

## **Bank Credit Access and Gender Discrimination: An Empirical Analysis**

**Emma Galli and Stefania P. S. Rossi** \*

**Abstract** Based on a broad body of literature that investigates the determinants of gender discrimination in the credit market, we provide an empirical analysis on women's access to credit by employing a set of financial viability data for a sample of 7 European countries after the global financial crisis (2009 to 2013). We control for the characteristics of the firms, such as business size, age and sector of activity, as well as for socio-economic factors, and find that, on the demand side, female firms apply for bank loans less than male firms, and one of the relevant determinants for their decision not to apply is the fear of rejection. On the supply side, when applying, female firms face a higher rate of rejection than male firms.

Key words: Credit access, gender discrimination, banking system, social capital

JEL classification codes: G20, G21

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\* We thank the ECB for the use of data from the ECB SAFE Survey on access to finance of small- and medium-size enterprises (SMEs) in the Euro area. Additionally, we thank Danilo Mascia for research assistance. Stefania P. S. Rossi gratefully acknowledges research grants from the Autonomous Region of Sardinia, *Legge Regionale 2007, N. 7* [Grant Number CRP-59890, year 2012].

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## **1 Introduction**

The access conditions to a broad range of financial services and in particular to bank credit countries play a decisive role in the survival of the small- and medium-size enterprises in both industrialized and developing countries, especially for firms owned or managed by women. This issue is considered crucial also in Europe, as demonstrated by a recent initiative of the European Central Bank, which, beginning in the first half of 2009, has conducted a six-month survey of small- and medium- size enterprises (SMEs) in the Euro area (SAFE survey) regarding their access to finances. The survey asks firms to provide information on several financial-related issues - growth and profitability, internal/external source of financing, credit applications and outcomes, credit availability and conditions - that are then stratified by gender. Based on a broad theoretical and empirical literature aimed to explain gender differences when accessing to credit, we focus on bank loan access granted to female and male firms using the SAFE survey dataset for 7 European countries that belong to different macro-regions during the interval 2009-2013. Specifically, we address two critical issues: (1) whether there is gender discrimination and (2) how the structure of the market, as well as the social and institutional context, affects women's access to credit.

The paper is organized as follows. In Section 2, we review two different strands of literature, one which focuses on the determinants of gender discrimination in formal credit access from the demand and/or supply side and the other which addresses the effects of social capital on financial access of female and male firms. In Section 3, we present some stylized facts about bank access stratified by gender, together with data about major aspects of the banking system and the social context at the country level. In Section 4, we present our empirical strategy and results; section 5 draws some conclusions.

## **2 Related Literature**

Several studies have emphasized the existence of gender differences in the financial structure of enterprises. As noted by Cesaroni (2010), women-led enterprises face greater difficulties than male firms face in accessing credit. Treichel and Scott (2006) and Coleman and Robb (2009), among others, argue that women are more likely to use personal funds, earnings from the business, home equity loans, credit cards, and family loans to finance their businesses rather than go into debt or sell shares.

The economic literature is divided in explaining women's reasons for self-financing and provides mixed evidence with respect to different geographical areas. Part of the literature attributes observed gender-based differences in interest paid, collateral required and credit made available to demand-driven factors, such as differences in risk-aversion and in reliability between men and women (see, among others, Barber and Odean, 2001; Croson and Gneezy, 2009). Some studies argue that in many cases it is the perception that women face more challenges to access bank credit, which may itself explain their lower propensity to use external sources of credit or their tendency to apply for loans in smaller amounts (Coleman, 2000; Cole and Mehran, 2011). Moreover, women's access to credit could be affected by their choices about firm characteristics, sector of activity, lower education, business management experience, inability or resistance to provide collateral or personal guarantees and smaller firm size (Coleman, 2002). More recently, Stefani and Vacca (2013) empirically investigate whether gender affects small firms' financial structure and access to credit in the four largest European countries - Germany, France, Italy and Spain. Their findings indicate that female firms have difficulty accessing bank finance, even though this pattern seems to be largely explained by the characteristics of female firms, such as business size, age and sector of activity rather than by gender-discrimination.

Another branch of literature focuses on the supply side to verify whether female entrepreneurs face lower credit availability and/or worse cost conditions. While some studies find that female firms have greater difficulties than male firms in obtaining bank loans (Calcagnini and Lenti, 2008; Bellucci et al., 2010), others exclude gender discrimination after controlling for credit history, assets, sales, and years in business (Cavalluzzo et al., 2002; Blanchflower et al., 2003; Muravyev et al., 2009).

