Family firms and access to credit. Is family ownership beneficial?

Abstract

This paper investigates the impact of family ownership on credit rationing using a rich sample of Italian manufacturing firms. Estimation results indicate that family ownership increases the probability of firms experiencing credit restrictions. The adverse impact of family ownership on credit rationing is particularly relevant for companies with highly concentrated ownership structures, whereas it is mitigated by family owners' relational capital. Finally, we find that family businesses are more likely to be rationed in provinces with high level of social capital and judicial efficiency, suggesting that delegation problems are mitigated by personal relationships in areas where cooperation mechanisms are weaker.

Keywords: Family firms, credit rationing, agency conflicts, relationship lending

JEL codes: D22, G21, G32

1 Introduction

Families have always been at the heart of business (The Economist, 2015). History is full of examples of spectacular ascents of family firms, and even today a large fraction of companies throughout the world are organized around families (Bertrand and Schoar, 2006). Family ownership is widespread among both privately held and publicly traded firms. In Continental Europe, they account for 85 percent of listed companies, but also in the United States and the United Kingdom some of the largest publicly traded firms are controlled by families (La Porta et al., 1999; Faccio and Lang, 2002; Burkart et al., 2003). Because of their diffusion and economic relevance, recently a growing body of literature has focused on family businesses, looking at their performance (Anderson and Reeb, 2003; Villalonga and Amit, 2006; Sraer and Thesmar, 2007), inheritance decisions (Ellul et al., 2010), and investment policies (Minetti et al., 2015a, Minetti et al., 2015b).

Given the significant impact that family firms' financing could have on the real economy, some empirical works have also analyzed the credit availability of family owned businesses. However, the literature on this topic is still scarce and does not reach clear conclusions. On the one hand, some empirical studies show that family firms, as perceived to be riskier, are significantly associated with higher collateral requirements and deeper screening methods when they relate with the banking system (Voordeckers and Steijvers, 2006; Steijvers et al., 2010; Pan and Tian, 2016; Cucculelli and Peruzzi, 2017). On the other hand, due to the lower incentives for strategic default, family ownership is found to improve firms′ credit availability and loan interest rates during the recent financial crisis (D′Aurizio et al., 2015; Stacchini and Degasperi, 2015). The described evidence reflects two opposite views on family firms (Burkart et al., 2003; Bertrand and Schoar, 2006; Minetti et al., 2015b). The efficiency-based view, which considers family ownership as a source of comparative advantage because of family owners′ long termism, risk aversion and relational capital, and the cultural view, according to which family firms′ lack of competencies, conservatism and agency conflicts may significantly reduce firm value.

In order to contribute to this strand of literature, in this paper we analyze whether family firms differ from non-family ones in the probability of experiencing credit restrictions and investigate which channels affect the ownership-credit rationing link in a non-crisis period. To address this question, we exploit a very detailed survey of over 18,000 Italian manufacturing firms conducted by the banking group UniCredit-Capitalia (Survey on Italian Manufacturing Firms,

SIMF). The dataset provides unique information on firms' ownership and governance structure, financial conditions and bank-firm relationships based directly on firms' responses to survey questions. The same survey has recently been used as a testing ground for other objectives, such as exploring the impact of financial development on firms' innovation (Benfratello et al., 2008), studying the role of credit rationing on firm export decisions (Minetti and Zhu, 2011), and investigating the impact of firm ownership structure on innovation activities (Minetti et al., 2015a).

By way of preview, estimation results indicate that family firms are associated with a higher probability of experiencing credit restrictions when compared to non-family owned businesses. Controlling for a complete set of qualitative and quantitative observable firm characteristics, which could be correlated with the family business status and able to affect credit availability, we find that family firms are almost 2 percent more likely to be rationed than non-family owned companies. This result is robust to different definitions of family ownership, including family control and family ownership greater than 20 percent of equity shares, and different estimation techniques that try to account for endogeneity problems. The analysis then turns to investigate the channels affecting the family ownership-credit rationing link. Following the theoretical literature, we study the role of agency conflicts, relational capital and local socio-economic conditions in explaining the impact of family ownership on the probability of firms experiencing credit restrictions. The results indicate that family ownership increases the probability of firms being credit rationed for the subsample of companies with highly concentrated ownership. The adverse impact of family ownership on credit availability is instead mitigated in companies characterized by closer, more exclusive and longer-lasting lending relationships. Finally, by studying the role of socio-economic conditions in shaping the family ownership-credit rationing link, we find that family firms are more likely to be rationed in provinces with high level of social capital and judicial efficiency, suggesting that delegation problems are mitigated by personal relationships in areas where cooperation mechanisms are weaker due to lack of trust.

In providing this evidence, we contribute to the current literature in several ways. First, to the best of our knowledge, this is the first study analyzing family firms' credit rationing in a period of positive economic growth. Previous works have shown that through the adoption of soft-information-based lending techniques, banks reduced less credit availability to family firms during the recent crisis (D'Aurizio et al., 2015; Cucculelli et al., 2018). In a financial downturn, the lower expected return on investments can aggravate the incentive of firms to strategically default,

reducing loan repayment probabilities. In this context, family firms may be perceived as more creditworthy because of their lower incentive to default in the future and lenders may keep financing their projects. In times of positive growth, however, this beneficial effect of family businesses may be compensated and also reversed by the costs associated with their ownership structure. Due to their lower willingness to change, their higher risk aversion and their potential lack of competencies, family firms may be less likely to exploit the growth opportunities provided by a positive economic and financial framework (Habbershon et al., 2003; Perez-Gonzalez, 2006; Bennedsen et al., 2007) in comparison to non-family owned companies. Hence, analyzing the family ownership-credit rationing link in a non-crisis period may help highlighting the role of different family firms' characteristics. Second, in this paper we try to investigate the channels through which family ownership affects the probability of firms experiencing credit restrictions. As expected, we confirm the adverse impact of family ownership concentration on credit availability and the beneficial effect of family firms' relational capital on access to finance (Pindado et al., 2011; Peruzzi, 2017; Cucculelli et al., 2018). Finally, by analyzing the role of local socio-economic conditions in shaping the family ownership-credit rationing link, we complement the findings provided by Stacchini and Degasperi (2015) with respect to the impact of family ownership on the cost of credit.

The remainder of the paper is organized as follows. Section 2 describes the institutional background. Section 3 reviews the current literature and develops the testable hypotheses. Section 4 describes the dataset and econometric specification adopted. Section 5 discusses the empirical results, and Section 6 concludes.

2 Institutional background

Italy provides an ideal environment to study the credit availability of family firms. First, family ownership plays a key role in this country. According to the last available Census data, in 2011 Italian companies were controlled by an individual or a family in 89 percent of cases, by a financial holding in 10.9 percent of cases, and by a public entity in less than 1 percent of cases. Similar figures characterized the Italian system also in 2001, roughly the middle year of our sample (see Minetti et al., 2015b). Italian firms also exhibit pronounced ownership concentration (Bianco, 2003; Bianchi and Bianco, 2008). This feature is likely to be relevant in the determination of agency

conflicts between main owners and minority shareholders, which could be detrimental to firm's creditworthiness and reliability (Claessens et al., 2002).

Second, as the Italian business sector consists mainly of small and medium-sized businesses, investments are primarily financed through bank loans.[1] The central role of banks also depends on the long-lasting tradition of cooperative local financial institutions (Gambini and Zazzaro, 2013). According to World Bank data, in 2011 the stock market capitalization (as percentage of the gross domestic product) was almost 18 percent in Italy, compared to 100 percent in the United States (World Bank, 2012; Minetti et al., 2018). In this context, banking relations are at the heart of the financial life of many Italian companies, and analyzing the extent of credit rationing for family owned firms results to be of the outmost importance.

The prominent role of banks and the widespread diffusion of small and medium-sized family businesses makes the Italian financial and industrial structure close to that of other continental Europe countries, such as France and Germany (Minetti and Zhu, 2011). Hence, the conclusions reached in this paper may be easily extended to these contexts as well.

3 Related literature and theoretical predictions

Although bank lending is the main source of external financing for the majority of family firms, the literature on the impact of family ownership on firms′ access to credit is scarce and does not reach univocal results. Finance studies have investigated the existence of family firms′ financing constraints through the analysis of their investment-cash flow dependence. However, while Andres (2011) and Pindado et al. (2011) indicate that publicly traded European family businesses have easier access to external financing as showed by the lower investment-cash flow sensitivity, Gugler (2003), Hung and Kuo (2011) and Peruzzi (2017) find completely opposite results. By analysing a sample of Austrian firms, Gugler (2003) shows that family firms suffer from cash constraints as evidenced by a positive and robust relationship of investment to cash flow. Similarly, Hung and Kuo (2011) find that publicly traded Taiwanese family businesses, because of asymmetric information problems, have high investment-cash flow sensitivity than non-family owned firms. Finally, Peruzzi (2017), for a sample of Italian small- and medium-sized enterprises, indicates that family ownership positively affects firms′ investment-cash flow dependence, especially when family ownership is highly concentrated.

[1] In 2011, companies with less than 20 employees represented more than 90 percent of manufacturing firms.

The banking literature has not been more conclusive. Bopaiah (1998) analyses the availability and cost of trade credit for a sample of US enterprises included in the National Survey of Small Business Finance (NSSBF) and finds that family firms have better access to credit when compared to non-family owned businesses. Similarly, and more recently, D'Aurizio et al. (2015) document that after the Lehman Brother collapse, bank lending to Italian family businesses contracted significantly less than the amount of credit granted to non-family firms. Stacchini and Degasperi (2015) further confirm the beneficial role of family ownership during the financial crisis period. By analysing a sample of Italian companies included in the EU-EFIGE survey, they find that in 2007-2009 family firms have been associated with a significant interest discount. By using the same survey for a sample of European firms, Cucculelli et al. (2018) show that family firms appointing family CEOs enjoy longer-lasting and closer lending relationships in comparison to non-family businesses. However, despite these relevant ties, they are not associated with a better access to bank credit. Contradictory findings have been shown by Voordeckers and Steijvers (2006), Steijvers et al. (2010), Pan and Tian (2016) and Cucculelli and Peruzzi (2017). By analysing family firms' lending relationships, these studies suggest that family ownership positively affects the probability of pledging higher levels of collateral guarantees and being subject to deep screening processes in the bank lending market.

