yes
Time effects	Yes	Yes	Yes
Under-identification test: Anderson–Canon		59.328***	
Weak identification test: Stock–Yogo		16.844***	
Over-identification test: Hansen–Sargan		0.067	

Note: In this table, we use a two-stage instrumental variable (IV) model to control for endogeneity concerns of the stakeholders' engagement variable (Stakeh_eng_loans): in the first step, following Angrist (2001), we estimate a linear regression of the endogenous regressor on the instruments by least squares, where the endogenous variable (Stakeh_eng_loans) is used as the dependent variable and instrumental variables are the independent variables (jointly with the micro- and macro-economic variables used in all models). In the second step, we regress the outcome on the predicted value of the endogenous regressor using the least-squares approach. The variable of main interest is Stakeh_eng_loans. We control for the bank capitalization and various macro-economic and micro-economic variables that may influence the bank loan portfolio quality. Standard errors are clustered at the bank level and reported in parentheses. *, ** and *** indicate significance at the 1%, 5% and 10% levels, respectively. All variables are described in the appendix.

churches have traditionally supported local communities through charity and community support to face poverty: this traditionally reduced the need for bank lending and influenced the culture of people living in the area. This variable supports both the relevance criterion (in Italian areas with higher intensity of churches, especially in local areas, there is traditionally a lower need to look for funding outside the church communities and, thus, this reduces the involvement in banking) and the exclusion criterion (there is no evidence that greater intensity of churches is associated with better credit quality). The third is the quota of firms in the province using web services (Web). This variable supports both the relevance criterion (in provinces where firms use more web services, we

expect that entrepreneurs have the ability to use web services to access financing sources outside the local area; conversely, as web service use declines, entrepreneurs' involvement in local banks increases) and the exclusion criterion (there is no evidence showing that in an area with a greater use of web services, borrowers are also more solvent than in other areas).

As shown in Table 8, our main result is fully confirmed: greater stakeholder engagement is associated with greater loan portfolio quality (i.e. shareh_eng_loans estimates are negative and statistically significant at the 1% level).

Conclusions

Is greater stakeholder engagement associated with greater stability? Yes, it is. Our paper provides readers with empirical evidence that a greater stakeholder engagement is beneficial for companies. Cooperative banks are an excellent case to study, especially in comparison with commercial banks. While commercial banks are private firms essentially aiming to create value for shareholders (Fiordelisi and Molyneux, 2007) with no overlap between shareholders and stakeholders, cooperative banks aim to meet the needs of their members (most of which are depositors, borrowers and shareholders at the same time) and stakeholders are involved in the banks since shareholders are likely to also be borrowers and depositors.

Unlike past papers that have compared commercial and cooperative banks taken as a whole (considering that all cooperative banks are a homogenous group), this paper provides evidence that cooperative banks differ substantially from each other, and the differences are mostly related to the engagement of stakeholders within the bank. Specifically, we show that a greater overlap between shareholders, borrowers and depositors is associated with lower NPLs, suggesting that a greater stakeholder engagement reduces asymmetric information problems between borrowers and reduces bank risk appetite.

Overall, our results reconcile the mixed evidence from previous papers: cooperative banks are generally no better or worse than commercial banks; it is the different stakeholder engagement that drives their stability. Importantly, our paper provides readers with important management and policy implications that greater stakeholder involvement in a company alleviates principal–agent and moral hazard problems, resulting in greater firm stability. Furthermore, our paper could be the starting point for future papers in other industries where cooperative firms play an important role, such as agriculture, insurance, retail, charity, transportation, housing and healthcare industries.

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