From the supply-side perspective, a few papers focus on the role that social capital<sup>2</sup> plays in the credit market, specifically on women's access to credit. Since the stable functioning of the credit market is based on credibility and trust, a higher level of social capital in the economy may reduce the asymmetric information that characterizes the credit contract, making easier the access to bank loans especially for people and firms that generally use informal financing channels, such as friends and families (Guiso et al., 2004; Alesina et al., 2013; Guiso et al., 2013; Lozzi and Mistrulli, 2014) and diminishing the use of real guarantees for the mortgage (Moro and Fink, 2013; Mistrulli and Vacca, 2014). Finally, some studies have found that the role of cooperative banks in credit markets is more relevant and the quality of the credit supply is greater where social capital is higher, given that the latter positively affects cooperation in credit markets by reducing the free-ride phenomenon (Albertazzi and Marchetti, 2010; Catturani, Kalmi and Stefani, 2014).

### **3 The Access to Credit by Male and Female Small-Medium Size Firms: Data Description**

#### *3.1 Bank loan applications and outcomes*

To describe the access to credit by female and male small- and medium-size firms we use data from the SAFE Survey which provide information about applications and results of bank loans, stratified by gender, in the Euro area. The survey, which is now conducted by the European Central Bank every six months in a large number of European countries, was initially administered in the first half of 2009. We include in our sample 7 countries that belong to different macro-regions - Italy and Spain (southern Europe); Austria, France, Germany and the Netherlands (western Europe); Finland (northern Europe).<sup>3</sup> Different waves of the ECB-SAFE survey from the first half of 2009 to the first half of 2013 are available for these countries.

From this survey, it emerges that, overall, female firms resort to bank loans less frequently than their male counterparts - 30% and 37%, respectively. This pattern is further confirmed by information regarding the use of other sources of finance as approximately 30% of male firms use other channels, including internal funds, for finance, while 25% of female firms seek funds from other sources.

We specifically focus on the applications of SMEs firms for bank loans and their outcomes. Information on the financial viability is portrayed in Fig. 1, where the applications for bank loans are disjointed from the results. With respect to the demand side, we notice that a) female firms seem to apply for bank loans less frequently than male firms (respectively, 22% and 27%); b) the percentage of female firms that do not apply due to fear of rejection (respectively, approximately 6% and 8%) or for other reasons (respectively, approximately 18% and 21%) is different from that of male firms. From the supply side, data on outcomes of applications indicate that the rate of rejection for female firms is higher than that for male firms (respectively, 14% and 10%). Furthermore, the percentage of female firms receiving the full amount requested, approximately

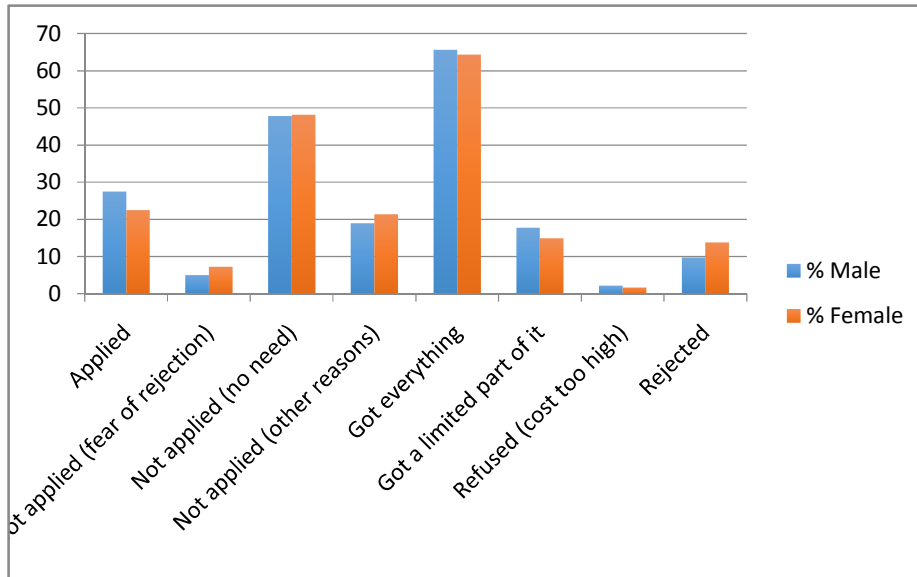
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<sup>2</sup>Social capital can be defined as the advantages and opportunities that people obtain through membership to certain communities or resources of individuals that emerge through social ties (for a wide discussion of the different dimensions of social capital see Coleman, 1994 and, more recently, De Blasio et al., 2012).

<sup>3</sup>For the Central-Eastern European countries, the ECB SAFE data are available only for Slovenia and Slovakia, but on two waves.