The controversial evidence about the impact of family ownership on credit availability reflects two opposite theories on family firms (Burkart et al., 2003; Bertrand and Schoar, 2006; Minetti et al., 2015b): the efficiency-based theory, which views family ownership as a source of comparative advantage because of family owners' long-termism, risk aversion and relational capital; and the cultural theory, according to which family firms' agency conflicts, lack of competencies and conservatism may significantly reduce firm value. Starting with the negative side of family firms, one of the major problems of family ownership are agency conflicts. Although family businesses often solve the classic owner-manager agency problem, family owned firms are more likely to experience conflicts between controlling and minority shareholders (Villalonga and Amit, 2006; Pindado et al., 2011). These problems arise mainly from the risk of wealth expropriation of minority shareholders by the owner family, who may maximize the family's utility rather than firm value with adverse consequences on external investors' interests and the firm's access to credit. According to the literature, family owners may also lack the competencies necessary to efficiently run a business, thus increasing the probability of firms experiencing credit

restrictions (Perez-Gonzalez, 2006; Bennedsen et al., 2007). Moreover, worries about firm survival and intentions to preserve the status quo may lead family owners to promote conservative strategies (Habbershon et al., 2003; Miller et al., 2008). The tendency to conservatively preserve their position, which significantly reduce family firms' growth opportunities, may be negatively evaluated by lenders, thus making family businesses more likely to face financing constraints.

In contrast with this negative view of family ownership, several studies highlighted a set of advantages of family-owned firms. First, according to the theoretical literature, family businesses are characterized by a long-term horizon. The links between current and future generations provide family firms with "patient capital", a focus on maximizing long-run returns, and the desire to pursue investment opportunities that myopic non-family firms would not (Bertrand and Schoar, 2006). The presence of shareholders with longer investment horizons is found to increase investment efficiency and reduce agency conflicts in the shareholder-bondholder relationship, thus mitigating external financing constraints (Stein, 1988; 1989; Pindado et al., 2011). The desire to transfer the firm down to future generations may also promote family firms' risk aversion. In order to protect the reputation acquired by the family and ensure firm survival, family owners may be highly risk averse and less likely to strategically default, with beneficial effect on loan repayment probabilities and credit availability (Anderson et al., 2003; Anderson et al., 2012; D'Aurizio et al., 2015). Finally, as shown by the current literature (Salvato and Melin, 2008; Amore and Bennedsen, 2013; Bunkanwanicha et al., 2013), family firms invest large amounts of resources in nurturing interpersonal relations and building webs of business contacts with competitors, customers, and politicians, which improve the firm's economic performance. Among the web of relationships family firms may invest in, there is the one with their lenders, which should provide better access to credit and lower rationing probabilities for family owned businesses (Cucculelli et al., 2018).

Consistently with these contrasting theories, we test the following hypothesis:

> ***Hypothesis 1***: When the costs of family ownership prevail over their benefits, family firms are more likely to experience credit rationing than non-family owned firms.

As suggested by the economic literature, where cooperation mechanisms are weaker due to the lack of social capital, delegation problems and other agency conflicts are mitigated by personal

relationships, such as those built by family members (Putnam, 1993). Stacchini and Degasperi (2015) verify the implications of this theory and find that family ownership reduces the agency cost of debt in local markets characterized by low levels of social capital and trust. Where the tendency to cooperate is weaker and individuals are more inclined to behave opportunistically, borrowers are more likely to invest in risky projects without bearing the costs of downside failure. In this context, the advantages of family ownership should outweigh their disadvantages, thus improving family firms' access to credit. Consistently with this view, we formulate our second hypothesis as follows:

> ***Hypothesis 2:*** In regions with low levels of social capital, family firms are less likely to experience credit rationing than non-family owned firms.

4 Data and empirical method

4.1 Data sources

To test our hypotheses, we draw information from two main sources: (i) the Survey on Italian Manufacturing Firms, carried out by the banking group UniCredit (and previously by MedioCredito Centrale – Capitalia); and (ii) the BvD-AIDA database.

The Survey on Italian Manufacturing Firms (SIMF) provides detailed information about companies' ownership and governance structure, export and internationalization activities, investments in innovation and R&D expenditure, workforce characteristics and bank-firm relationships. The dataset includes a representative sample of manufacturing companies with 10-500 employees (about 94 percent of the sample) and the universe of manufacturing firms with more than 500 employees.[2] We use four waves of the survey covering the three-year periods 1995-1997, 1998-2000, 2001-2003 and 2004-2006. Each of the waves gathers information on approximately 4500 firms, representing about 9 percent of the population in terms of employees and 10 percent in terms of value added. For all the surveyed firms, we attach balance-sheet information provided by BvD-AIDA, the most comprehensive source of financial information for Italian companies.

To complement the survey, we use data about the value added and population of Italian provinces provided by the Italian National Statistics Office (ISTAT), the number of bank branches

[2] Firms with 10-500 employees are selected with a stratified sampling method each time with a rotating panel scheme; therefore, only few of them appear in two consecutive waves.

in local markets recovered from the Bank of Italy, and the index of external financial dependence developed by Rajan and Zingales (1998).

Table 1 provides a detailed description of all the variables employed in the empirical analysis, while Table 2 reports summary statistics (for all firms, by ownership structure and credit rationing status). At the average, the surveyed firms have been in business for 26 years and beyond 50 percent of them have fewer than 40 employees (below 5 percent of the firms have more than 500 workers). Moving on to their financial setup, on average firms do business with five banks and the average length of the relationship with the main bank is 16 years. The firms are largely located in the north of Italy (68 percent of the total), while 18 percent of the companies are in the center and 14 percent are in the south.

4.2 Variable definitions

4.2.1 Credit rationing

The Survey on Italian Manufacturing Firms has largely been used to study firms' credit constraints (Angelini and Generale, 2008; Minetti and Zhu, 2011; Bartoli et al., 2013). By providing detailed information on whether companies desired, asked and obtained additional financing, the survey allows to directly measure the credit rationing status of Italian firms. Hence, to create our main dependent variables, we rely on the following questions of the SIMF: (i) "*In the last year, would the firm have liked to obtain more credit at the market interest rate?*"; (ii) "*In the last year, did the firm demand more credit than it actually obtained?*". Following Angelini and Generale (2008) and Minetti and Zhu (2011), we define weak rationed firms as those that gave a positive response to question (i), regardless of their answer to question (ii), and strong rationed companies as those that responded "yes" to both questions.[3] Firms classified as weakly rationed but not strongly rationed can be both firms discouraged from applying for credit and firms that are requested an interest rate higher than the market rate. Both measures, although reflecting a different intensity of rationing, should capture the existence of credit constraints.

Summary statistics reported in Table 2 indicate that, in the whole sample, only 3.69 percent of firms are strongly rationed, whereas 13.23 percent of companies result to be weakly rationed. Figure 1 draws the distribution of credit rationed firms across provinces. The figure indicates that

[3] Similar definitions of financially constrained firms have been also adopted by Angelini et al. (1998), Guiso (1998) and Minetti et al. (2018). Jappelli (1990) and Duca and Rosenthal (1993) derive analogous measures from the Survey of Consumer Finances, in the context of studies of credit constraints among US consumers.

rationed firms are not clustered in few provinces. Although companies in Southern provinces are more likely to be rationed overall, we still find that some Northern provinces have a relatively high share of rationed firms. On the other hand, some Southern provinces have a relatively low share of rationed businesses.

Our data are consistent with those obtained by other studies analyzing the credit rationing phenomenon. Using the EFIGE Survey, Ferri et al. (2017) find that in 2007-2009 about 4.4 percent of Italian firms suffered from strong rationing, and this figure rises to 12.6 percent when discouraged borrowers are included. Outside the Italian context, Levenson and Willard (2000), using the 1987-1988 wave of the National Survey of Small Business Finances (NSSBF), find that 4.3 percent of firms were turned down when they applied for credit and 8.52 percent of companies were weakly rationed.

4.2.2 Family ownership

To distinguish between family and non-family owned companies, in this study we rely on firms' self-reported information. The Survey on Italian Manufacturing Firms asks each firm to indicate the characteristics of the main shareholders of the firm, such as their types and equity shares. Hence, our main measure of family ownership (Family firm) is a binary variable that is equal to one if the main shareholder is an individual or a family, and zero otherwise. As robustness checks, we employ two additional definitions of family firms: (i) Family Control, a dummy variable equal to one if the main shareholder is a family or an individual and he has direct control over the firm, and zero otherwise; (ii) Family Firm 20%, a dummy variable equal to one if the main shareholder is a family or an individual and he owns more than 20 percent of the company, and zero otherwise.

The data confirm the relevance of family firms in the Italian manufacturing sector: in our sample, almost 80 percent of firms are family owned.

4.2.3 Control variables

To correctly identify the impact of family ownership on firms' access to credit and to mitigate the omitted variables concern associated with the cross-sectional structure of our dataset, we control for a large set of possible confounding effects. First, we consider the following standard firm-specific characteristics and balance-sheet indicators: (i) the number of employees as proxy for firm's size (Size, expressed in logarithm); (ii) firm's age, measured by the number of years from

its inception (Age); (iii) the level of indebtedness, proxied by the leverage indicator (Leverage, computed as total debt over equity); (iv) firm's liquid assets, measured by the ratio between cash holdings and total assets (Liquidity Ratio); (v) firm's internally generated cashflow (Cashflow, scaled by total assets); (vi) the firm's interest coverage ratio, computed as the ratio between firm's earnings before interests and taxes (EBIT) and its interest expenses (Interest Coverage Ratio)[4]; (vii) the return on investments (ROI); (viii) the firm's capital intensity (Capital intensity, computed as the ratio between firm's fixed assets and number of employees); (ix) the exporter status of the company, measured by a dummy variable equal to one if the firm sells part of its production abroad, and zero otherwise (Exporter); (x) the ownership share of the first shareholder (Ownership concentration). Second, we control for a number of bank-firm relationship characteristics, by including the number of bank relationships enjoyed by the firm (Number of banks), and the length of the main bank-firm relationship (Relationship Length). Third, we include a set of provincial indicators: the growth rate of value added (Value added), and the Herfindahl index of the bank branches (HHI). Then, to account for the different degree of dependence of industrial sectors on external source of finance, we add the index of external financial dependence developed by Rajan and Zingales (1998). Finally, in order to fully account for industry- and regional-specific effects, we include geographical and industry dummies[5].

4.3 Econometric specification

To test our hypotheses, we start building an empirical model that estimates the probability of firms being rationed in the bank lending market. Define y_i^d as firm *i*'s desired amount of credit and y_i^a as the actual credit given to firm *i*, the firm is rationed any time $y_i^* = \left(y_i^d - y_i^a\right) > 0$.

Thus, we can model the probability of rationing as:

$$y_i = \begin{cases} 1 & if \quad y_i^* > 0 \\ 0 & otherwise \end{cases} \qquad (1)$$

[4] This indicator measures the margin of safety a company has for paying its interest expenses. Hence, it should significantly affect banks' willingness to lend to the firm.

[5] Regional dummies are at the NUTS-2 level of aggregation. Industry dummies are at the NACE 2-digit level of aggregation. In order to control for cyclical conditions at the industry and geographical levels, both region and industry dummies are interacted with survey dummies (one for each wave of the Survey on Italian Manufacturing Firms).

$$y_i^* = \alpha X_i + \beta Z_i + u_i \qquad (2)$$

where y_i denotes, alternatively, one of the credit rationing indicators described in section 4.2.1, i.e. Weak Rationing and Strong Rationing; X_i is the measure of firm i's ownership structure presented in section 4.2.2; Z_i is a vector of exogenous covariates; u_i is the residual.[6]

5 Results

5.1 *Baseline results*

Table 3 shows Probit regressions of the likelihood of weak (columns 1-3) and strong rationing (columns 4-6).[7] In columns (1) and (4) we report the results for our main measure of family ownership (Family Firm). In the other columns, as a robustness check, we use the two alternative proxies of family ownership (Family Control and Family Firm 20%), as described in section 4.2.2. We find that after controlling for various firm characteristics and province fixed effects, family firms are 2 percent more likely to be weak credit rationed than non-family firms (statistically significant at 95 percent; column 1). The results are very similar when we consider family control as proxy of family ownership and when we restrict the definition of family firms to those companies whose family owners own more than 20 percent. The estimated marginal effects are, respectively, 0.022 (statistically significant at 99 percent; column 2) and 0.016 (statistically significant at 90 percent; column 3). The coefficients are smaller, but still significant, for strong rationing (column 4-6): family firms are 0.5 percent more likely to experience strong credit rationing in comparison to non-family owned firms (statistically significant at 90 percent).[8]

As for the control variables, estimation results indicate that firm size (Size) reduces the probability of experiencing credit restrictions. The marginal effects are -0.016 (statistically significant at 99 percent) and -0.002 (not statistically significant) for weak and strong credit rationing, respectively. Cash holdings and internally generated cashflow (Liquidity Ratio and Cashflow) also mitigates strong and weak credit rationing (all the estimated marginal effects are

[6] As our dependent variables are dummy variables taking values zero and one, we estimate Equation (2) by maximum likelihood probit regressions.

[7] The difference between the number of firms in the sample and the final number of observations is due to missing values in the employed variables.

[8] The marginal effects for Family Control and Family Firm 20% are, respectively, 0.004 (statistically significant at 90 percent; column 5) and 0.003 (not statistically significant; column 6).

statistically significant at 99 percent): companies relying on internal capital and liquid resources may be associated with a reduced need for additional borrowing and a better credit quality assessment. As expected, firm leverage and ownership concentration increase the probability of being credit restricted. As reported in column (1), the marginal effects for weak credit rationing are 0.002 (statistically significant at 99 percent) and 0.023 (statistically significant at 99 percent). Regarding the bank-firm relationship characteristics, in line with the current literature, regression results indicate that the number of bank relationships enjoyed by the firm increases the probability of experiencing credit restrictions, while the length of the bank-firm relationship significantly reduces the likelihood of being rationed by banks. The marginal effects for weak credit rationing are 0.003 (statistically significant at 99 percent) and -0.008 (statistically significant at 95 percent), respectively.[9] Finally, as for the characteristics of the local environment, the Herfindahl-Index on bank branches and provincial value added do not significantly affect the probability of firms being credit rationed.

5.2 *Robustness checks*

The probit estimates discussed above might be severely affected by endogeneity problems. First, financial constraints may trigger changes in firm ownership structure. Second, although in our regressions we control for a large set of factors that may affect credit availability, it is still possible that some unobserved variables simultaneously affect firm ownership and credit rationing. As in our sample family ownership is almost persistent over time, concerns about reverse causality issue are somewhat reduced.[10] Conversely, omitted variables bias may strongly affect our baseline findings. In order to account for this problem, in this section we perform a set of robustness tests that should reduce endogeneity concerns. First, we include an additional set of control variables that should affect the probability of firms experiencing credit restrictions: (i) Listed, a dummy variable equal to one if the company is listed in the stock market, and zero otherwise, which is a proxy of both firm transparency and its ability to attract external financing from other sources; (ii) High School Graduates, a continuous variable computed as the number of high school graduate

[9] The marginal effects for strong credit rationing are 0.001 for the number of bank relationships (statistically significant at 99 percent) and -0.002 for the length of the lending relationship (statistically significant at 90 percent).

[10] Minetti et al. (2015b), by employing the same dataset and considering those companies included in all the waves of the Survey on Italian Manufacturing Firms (from 1995 to 2006), find that family ownership is stable for 80 percent of family businesses.

employees over the total number of employees, measuring the level of human capital and skills of the company; (iii) R&D, a dummy variable that takes the value of one if the firm made expenditures on R&D in the three-year period covered by the survey, and zero otherwise, which is a rough proxy of firm riskiness and opacity.[11] Second, we run our baseline regressions on a matched sample of family and non-family businesses.[12] Estimation results are reported in Table 4 and strongly support the adverse impact of family ownership on firms' credit availability.

Starting with the additional set of controls (columns 1-6), the estimated marginal effects confirm the relevance of all the variables in explaining the probability of firms being credit rationed. First, listed companies are 6.5 (statistically significant at 99 percent) and 0.9 (statistically significant at 95 percent) percent less likely of experiencing weak and strong credit restrictions in comparison to firms not listed in the stock market. Second, as expected, an increasing share of high school graduate employees is significantly associated with a lower probability of firms being weak and strong credit rationed.[13] Finally, companies investing in R&D expenditures are 2.1 percent (statistically significant at 99 percent) more likely of experiencing weak credit restrictions when compared to companies not investing in research and development activities. Regarding the family ownership dummy (Family Firm), the estimated marginal effects indicate that family ownership increases by 1.9 percent (statistically significant at 95 percent; column 1) the probability of firms being weak credit rationed. The results are very similar when we employ family control as proxy of family ownership (Family Control) and when we restrict the definition of family businesses to those companies whose family owners own more than 20 percent (Family Firm 20%). The estimated marginal effects are, respectively, 0.022 (statistically significant at 99 percent; column 2) and 0.015 (statistically significant at 95 percent; column 3). The coefficients are smaller and less significant for strong credit rationing (columns 4-6).[14]

Columns (7)-(12) of Table 4 report the estimation results for the matched sample of family and non-family owned businesses. Probit estimates support our previous findings, providing

[11] As these variables significantly reduce the number of observations because of missing values, we do not include them in the baseline regressions.

[12] Matched firms were selected without replacement using all matching firms within the predefined propensity score distance (caliper) $\delta = 0.0001$. As additional robustness, we also use the control firm with the closest propensity score (nearest neighbor), without resampling or distance restrictions. Estimation results are qualitatively and quantitatively similar and are available upon request.

[13] The estimated marginal effects are -0.060 (statistically significant at 99 percent) and -0.010 (statistically significant at 95 percent) for weak and strong credit rationing, respectively.

[14] The marginal effects for Family Firm, Family Control and Family Firm 20% are, respectively, 0.003 (not statistically significant), 0.003 (statistically significant at 90 percent; column 5) and 0.002 (not statistically significant; column 6).

strongly significant results. First, family ownership positively affects the probability of firms experiencing both weak and strong credit restrictions. The estimated marginal effects are 0.026 (statistically significant at 95 percent; column 7) and 0.008 (statistically significant at 90 percent; column 10) for weak and strong credit rationing, respectively. Similar results are found when the alternative definitions of family ownership are employed. Family control increases by 3.1 and 0.8 percent the probability of firms being weak and strong credit restricted (statistically significant at 99 and 90 percent; columns 8 and 11) whereas, companies whose family owners own more than 20 percent are 2.8 percent (statistically significant at 95 percent) more likely of experiencing weak credit rationing in comparison to other firms.[15]

To further mitigate the endogeneity concern and assess the relative importance of possible omitted variables bias, we follow Altonji et al. (2005) and Beck et al. (2018). More specifically, we analyze how the coefficient of Family Firm changes once we include our set covariates. If this change is substantial, then it is more likely that adding more currently unobservable covariates would further reduce the estimated impacts. Conversely, if coefficients turn out to be stable when adding controls, then we can more confidently exclude omitted variables bias. In order to measure coefficient stability, we calculate the ratio between the value of the coefficient in the regression including controls and the difference between this coefficient and the one derived from a regression without covariates (Beck et al., 2018). This ratio amounts to 7.53 and 1.57 for the specifications in columns (1) (Weak Rationing) and (4) (Strong Rationing) of Table 3. By way of comparison, Altonji et al. (2005) estimate a ratio of 1.43 which they interpret as evidence that unobservables are unlikely to explain the entire effect they document. Following their argument, we conclude that, also in our study, it is unlikely that unobserved heterogeneity can explain away the adverse impact of family ownership on credit rationing that we find.

5.3 *Non-linear effects*

The banking literature has widely shown that SMEs and young firms are more likely to suffer from asymmetric information problems which undermine their ability to access the market for external financing (Berger and Udell, 2006; Alessandrini et al., 2008; Ferri and Murro, 2015). As a consequence, the relationship between family ownership and credit rationing may be non-linear but depends on the level of firm opacity, as proxied by firm size and age. In Table 5, we investigate

[15] The estimated marginal effects for strong credit rationing is 0.008 (statistically significant at 90 percent).

this phenomenon by splitting the sample between SMEs and large companies and young and old firms. Starting with firm size, in columns (1)-(2) of Table 5, firms are categorized as SMEs (Large Firms) if they have less (more) than 250 employees, 50 million € of total sales and 43 million € of total assets. Estimation results indicate that family ownership positively affects the probability of firms experiencing credit restrictions only for the subsample of small and medium sized enterprises (column 1). Small family businesses are 2.6 (statistically significant at 99 percent) and 0.7 percent (statistically significant at 95 percent) more likely to be weak and strong credit rationed than small non-family businesses. Conversely, large family-owned firms do not significantly differ in terms of credit availability to non-family owned companies belonging to the same subsample (column 2). As for firm age, in columns (3)-(4) of Table 5, Young Firms (Old Firms) are defined as those companies operating for less (more) than 22 years (the median value of the sample). The marginal effects reported in Panels A and B indicate that family ownership increases by 3.5 and 1 percent (statistically significant at 99 and 95 percent; column 3) the probability of firms experiencing weak and strong credit restrictions, respectively. On the contrary, family ownership does not significantly affect the credit rationing status in the subsample of mature firms (column 4).[16]

Overall, these findings confirm the existence of a non-linear effect of family ownership on credit rationing for different levels of firm opacity. When firm opacity is low, family ownership does not significantly affect companies' credit availability. However, as firm opacity and asymmetric information intensify (as in SMEs and young firms), family ownership significantly increases the probability of firms being credit restricted. Hence, there exists an adverse combined effect of family ownership and firm opacity on companies' access to credit.