62%, or the partial amount requested, approximately 14%, is lower than that of male firms, which is approximately 68% and 18%, respectively. Overall, female firms apply for bank loans less often than male firms because female firms are afraid of being rejected. This is because when female firms apply, they face a higher rate of rejection or receive less bank financing than do male firms.

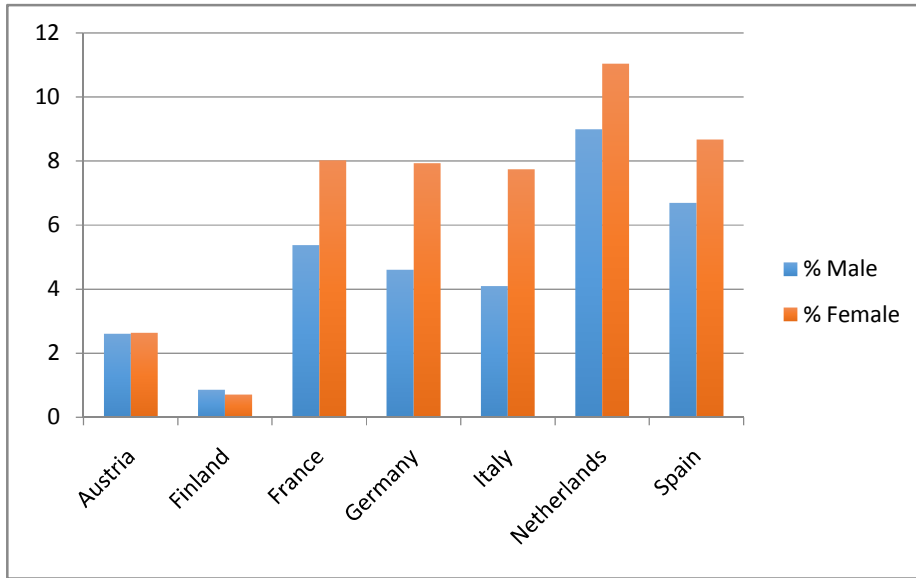
**Fig. 1 Bank loan applications and results, overall sample (percentage frequencies)**



*Source: Our elaborations are based on data from the ECB SAFE survey, waves from the first half of 2009 to the first half of 2013.*

In Fig. 2, we report the self-restraint of female firms in bank loan applications as measured by the frequency percent of not applying due to fear of rejection and stratified by country. We find a common pattern across countries that shows that female firms apply significantly less often than male firms because the former fear that their applications will be rejected. The difference in self-restraint due to fear of rejection between female and male firms is more pronounced in France, Germany, Italy, the Netherlands and Spain. Finland is the only country where the gender gap regarding access to credit is slightly inverted, while in Austria, the difference is statistically not significant.

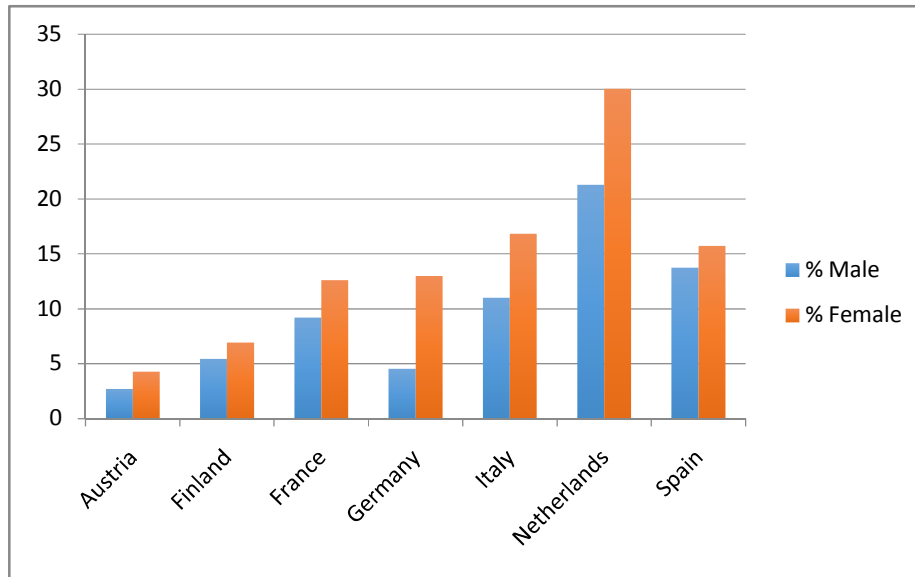
**Fig. 2 Bank loans: Did not apply due to fear of rejection, by country (percentage frequencies)**



*Source: Our elaborations are based on data from the ECB SAFE survey, waves from the first half of 2009 to the first half of 2013.*

On the supply side, in Fig. 3, we report the results of applications, stratified by country. Data show that rejection rates for female firms are significantly higher than those for male firms in most countries, particularly in France, Germany, Italy and the Netherlands. This descriptive analysis suggests that at the country level, different degrees of gender restraint in credit access exist.