5.4 *Disentangling the ownership-credit rationing link*

In this section, we test some channels through which family ownership affects the probability of firms being credit rationed by banks. First, we focus on the role played by family firms' agency conflicts, which should increase the probability of firms experiencing credit restrictions, and on family owners' relational capital (relationship lending channel), which should mitigate credit rationing (Cucculelli et al., 2018). Then, we analyze the role of local socio-economic conditions in shaping the family ownership-credit rationing link. In line with the current literature (Stacchini and

[16] The results for the SMEs and Large Firms subsamples are confirmed by the regressions with the interaction terms reported in Table A1. Conversely, the non-linear effect of family ownership on credit rationing in terms of firm age is not supported by interaction estimates.

Degasperi, 2015), we expect family firms being more likely to be credit restricted in provinces with high level of social capital, trust and judicial efficiency.

5.4.1 *Family ownership and agency conflicts*

Several studies show that the relation between ownership and firm value is nonlinear because of the monitoring and expropriation effects associated with ownership concentration (Thomsen and Pedersen, 2000; Pindado et al., 2011; Minetti et al., 2015b). Although family ownership often solves the classic owner-manager agency problem, family firms may experience higher conflicts between controlling and minority shareholders (Villalonga and Amit, 2006; Pindado et al., 2011; Peruzzi, 2017). This agency problem results mainly from the risk of wealth expropriation of minority shareholders by the owner family. In fact, family owners with large ownership shares may have the incentives and the power to take actions that benefit themselves at the detriment of firm performance and other investors' interests, with adverse consequences on firms' access to external financing. In Table 6, we investigate whether these problems exacerbate the adverse impact of family ownership on bank credit availability. In particular, in columns (1)-(6) of Table 6, we split the sample based on the distribution of the first shareholder's ownership share. Starting with the quartile distribution of the ownership variable (columns 1-4), we find that family ownership positively affects the probability of experiencing weak credit restrictions only for the subsamples of firms with dispersed (Panel A, column 1) and highly concentrated ownership (Panel A, column 4), whereas it is not statistically significant in the other cases. The estimated marginal effects are 0.031 (statistically significant at 90 percent) for the subsample of companies with low ownership concentration, and 0.028 (statistically significant at 95 percent) for the subsample of firms with high ownership concentration. Similar results are obtained for the strong rationing definition. As reported in Panel B of Table 6, family ownership increases by 2 percent (statistically significant at 99 percent) the probability of firms being strong rationed for the subsample of companies characterized by highly concentrated ownership (column 4). In columns (5)-(6) of Table 6, we further check the validity of these results by using a different subsample threshold, i.e. the median value of the first shareholder's ownership share. Probit estimations confirm our previous findings: family ownership positively affects the credit rationing condition only for the subsample of firms with highly concentrated ownership (column 6). More specifically, when compared to non-family

owned businesses, family firms appear to be 2.4 and 1.2 percent more likely of experiencing weak and strong credit rationing (statistically significant at 90 and 95 percent, respectively).

La Porta et al. (1999) argue that large shareholders in companies with concentrated ownership may monitor each other and subsequent studies show that firm value increases when firms have a second large shareholder because of his ability to monitor and contest the largest owner (Maury and Pajuste, 2005; Pindado et al., 2011). If the disciplining role exercised by other large investors leads family firms to invest more efficiently, the presence of a second large blockholder should mitigate the adverse impact of family ownership on credit rationing. Hence, in columns (7)-(8) of Table 6, we classify firms according to the presence of a second large blockholder, i.e. a second shareholder with more than 25 percent of ownership. The results reported in Panel A indicate that family ownership increases by 2.9 percent (statistically significant at 95 percent) the probability of experiencing weak credit rationing for the subsample of companies without a second large blockholder (column 8). Similar findings are obtained for the strong credit rationing definition (columns 7-8 of Panel B). Conversely, family ownership does not significantly affect the probability of firms experiencing credit restrictions for the subsample of companies with a second large shareholder who may monitor family owners' initiative (column 7, Panels A and B).[17]

Overall, these results confirm that family ownership is particularly detrimental for firms' access to bank credit when ownership concentration is high. When the discretion of the controlling family to act in its own best interest is strong, expropriation of minority investors' wealth is more likely to occur with a consequent increase in the probability of firms being credit rationed.

5.4.2 *Family ownership and relationship lending*

As documented by the current literature, the web of relationships built over time by the family firms' founders and family members are crucial factors in running a firm successfully (Rose, 2000; Braggion, 2011; Carillo et al., 2015; Cucculelli et al., 2018). Investing large amounts of resources in nurturing interpersonal relations and building webs of business and political contacts allow family firms to capture public resources, avoid expropriations and improve their economic performance (Salvato and Melin, 2008; Amore and Bennedsen, 2013; Bunkanwanicha et al., 2013).

[17] The findings for strong credit rationing are roughly confirmed by the regressions with the interaction terms reported in Table A2.

A well-established result in the banking literature is that the existence of exclusive and closer lending relationships improves a firm's access to credit and increases its investments (Herrera and Minetti, 2007; Liberti and Mian, 2009; Uchida et al., 2012; Cucculelli et al., 2018). Hence, among the webs of relationships family firms may invest in, one of the most useful may be the one with their lenders. Coherently with this view, in Table 7, we test whether the impact of family ownership on the probability of experiencing credit restrictions change when strong lending relationships exist. Following the banking literature, we measure relationship lending in four different ways (Elsas, 2005; Alessandrini et al., 2008; Presbitero and Zazzaro, 2011; Ferri and Murro, 2015). First, as bank-firm proximity reduces asymmetric information and the existence of financing constraints (Alessandrini et al., 2008; Presbitero and Zazzaro, 2011), in columns (1)-(2) of Table 7, firms are categorized as having a Local (Non-Local) Bank if the firm's main bank is (not) located in the same province of the company. Estimation results indicate that family firms with non-local banks are 3 percent more likely to experience weak credit rationing than non-family businesses belonging to the same subsample (statistically significant at 95 percent; Panel A, column 2). Conversely, family ownership does not significantly affect the probability of firms being weak credit rationed in the case of companies having local banks (Panel A, column 1). Similar results are found for strong credit rationing: the estimated marginal effect of the Family Firm dummy is 0.014 (statistically significant at 99 percent) for the subsample of firms having non-local banks, and -0.001 (not statistically significant) for the subsample of companies having local banks (Panel B, columns 1-2). Following the indication of Elsas (2005), who showed that the bank's share of firm's total debt is significantly associated with the bank being a relationship lender, in columns (3)-(4) of Table 7, we further split our sample based on the share of bank credit supplied by the firm's main bank. As expected, family ownership positively affects the probability of experiencing credit restrictions for the subsample of companies with low main bank financing share. The estimated marginal effects are 0.016 (statistically significant at 95 percent) for weak rationing (column 4, Panel A), and 0.003 (statistically significant at 90 percent) for strong rationing (column 4, Panel B). Conversely, family ownership does not significantly affect weak and strong credit rationing in the subsample of firms enjoying more exclusive lending relationships, i.e. firms financed by their main banks by more than 30 percent of total debt (column 3, Panels A and B). Asymmetric information and credit rationing should be mitigated by repeated interactions between the borrower and the lender (Elsas, 2005; Presbitero and Zazzaro, 2011; Cucculelli et al., 2018). Hence, in

columns (5)-(6) of Table 7, firms are classified on the basis of the length of the lending relationship with their main bank. Consistently with our previous results, we find that family ownership does not significantly affect the probability of firms experiencing weak and strong credit restrictions in the subsample of companies enjoying long-lasting lending relationships (column 5, Panels A and B). On the contrary, family firms having short lending relationships are 3.9 percent more likely to be weak credit rationed (statistically significant at 99 percent) than non-family businesses belonging to the same subsample (column 6, Panel A). The last measure we employ to test the relational capital channel is the number of bank relationships enjoyed by the firm. As exclusive lending relationships should reduce asymmetric information problems, firms dealing with multiple banks may be more likely to experience credit restrictions. However, competition from additional informed banks eliminate the "hold-up" cost associated with exclusive lending relationships, with beneficial effects on the availability and cost of bank financing (Sharpe, 1990; Rajan, 1992). To test the contradictory effect of this variable on the family ownership-credit rationing link, in columns (7)-(8) of Table 7, we classify firms as having more (less) than five lending relationship (the median value of the sample). Estimation results indicate that family firms dealing with less than five banks are 3.3 and 0.8 percent more likely to experience weak and strong credit rationing (statistically significant at 99 and 95 percent, respectively) when compared to non-family businesses belonging to the same subsample (column 7, Panels A and B). Conversely, family ownership does not significantly affect the probability of firms being credit restricted in the subsample of companies with more than five lending relationships (column 8). Hence, the benefits of bank competition seem to outweigh the benefits associated with exclusive lending ties for family firms' access to credit.

Finally, in order to get some insights about the role of the local banking market in determining the family ownership-credit rationing link, in columns (9)-(10) of Table 7, we split our sample based on the level of concentration of the local banking market where the firm operates. As reported in Panels A and B, family ownership positively affects the probability of firms experiencing weak and strong credit restrictions in the subsample of companies operating in highly concentrated lending market (column 9). The estimated marginal effects are respectively 0.032 (statistically significant at 99 percent) and 0.007 (statistically significant at 90 percent). Conversely, family firms do not significantly differ from non-family owned businesses when the analysis focuses on the subsample of companies operating in banking market with low concentration.

Overall, these results support the existence of a relational capital or relationship lending channel.[18] The adverse impact of family ownership on credit rationing is exacerbated by low bank competition and it is mitigated when companies have close and long-lasting lending relationships.

5.4.3 *Family ownership and socio-economic conditions*

In Table 8, we study the role of socio-economic conditions on the link between family ownership and credit rationing. Stacchini and Degasperi (2015) suggest that family firms could have a role in reducing the agency cost of debt in local markets with low levels of social capital and trust. In these areas, market agents are more inclined to behave opportunistically, and borrowers could be more prone to invest in risky projects without considering the costs of failure. Following this idea, in columns (1)-(4) of Table 8, we split the sample on the basis of two measures of social capital employed in Guiso et al. (2004) and Guiso et al. (2016): blood donations and the number of employees of non-profit organizations.[19] Estimation results indicate that family firms located in provinces with high levels of social capital seems to be more likely to experience weak credit restrictions in comparison to non-family owned businesses located in the same area. The marginal effects are, respectively, 0.017 (statistically significant at 90 percent) and 0.030 (statistically significant at 99 percent) for the High Blood Donations and High Non-Profit Workers subsamples (columns 2 and 4, Panel A). Conversely, family ownership does not significantly affect the probability of firms being credit rationed when the analysis focuses on those provinces with low levels of social capital. The results are less robust for strong credit rationing: family ownership increases the probability of credit rationing by 0.8 percent (statistically significant at 95 percent) in provinces with high non-profit workers (column 4, Panel B), whereas it is not statistically significant in provinces with high blood donations (column 2, Panel B) and in provinces with low levels of social capital (columns 1 and 3, Panel B). In order to check the robustness of these findings, in columns (5)-(6) of Table 8, we employ as additional measure of social capital an indicator of the level of trust based on the World Values Survey.[20] Estimation results confirm that

[18] The results of the regressions with the interaction terms reported in Table A3 confirm the results about local banks (for strong credit rationing), number of bank relationships (for both strong and weak credit rationing), and the length of the bank-firm relation (for weak credit rationing).

[19] The variable on Blood Donation is computed at the provincial level, while the variable on Non-Profit workers is computed at the regional level.

[20] The indicator is based on the following question of the World Values Survey: "Using the responses on this card, could you tell me how much you trust other Italians in general?: (5) Trust them completely; (4) Trust them a little; (3) Neither trust them, nor distrust them; (2) Do not trust them very much; (1) Do not trust them at all."

family ownership has a positive impact on the probability of firms experiencing credit restrictions for the subsample of companies located in high-trust areas. The marginal effects are 0.027 and 0.006 (statistically significant at 95 percent and not statistically significant) for weak and strong credit rationing, respectively (Panels A and B, column 6).

In columns (7)-(8) of Table 8, we further develop the analysis of the local socio-economic conditions by splitting the sample based on whether firms are located in the North and Center or in the South of Italy.[21] The three Italian macro-regions differ significantly in terms of socio-economic development (D'Onofrio et al., 2017). The North of Italy is the area with the highest levels of per capita GDP and social capital, while the South is poorer and includes those regions with lower levels of social capital and trust (Guiso et al., 2004; Stacchini and Degasperi, 2015). Estimation results indicate that family ownership positively affects the probability of firms experiencing credit restrictions only in the North and Center of Italy. The marginal effects are 0.021 (statistically significant at 99 percent) and 0.005 (statistically significant at 90 percent) for weak and strong credit rationing, respectively. Conversely, family firms located in the South are not significantly different in terms of credit availability from non-family owned businesses located in the same area.

Finally, credit rationing could be affected by the verifiability of a firm's output, which in turn depends on the efficiency of the court system (Guiso et al., 2004). To measure judicial efficiency we use the number of days provincial courts take to complete a first-degree trial (Guiso et al., 2004). The results reported in columns (9)-(10) of Table 8 confirm our previous findings: family ownership increases the probability of firms experiencing credit restrictions for the subsample of companies located in provinces with high levels of judicial efficiency. The estimated marginal effects are 0.024 (statistically significant at 95 percent) and 0.005 (statistically significant at 90 percent) for weak and strong credit rationing, respectively.[22]

Overall, these results indicate that family firms seem to be more likely to be credit rationed in provinces with high levels of social capital, suggesting that delegation problems could be mitigated by personal relationships in areas where cooperation mechanisms are weaker due to the lack of trust.

[21] As a robustness check, we also run regression splitting North and Center provinces. Results, available upon request, are qualitatively similar.

[22] However, the results for the subsamples are not supported by the regressions with the interaction terms.

6 Conclusions

This paper has analyzed the impact of family ownership on the probability of firms experiencing credit restrictions during a non-crisis period. We have found that, controlling for a complete set of qualitative and quantitative observable firm characteristics, family firms are associated with a higher probability of being credit rationed when compared to non-family firms. This result is robust to different definitions of family ownership, including family control and family ownership greater than 20 percent of equity shares, and different estimation techniques that partially accounted for endogeneity problems. We have also investigated the channels affecting the family ownership-credit rationing link. Following the theoretical literature, we have analyzed the role of agency conflicts, relational capital and local socio-economic conditions in explaining the impact of family ownership on the probability of firms experiencing credit restrictions. Estimation results have indicated that family ownership increases the probability of firms being credit rationed for the subsample of companies with highly concentrated ownership. The adverse impact of family ownership on credit availability is instead mitigated in companies characterized by closer and longer-lasting lending relationships. Finally, by studying the role of socio-economic conditions in shaping the family ownership-credit rationing link, we have shown that family firms are more likely to be rationed in provinces with high level of social capital and judicial efficiency, suggesting that families' personal relationships are more relevant in areas where cooperation mechanisms are weaker due to lack of trust.

These findings have some policy implications. First, the paper highlights the actions that family businesses can implement to mitigate the probability of firms experiencing credit rationing, such as reducing the level of ownership concentration in order to alleviate agency conflicts between controlling and minority shareholders. Second, consistently with some recent studies (D'Aurizio et al., 2015; Cucculelli et al., 2018), our analysis confirms the relevance of the relational capital or relationship lending channel. By building long-lasting and closer lending relationships, family firms may be able to overcome their difficulties in accessing the market for bank credit. Finally, the empirical results suggest that some policy interventions, like the deployment of public guarantees for lending to small businesses and family firms, might be desirable to foster family businesses access to finance and economic growth, also during non-crisis periods.

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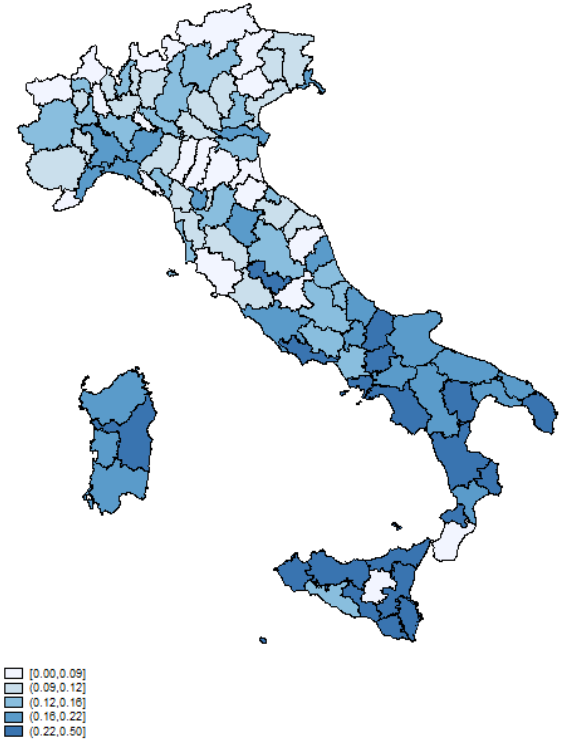
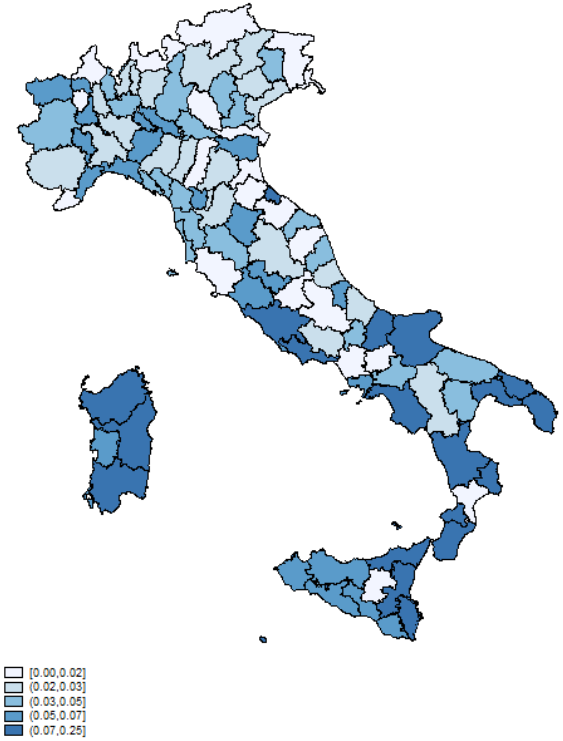
Figure 1
Credit rationing distribution across Italian provinces.



(A) Weak rationing



(B) Strong rationing

Table 1
Variable definitions.

Variable	Description and source
Dependent variables:	
Weak Rationing	Dummy that takes the value of one if the firm was weakly rationed in the last year of the survey, and zero otherwise. Source: SIMF.
Strong Rationing	Dummy that takes the value of one if the firm was strongly rationed in the last year of the survey, and zero otherwise. Source: SIMF.
Ownership variables:	
Family Firm	Dummy that takes the value of one if the main shareholder is a family or an individual, and zero otherwise. Source: SIMF.
Family Control	Dummy that takes the value of one if the family owner has the control of the firm, and zero otherwise. Source: SIMF.
Family Firm 20%	Dummy that takes the value of one if the main shareholder is a family or an individual and owns more than 20 percent of the company, and zero otherwise. Source: SIMF.
Control variables:	
Size	Total number of employees. Source: BvD-AIDA.
Age	Number of years since firm's inception. Source: BvD-AIDA.
Leverage	Ratio of total liabilities to equity (average over the three years of the survey). Source: BvD-AIDA.
Liquidity Ratio	Ratio between cash holdings and total assets (average over the three years if the survey). Source: BvD-AIDA.
Cashflow	Ratio of cashflow to total assets. Source: SIMF.
Interest Coverage Ratio	Ratio of Earnings before interests and taxes (EBIT) to interest expenses. Source: BvD-AIDA.
ROI	Ratio between net income and invested capital (average over the three years of the survey). Source: BvD-AIDA.
Capital Intensity	Ratio between fixed assets and number of employees (average over the three years of the survey). Source: BvD-AIDA.
Exporter	Dummy that takes the value of one if the firm sells part of its production abroad, and zero otherwise. Source: SIMF.
Ownership Concentration	Ownership share of the firm's first shareholder. Source: SIMF.
Number of Banks	Number of banks from which the firm borrows. Source: SIMF.
Relationship Length	Length of the relationship with the main bank (in years). Source: SIMF.
Value Added	Average growth rate of provincial value added. Source: ISTAT.
HHI	Provincial Herfindahl index of bank branches. Source: Bank of Italy.
Rajan and Zingales Index	Measure of external financial dependence proposed by Rajan and Zingales (1998).
Listed	Dummy that takes the value of one if the firm is listed in the stock market, and zero otherwise. Source: SIMF.
High School Graduates	Number of high school graduate employees over the total number of employees. Source: SIMF.
R&D	Dummy that takes the value of one if the firm made expenditures on R&D in the three-year period covered by the survey, and zero otherwise. Source: SIMF.
Other variables:	
2nd Blockholder	Dummy that takes the value of one if the second shareholder of the firm holds an ownership share larger than 25 percent, and zero otherwise. Source: SIMF.
Local Bank	Dummy that takes the value of one if the firm's main bank is located in the same province of the company, and zero otherwise. Source: SIMF.
Financing Share	Share of the firm's main bank financing. Source: SIMF.
Blood Donation	Number of blood bags per million inhabitants collected by AVIS (the Italian association of blood donors). Source: AVIS
Non-profit Workers	Percentage of workers in non-profit organizations in 1999. Source: ISTAT.
Trust	An index of the level of trust based on the World Values Survey for Italy run among 2,000 individuals in 1990 and 1999. The question asked to the respondent was: "Using the responses on this card, could you tell me how much you trust other Italians in general?: (5) Trust them completely; (4) Trust them a little; (3) Neither trust them, nor distrust them; (2) Do not trust them very much; (1) Do not trust them at all." Source: World Values Survey.

North	Dummy that takes the value of one for the provinces located in the north of Florence, and zero otherwise. Source: BvD-AIDA.
Center	Dummy that takes the value of one for the provinces located between Florence and Rome, and zero otherwise. Source: BvD-AIDA.
South	Dummy that takes the value of one for the provinces located in the south of Rome, and zero otherwise. Source: BvD-AIDA.
Length of Processes	Number of days it takes to complete a first-degree trial by the courts located in a province. Source: ISTAT.

Table 2
Summary statistics.

	All firms		Ownership			Weak Rationing			Strong Rationing		
	Mean	Std Dev.	Family Owned	Non-Fam. Owned	*t-test*	Rationed	Non-Rationed	*t-test*	Rationed	Non-Rationed	*t-test*
Dependent variables:											
Weak Rationing	0.132	0.339	0.135	0.125	*-1.602*						
Strong Rationing	0.037	0.189	0.037	0.038	*0.195*						
Ownership variables:											
Family Firm	0.775	0.417				0.787	0.772	*-1.603*	0.770	0.774	*0.195*
Family Control	0.722	0.448				0.739	0.718	*-2.088*	0.726	0.720	*-0.289*
Family Firm 20%	0.710	0.454				0.725	0.708	*-1.586*	0.712	0.710	*-0.099*
Control variables:											
Size	81.042	108.692	58.983	148.447	*46.219*	63.556	81.043	*6.625*	72.073	79.048	*1.485*
Age	26.603	20.711	26.318	27.110	*2.109*	24.320	26.881	*5.483*	24.928	26.595	*1.983*
Leverage	8.085	11.636	8.345	7.192	*-5.332*	10.375	7.609	*-9.027*	13.114	7.758	*-8.029*
Liquidity Ratio	3.174	3.824	2.950	3.653	*7.046*	2.251	3.240	*15.642*	1.952	3.145	*11.878*
Cashflow	0.059	0.041	0.057	0.064	*8.895*	0.044	0.061	*18.318*	0.035	0.060	*18.071*
Interest Coverage Ratio	11.715	40.494	12.433	8.848	*-5.314*	3.770	12.014	*13.884*	2.132	11.343	*12.144*
ROI	0.063	0.062	0.065	0.059	*-4.597*	0.047	0.066	*13.340*	0.035	0.064	*14.796*
Capital Intensity	5.326	2.963	5.425	4.825	*-12.078*	4.420	5.277	*14.155*	4.631	5.182	*5.090*
Exporter	0.684	0.465	0.662	0.763	*12.594*	0.668	0.694	*2.369*	0.698	0.690	*-0.434*
Ownership Concentration	0.554	0.293	0.499	0.747	*46.349*	0.556	0.551	*-0.855*	0.586	0.550	*-3.011*
Number of Banks	5.450	3.642	5.086	6.735	*21.001*	5.732	5.538	*-2.325*	6.065	5.540	*-3.208*
Relationship Length	16.642	11.932	16.950	15.495	*-6.449*	15.601	16.835	*4.469*	15.292	16.712	*2.842*
Value Added	0.040	0.029	0.040	0.038	*-3.771*	0.039	0.040	*2.569*	0.039	0.040	*0.869*
HHI	0.074	0.028	0.073	0.074	*1.864*	0.078	0.073	*-6.351*	0.077	0.074	*-2.307*
Rajan and Zingales Index	0.364	0.314	0.355	0.392	*6.249*	0.352	0.364	*1.753*	0.338	0.364	*2.019*
Listed	0.015	0.123	0.010	0.031	*7.256*	0.006	0.013	*3.447*	0.005	0.013	*2.566*
High School Graduates	0.429	0.309	0.431	0.413	*-2.840*	0.369	0.430	*8.312*	0.375	0.424	*3.651*
R&D	0.372	0.483	0.336	0.503	*18.392*	0.371	0.376	*0.438*	0.414	0.374	*-1.948*
North	0.683	0.465	0.670	0.723	*6.464*	0.579	0.695	*10.338*	0.579	0.684	*5.155*
Center	0.182	0.386	0.189	0.161	*-4.099*	0.195	0.183	*-1.352*	0.199	0.184	*-0.927*
South	0.135	0.342	0.141	0.116	*-4.278*	0.226	0.122	*-11.106*	0.222	0.132	*-5.254*

Table 3
Family ownership and credit rationing: Baseline estimates

Probit Model	Weak Rationing			Strong Rationing		
	(1)	(2)	(3)	(4)	(5)	(6)
Family Firm	0.020**			0.005*		
	(0.008)			(0.003)		
Family Control		0.022***			0.004*	
		(0.007)			(0.002)	
Family Firm 20 %			0.016**			0.003
			(0.007)			(0.002)
Size	-0.016***	-0.015***	-0.016***	-0.002	-0.002	-0.002*
	(0.004)	(0.004)	(0.004)	(0.001)	(0.001)	(0.001)
Age	-0.002	-0.002	-0.001	-0.000	-0.000	-0.000
	(0.005)	(0.005)	(0.005)	(0.002)	(0.002)	(0.002)
Leverage	0.002***	0.002***	0.002***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Liquidity Ratio	-0.199***	-0.199***	-0.198***	-0.107***	-0.105***	-0.105***
	(0.044)	(0.044)	(0.044)	(0.027)	(0.027)	(0.027)
Cashflow	-1.075***	-1.061***	-1.067***	-0.281***	-0.280***	-0.281***
	(0.116)	(0.116)	(0.116)	(0.063)	(0.064)	(0.064)
Interest Coverage Ratio	0.000	0.000	0.000	-0.000*	-0.000*	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROI	0.000	-0.001	0.002	-0.049	-0.047	-0.047
	(0.075)	(0.075)	(0.075)	(0.030)	(0.030)	(0.030)
Capital Intensity	0.005	0.005	0.005	0.002*	0.002*	0.002*
	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)
Exporter	0.007	0.007	0.007	0.005**	0.005**	0.005**
	(0.007)	(0.007)	(0.007)	(0.002)	(0.002)	(0.002)
Ownership Conc.	0.023*	0.022*	0.015	0.007*	0.006	0.005
	(0.012)	(0.011)	(0.011)	(0.004)	(0.004)	(0.004)
Number Banks	0.003***	0.003***	0.003***	0.001***	0.001***	0.001***
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Relation. Length	-0.008**	-0.009***	-0.009**	-0.002*	-0.002*	-0.002*
	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)
Value Added	0.140	0.130	0.132	0.051	0.052	0.053
	(0.125)	(0.125)	(0.125)	(0.042)	(0.042)	(0.042)
HHI	0.138	0.139	0.139	-0.074	-0.070	-0.071
	(0.133)	(0.133)	(0.133)	(0.049)	(0.048)	(0.048)
Rajan-Zingales	0.029*	0.026	0.026	-0.005	-0.005	-0.005
	(0.017)	(0.017)	(0.017)	(0.006)	(0.006)	(0.006)
Industry * Survey	Yes	Yes	Yes	Yes	Yes	Yes
Region * Survey	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,280	11,218	11,218	10,605	10,545	10,545
Pseudo R^2	0.102	0.102	0.102	0.139	0.139	0.138

Notes: The table reports Probit marginal effects. Three, two and one star (*) mean, respectively, a 99, 95, and 90 percent level of significance. Standard errors clustered at the firm level are in parentheses. All of the variables are defined in Table 1. Balance-sheet indicators refer to the survey three-year period. The variable Size is in logarithm. The variable Relationship Length is in logarithm.

Table 4
Robustness checks

Probit Model	Full Sample: Additional Controls						Propensity Score Matching					
	Weak Rationing			Strong Rationing			Weak Rationing			Strong Rationing		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Family Firm	0.019**			0.003			0.026**			0.008*		
	(0.008)			(0.002)			(0.011)			(0.005)		
Family Control		0.022***			0.003*			0.031***			0.008*	
		(0.008)			(0.002)			(0.012)			(0.005)	
Family Firm 20 %			0.015**			0.003			0.028**			0.008*
			(0.007)			(0.002)			(0.012)			(0.005)
Size	-0.021***	-0.020***	-0.021***	-0.002*	-0.002*	-0.002*	-0.030***	-0.030***	-0.030***	-0.009***	-0.009***	-0.009***
	(0.005)	(0.005)	(0.005)	(0.001)	(0.001)	(0.001)	(0.008)	(0.008)	(0.008)	(0.003)	(0.003)	(0.003)
Age	-0.005	-0.004	-0.004	-0.001	-0.001	-0.001	0.009	0.010	0.010	-0.000	0.000	0.000
	(0.005)	(0.005)	(0.005)	(0.001)	(0.001)	(0.001)	(0.008)	(0.008)	(0.008)	(0.003)	(0.003)	(0.003)
Leverage	0.002***	0.002***	0.002***	0.000**	0.000**	0.000**	0.002***	0.002***	0.002***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Liquidity Ratio	-0.220***	-0.221***	-0.220***	-0.082***	-0.081**	-0.081**	-0.152*	-0.152*	-0.152*	-0.153***	-0.152***	-0.152***
	(0.052)	(0.052)	(0.052)	(0.032)	(0.032)	(0.032)	(0.081)	(0.081)	(0.081)	(0.047)	(0.047)	(0.047)
Cashflow	-1.092***	-1.079***	-1.085***	-0.209***	-0.210***	-0.211***	-0.826***	-0.825***	-0.826***	-0.374***	-0.374***	-0.374***
	(0.150)	(0.149)	(0.149)	(0.079)	(0.080)	(0.080)	(0.210)	(0.211)	(0.211)	(0.107)	(0.107)	(0.107)
Interest Coverage Ratio	-0.000	-0.000	-0.000	-0.000***	-0.000***	-0.000***	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
ROI	0.060	0.058	0.062	-0.025	-0.025	-0.025	0.091	0.094	0.092	0.022	0.025	0.024
	(0.079)	(0.079)	(0.079)	(0.024)	(0.024)	(0.025)	(0.129)	(0.129)	(0.129)	(0.065)	(0.065)	(0.065)
Capital Intensity	0.007**	0.007**	0.007**	0.002*	0.002*	0.002*	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002
	(0.004)	(0.004)	(0.004)	(0.001)	(0.001)	(0.001)	(0.005)	(0.005)	(0.005)	(0.002)	(0.002)	(0.002)
Exporter	0.003	0.004	0.004	0.003	0.003	0.003	-0.000	-0.000	-0.001	0.005	0.005	0.005
	(0.008)	(0.008)	(0.008)	(0.002)	(0.002)	(0.002)	(0.013)	(0.013)	(0.013)	(0.005)	(0.005)	(0.005)
Ownership Conc.	0.030**	0.028**	0.022*	0.007*	0.006*	0.005	0.015	0.013	0.010	0.004	0.004	0.003
	(0.012)	(0.012)	(0.012)	(0.004)	(0.003)	(0.003)	(0.019)	(0.019)	(0.019)	(0.008)	(0.008)	(0.008)
Number Banks	0.003***	0.003***	0.003***	0.001*	0.001*	0.001*	0.005***	0.005***	0.005***	0.002**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Relation. Length	-0.009**	-0.010***	-0.010***	-0.001	-0.001	-0.001	-0.012***	-0.013***	-0.012***	-0.002*	-0.002*	-0.002*
	(0.004)	(0.004)	(0.004)	(0.001)	(0.001)	(0.001)	(0.005)	(0.005)	(0.005)	(0.001)	(0.001)	(0.001)
Value Added	0.098	0.082	0.084	0.029	0.031	0.032	0.224	0.218	0.222	0.134	0.133	0.134
	(0.133)	(0.133)	(0.133)	(0.033)	(0.033)	(0.033)	(0.226)	(0.226)	(0.226)	(0.095)	(0.095)	(0.095)
HHI	0.162	0.165	0.163	-0.025	-0.022	-0.022	0.178	0.181	0.181	-0.022	-0.020	-0.021
	(0.139)	(0.139)	(0.139)	(0.035)	(0.035)	(0.035)	(0.233)	(0.234)	(0.234)	(0.101)	(0.101)	(0.101)
Rajan-Zingales	0.028	0.025	0.026	-0.005	-0.004	-0.005	0.074***	0.074**	0.074***	0.005	0.005	0.005
	(0.018)	(0.018)	(0.018)	(0.005)	(0.005)	(0.005)	(0.029)	(0.029)	(0.029)	(0.012)	(0.012)	(0.012)
Listed	-0.065***	-0.065***	-0.066***	-0.009**	-0.009**	-0.009**						
	(0.022)	(0.022)	(0.022)	(0.005)	(0.005)	(0.005)						
High School Graduates	-0.060***	-0.059***	-0.060***	-0.010**	-0.010**	-0.010**						
	(0.013)	(0.013)	(0.014)	(0.005)	(0.005)	(0.005)						
R&D	0.021***	0.020***	0.020***	0.003	0.003	0.003						
	(0.008)	(0.008)	(0.008)	(0.002)	(0.002)	(0.002)						
Industry * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,721	9,664	9,664	9,187	9,132	9,132	3,045	3,037	3,037	2,554	2,547	2,547
Pseudo R^2	0.100	0.101	0.100	0.151	0.150	0.150	0.121	0.122	0.122	0.159	0.159	0.159

Notes: The table reports Probit marginal effects. Three, two and one star (*) mean, respectively, a 99, 95, and 90 percent level of significance. Standard errors clustered at the firm level are in parentheses. All of the variables are defined in Table 1. Balance-sheet indicators refer to the survey three-year period. The variable Size is in logarithm. The variable Relationship Length is in logarithm. In columns (7)-(12), matched firms are selected without replacement using all matching firms within the predefined propensity score distance (caliper) $\delta = 0.0001$.

Table 5

Family ownership and credit rationing: Non-linear effects.

Panel A: Weak Rationing				
Probit Model	SMEs	Large Firms	Young Firms	Old Firms
	(1)	(2)	(3)	(4)
Family Firm	0.026***	-0.012	0.035***	0.010
	(0.010)	(0.011)	(0.012)	(0.010)
+ Control Variables	Yes	Yes	Yes	Yes
Industry * Survey	Yes	Yes	Yes	Yes
Region * Survey	Yes	Yes	Yes	Yes
Observations	8,100	2,873	5,157	5,819
Pseudo R^2	0.090	0.160	0.111	0.113

Panel B: Strong Rationing				
Probit Model	SMEs	Large Firms	Young Firms	Old Firms
	(1)	(2)	(3)	(4)
Family Firm	0.007**	-0.009	0.010**	0.005
	(0.003)	(0.006)	(0.004)	(0.004)
+ Control Variables	Yes	Yes	Yes	Yes
Industry * Survey	Yes	Yes	Yes	Yes
Region * Survey	Yes	Yes	Yes	Yes
Observations	7,762	2,088	4,565	4,829
Pseudo R^2	0.145	0.210	0.141	0.174

Notes: The table reports Probit marginal effects. Three, two and one star (*) mean, respectively, a 99, 95, and 90 percent level of significance. Standard errors clustered at the firm level are in parentheses. In columns (1)-(2), firms are classified as SMEs (Large Firms) if they have less (more) than 250 employees, 50 million € of total sales and 43 million € of total assets. In columns (3)-(4), firms are classified as Young Firms (Old Firms) if they have operated for less (more) than 22 years (the median value of the sample).

Table 6

Family ownership, agency conflicts and credit rationing.

Panel A: Weak Rationing								
Probit Model	Own. Conc. I Quartile	Own. Conc. II Quartile	Own. Conc. III Quartile	Own. Conc. IV Quartile	Own. Conc. ≤ 50%	Own. Conc. > 50%	2nd Blockholder	No 2nd Blockholder
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Family Firm	0.031*	0.040	-0.002	0.028**	0.010	0.024*	0.011	0.029**
	(0.018)	(0.025)	(0.014)	(0.014)	(0.013)	(0.011)	(0.014)	(0.011)
+ Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,272	1,670	3,711	2,862	6,167	4,942	5,441	4,768
Pseudo R^2	0.141	0.136	0.135	0.132	0.110	0.124	0.117	0.100

Panel B: Strong Rationing								
Probit Model	Own. Conc. I Quartile	Own. Conc. II Quartile	Own. Conc. III Quartile	Own. Conc. IV Quartile	Own. Conc. ≤ 50%	Own. Conc. > 50%	2nd Blockholder	No 2nd Blockholder
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Family Firm	0.007	-0.001	-0.003	0.020***	-0.001	0.012**	0.000	0.015***
	(0.008)	(0.014)	(0.004)	(0.007)	(0.004)	(0.005)	(0.001)	(0.005)
+ Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,325	1,130	2,940	2,403	5,165	4,537	4,699	4,197
Pseudo R^2	0.225	0.219	0.198	0.164	0.180	0.145	0.167	0.150

Notes: The table reports Probit marginal effects. Three, two and one star (*) mean, respectively, a 99, 95, and 90 percent level of significance. Standard errors clustered at the firm level are in parentheses. In columns (1)-(6), Ownership Concentration is the ownership share of the first controlling shareholder (50 percent is the median value of the sample). In columns (7)-(8), 2nd Blockholder is a dummy variable equal to one if the second shareholder holds an ownership share larger than 25 percent, and zero otherwise.

Table 7
Family ownership, relationship lending and credit rationing.

Panel A: Weak Rationing										
Probit Model	Local Bank	Non-Local Bank	Financing Share > 30%	Financing Share ≤ 30%	Rel. Length >10 yrs	Rel. Length ≤10 yrs	Num. Banks ≤ 5	Num. Banks > 5	High Conc. Lending Market	Low Conc. Lending Market
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Family Firm	0.018	0.030**	0.006	0.016**	0.005	0.039***	0.033***	0.013	0.032***	0.009
	(0.012)	(0.013)	(0.016)	(0.007)	(0.009)	(0.012)	(0.012)	(0.011)	(0.011)	(0.010)
+ Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,545	3,409	3,541	6,282	6,663	4,366	4,758	6,189	5,844	5,320
Pseudo R^2	0.095	0.123	0.106	0.115	0.104	0.125	0.133	0.105	0.114	0.114

Panel B: Strong Rationing										
Probit Model	Local Bank	Non-Local Bank	Financing Share > 30%	Financing Share ≤ 30%	Rel. Length >10 yrs	Rel. Length ≤10 yrs	Num. Banks ≤ 5	Num. Banks > 5	High Conc. Lending Market	Low Conc. Lending Market
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Family Firm	0.001	0.014***	0.004	0.003*	0.004	0.001	0.008**	0.004	0.007*	0.002
	(0.005)	(0.004)	(0.007)	(0.006)	(0.004)	(0.002)	(0.004)	(0.005)	(0.004)	(0.004)
+ Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,193	2,824	3,141	5,462	5,949	3,789	3,813	5,494	5,189	4,458
Pseudo R^2	0.152	0.215	0.165	0.160	0.147	0.163	0.196	0.133	0.173	0.133

Notes: The table reports Probit marginal effects. Three, two and one star (*) mean, respectively, a 99, 95, and 90 percent level of significance. Standard errors clustered at the firm level are in parentheses. In columns (1)-(2), Local Bank (Non-Local Bank) is a dummy variable equal to one if the firm's main bank is (not) located in the same province of the company. In columns (3)-(4), Financing Share is the share of the firm's main bank financing (30 percent is the median value of the sample). In columns (5)-(6), Relationship Length is the length of the relationship between the firm and its main bank. In columns (7)-(8), Number of Banks is the number of bank relationships enjoyed by the firm (5 is the median value of the sample). In columns (9)-(10), firms are categorized as located in provinces with High Concentration of the Lending Market (Low Concentration of the Lending Market) if the HHI is more (less) than 0.068 (the median value of the sample).

Table 8

Family ownership, socio-economic conditions and credit rationing.

Panel A: Weak Rationing										
	Social Capital						Socio-Econ. Develop.		Judicial Efficiency	
Probit Model	Low Blood Donation	High Blood Donation	Low Non-Profit Workers	High Non-Profit Workers	Low Trust	High Trust	North and Center	South	Length of Processes < 346 days	Length of Processes ≥ 346 days
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Family Firm	0.019	0.017*	0.003	0.030***	0.011	0.027**	0.021***	-0.017	0.024**	0.013
	(0.013)	(0.009)	(0.011)	(0.010)	(0.008)	(0.011)	(0.008)	(0.031)	(0.011)	(0.011)
+ Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,880	6,282	5,252	5,927	6,826	4,316	9,620	1,554	4,745	6,440
Pseudo R^2	0.124	0.092	0.112	0.103	0.110	0.098	0.096	0.119	0.104	0.113

Panel B: Weak Rationing										
	Social Capital						Socio-Econ. Develop.		Judicial Efficiency	
Probit Model	Low Blood Donation	High Blood Donation	Low Non-Profit Workers	High Non-Profit Workers	Low Trust	High Trust	North and Center	South	Length of Processes < 346 days	Length of Processes ≥ 346 days
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Family Firm	0.009	0.002	0.003	0.008**	0.003	0.006	0.005*	0.011	0.005*	0.004
	(0.005)	(0.003)	(0.003)	(0.004)	(0.002)	(0.005)	(0.003)	(0.012)	(0.004)	(0.004)
+ Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,970	5,788	4,604	5,430	6,104	4,017	9,057	1,218	4,095	5,848
Pseudo R^2	0.101	0.133	0.151	0.148	0.162	0.138	0.140	0.189	0.135	0.168

Notes: The table reports Probit marginal effects. Three, two and one star (*) mean, respectively, a 99, 95, and 90 percent level of significance. Standard errors clustered at the firm level are in parentheses. All of the variables are defined in Table 1. In columns (1)-(2), firms are categorized as located in provinces with High Blood Donation (Low Blood Donation) if the number of blood bags per million inhabitants collected by AVIS (the Italian association of blood donors) is more (less) than 0.035 (the median value of the sample). In columns (3)-(4), firms are categorized as located in regions with High Non-Profit Workers (Low Non-Profit Workers) if the percentage of workers in a Non-profit organization in 1999 is more (less) than 0.87 percent (the median value of the sample). In columns (5)-(6), firms are categorized as located in provinces with High Trust (Low Trust) if the indicator of trust developed by the World Values Survey is more (less) than 3.352 (the median value of the sample). In columns (7)-(8), provinces in the north of Florence are located in the North, provinces between Florence and Rome are located in the Center, and provinces in the south of Rome are in the South. In columns (9)-(10), Length of Processes is the number of days it takes to complete a first-degree trial by the courts located in a province (346 days is the median value of the sample).

Appendix

A. Additional tables

Table A1
Family ownership and credit rationing: Non-linear effects.

Probit Model	Weak Rationing		Strong Rationing	
	(1)	(2)	(3)	(4)
Family Firm	-0.165*	0.074	-0.285**	0.089
	(0.093)	(0.057)	(0.132)	(0.085)
Family Firm * SMEs	**0.310*** **		**0.480*** **	
	(0.102)		**(0.148)**	
SMEs	0.263***		0.147	
	(0.087)		(0.122)	
Family Firm * Young Firms		0.074		0.077
		(0.075)		(0.112)
Young Firms		-0.038		0.010
		(0.079)		(0.117)
+ Control Variables	Yes	Yes	Yes	Yes
Industry * Survey	Yes	Yes	Yes	Yes
Region * Survey	Yes	Yes	Yes	Yes
Observations	11,279	11,280	10,605	10,605
Pseudo R^2	0.105	0.102	0.143	0.140

Notes: The table reports Probit marginal effects. Three, two and one star (*) mean, respectively, a 99, 95, and 90 percent level of significance. Standard errors clustered at the firm level are in parentheses. Firms are classified as SMEs (Large Firms) if they have less (more) than 250 employees, 50 million € of total sales and 43 million € of total assets. Firms are classified as Young Firms (Old Firms) if they have operated for less (more) than 22 years (the median value of the sample).

Table A2

Family ownership, agency conflicts and credit rationing.

Probit Model	Weak Rationing			Strong Rationing		
	(1)	(2)	(3)	(4)	(5)	(6)
Family Firm	0.065	0.042	0.070	-0.008	-0.024	0.041
	(0.057)	(0.073)	(0.074)	(0.085)	(0.109)	(0.117)
Family Firm * Own. Conc. IV Quart	0.094			**0.302****		
	(0.083)			**(0.122)**		
Own. Conc. IV Quart	-0.139			-0.253*		
	(0.086)			(0.131)		
Family Firm * Own. Conc. > 50%		0.105			**0.227***	
		(0.088)			**(0.130)**	
Own. Conc. > 50%		0.007			-0.160	
		(0.096)			(0.142)	
Family Firm * No 2nd Blockholder			0.089			0.171
			(0.089)			(0.137)
No 2nd Blockholder			0.005			-0.070
			(0.082)			(0.127)
+ Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry * Survey	Yes	Yes	Yes	Yes	Yes	Yes
Region * Survey	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,280	11,280	10,409	10,605	10,605	9,627
Pseudo R^2	0.102	0.102	0.098	0.141	0.140	0.139

Notes: The table reports Probit marginal effects. Three, two and one star (*) mean, respectively, a 99, 95, and 90 percent level of significance. Standard errors clustered at the firm level are in parentheses. Ownership Concentration is the ownership share of the first controlling shareholder. No 2nd Blockholder is a dummy variable equal to one if the second shareholder holds an ownership share lower than 25 percent, and zero otherwise.

Table A3

Family ownership, relationship lending and credit rationing.

Probit Model	Weak Rationing					Strong Rationing				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Family Firm	0.106	0.150***	0.186***	0.222***	0.160***	0.298***	0.155*	0.144	0.327***	0.151*
	(0.068)	(0.056)	(0.061)	(0.071)	(0.057)	(0.110)	(0.086)	(0.092)	(0.118)	(0.084)
Family Firm * Local Bank	0.007					**-0.258****				
	(0.080)					**(0.124)**				
Local Bank	0.130*					0.290***				
	(0.069)					(0.109)				
Family Firm * Fin. Share > 30%		-0.117					-0.062			
		(0.077)					(0.118)			
Fin. Share > 30%		0.209***					0.150			
		(0.069)					(0.106)			
Family Firm * Rel. Length > 10 y			**-0.141***					-0.024		
			(0.075)					(0.112)		
Rel. Length >10 y			0.107					-0.105		
			(0.074)					(0.113)		
Family Firm * Num. Banks > 5				**-0.174****					**-0.285****	
				(0.082)					**(0.131)**	
Num. Banks > 5				0.161*					0.284**	
				(0.083)					(0.134)	
Family Firm * Low Conc. Market					-0.110					-0.056
					(0.076)					(0.115)
Low Conc. Lend. Market					0.090					-0.041
					(0.077)					(0.117)
+ Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,070	10,020	11,280	11,280	11,280	8,858	9,433	10,605	10,605	10,605
Pseudo R^2	0.095	0.107	0.105	0.102	0.102	0.148	0.140	0.140	0.141	0.140

Notes: The table reports Probit marginal effects. Three, two and one star (*) mean, respectively, a 99, 95, and 90 percent level of significance. Standard errors clustered at the firm level are in parentheses. Local Bank is a dummy variable equal to one if the firm's main bank is located in the same province of the company. Financing Share is the share of the firm's main bank financing (30 percent is the median value of the sample). Relationship Length is the length of the relationship between the firm and its main bank. Number of Banks is the number of bank relationships enjoyed by the firm (5 is the median value of the sample). Low Concentrated Lending Market is a dummy variable equal to one if the provincial HHI (where the company operates) is less than 0.068 (the median value of the sample).

Table A4

Family ownership, socio-economic conditions and credit rationing.

Probit Model	Weak Rationing					Strong Rationing				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Family Firm	0.145**	-0.001	0.114**	0.104	0.069	0.193**	-0.013	0.158*	0.242	0.097
	(0.062)	(0.059)	(0.054)	(0.100)	(0.056)	(0.090)	(0.087)	(0.084)	(0.168)	(0.085)
Family Firm * High Donation	-0.063					-0.164				
	(0.077)					(0.111)				
High Donation	-0.045					-0.024				
	(0.089)					(0.099)				
Family Firm * High Non-profit		0.083					0.035			
		(0.077)					(0.116)			
High Non-profit		0.635					-0.555			
		(0.406)					(0.359)			
Family Firm * High Trust			-0.012					-0.075		
			(0.080)					(0.118)		
High Trust			-0.731**					-0.427		
			(0.326)					(0.550)		
Family Firm * North and Center				0.006					-0.135	
				(0.106)					(0.173)	
North and Center				0.006					0.491	
				(0.263)					(0.487)	
Family Firm * High Judicial Eff.					0.050					0.032
					(0.078)					(0.118)
High Judicial Eff.					-0.779**					-0.504
					(0.326)					(0.549)
+ Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region * Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,280	11,280	11,280	11,280	11,280	10,605	10,605	10,605	10,605	10,605
Pseudo R^2	0.102	0.102	0.102	0.102	0.102	0.141	0.141	0.139	0.139	0.139

Notes: The table reports Probit marginal effects. Three, two and one star (*) mean, respectively, a 99, 95, and 90 percent level of significance. Standard errors clustered at the firm level are in parentheses. All of the variables are defined in Table 1. Firms are categorized as located in provinces with High Blood Donation if the number of blood bags per million inhabitants collected by AVIS (the Italian association of blood donors) is more than 0.035 (the median value of the sample). Firms are categorized as located as located in regions with High Non-Profit Workers (Low Non-Profit Workers) if the percentage of workers in a Non-profit organization in 1999 is more (less) than 0.87 percent (the median value of the sample). Firms are categorized as located in provinces with High Trust if the indicator of trust developed by the World Values Survey is more than 3.352 (the median value of the sample). Provinces in the north of Florence are located in the North, provinces between Florence and Rome are located in the Center, and provinces in the south of Rome are in the South. Firms are categorized as located in provinces with High Judicial Efficiency if the number of days it takes to complete a first-degree trial by the courts located in the province is lower than 346 days (the median value of the sample).