**Fig. 3 Bank loan rejections, by country (percentage frequencies)**



Source: Our elaborations are based on data from the ECB SAFE survey, waves from the first half of 2009 to the first half of 2013.

### 3.2 Banking System and Social Capital

From the descriptive analysis of the applications for bank loans and the results, significant differences emerge for the 2009 to 2013 period. Stefani and Vacca (2013), who use the same survey for France, Germany, Italy and Spain for the years 2009 to 2011, argue that the existing gap in credit access is due primarily to specific characteristics of the female firms rather than the result of gender discrimination. To further investigate this issue, we take into account an additional set of economic and social features that may play a role in credit demand and supply. First we consider some specific features of the banking system, such as the degree of concentration, the market share of cooperative banks and the bank nonperforming loans. Greater competition in credit supply generally guarantees greater viability and more favourable conditions and therefore, *ceteris paribus*, female firms may take advantage of this (Alesina et al., 2013). Non-performing loans are a proxy of bank credit risk as extant literature has noted their relevance in affecting the pro-cyclic behaviours of banks with respect to lending (see, among others, Bouvatier and Lepetit, 2008). According to the theory of discrimination, female firms may be perceived as riskier borrowers; therefore, *ceteris paribus*, they would be more heavily penalized when accessing formal credit during the slowdown of the economic cycle when compared to male firms. Part of the literature (Albertazzi and Marchetti, 2010; Catturani, Kalmi and Stefani, 2014) has found that cooperative banks increase credit quantity and quality in areas characterised by higher social capital. Therefore, where both the market share of cooperative banks and the degree of social capital are higher, female firms may have easier access to credit. We identify some measures of social capital that may affect differences in credit access between female and male firms, such as the global gender gap, which assesses the magnitude of gender-based disparities in four areas - political empowerment, educational attainment, economic participation and opportunity, and health and life expectancy, or, alternatively, the strength of women's economic rights. The global gender gap index ranges from 0

(inequality) to 1 (equality) while the index of women's economic rights ranges from 0 (no economic rights) to 3 (all or nearly all of women's economic rights are guaranteed by law and the government fully and vigorously enforces these laws in practice). These data are reported in Table 1.

**Table 1 Banking system, social capital and quality of institutions indicators by country (2009-2013)**

Country	Bank Concentration HHI	Market Share of Cooperative Banks (%)	Bank Nonperforming Loans to Total Gross Loans (%)	Global Gender Gap Index	Legal Rights Index	Women's Economic Rights
Austria	0.040	36.96	2.7	0.722	7	2
Finland	0.329	34.20	0.6	0.835	8	3
France	0.059	51.40	4.1	0.709	7	3
Germany	0.028	19.70	3.0	0.756	7	3
Italy	0.039	33.62	12.0	0.680	3	2
Netherlands	0.206	39.20	3.0	0.753	5.4	3
Spain	0.060	6.74	6.1	0.740	6	2

Sources: The Herfindahl Index for Credit Institutions is provided by the Statistical Data Warehouse of the ECB, available via <http://sdw.ecb.europa.eu/browseSelection.do?type=series&q=Herfindahl+index+for+Credit+institutions&node=SEARCHRESULTS>.

The Market Share of Cooperative Banks – measured as the percentage of deposits held by the Cooperative Banks – is provided by the European Association of Cooperative Banks, available via [http://www.eacb.coop/en/cooperative\\_banks/key\\_figures/last\\_key\\_figures.html](http://www.eacb.coop/en/cooperative_banks/key_figures/last_key_figures.html)

Data on Bank Nonperforming Loans to Total Gross Loans (%) are drawn from the World Bank.

The Global Gender Gap Index is retrieved from the World Economic Forum and ranges from 0 (inequality) to 1 (equality).

The Index of the Legal Rights is drawn from the World Bank and ranges from 0 (weak) to 10 (strong).

The index of Women's Economic Rights is retrieved from the Quality of Institutions dataset, University of Goteborg, and ranges from 0 (no economic rights) to 3 (all or nearly all of women's economic rights are guaranteed by law and the government fully and vigorously enforces these laws in practice). For all these indices we report the average values calculated for the period 2009 to 2013.

The European countries appear quite diversified with respect to banking systems characteristics and social capital. Finland and the Netherlands show a highest degree of concentration, while Germany and Italy are characterized by a more competitive banking system. With respect to non-performing loans, Italy and Spain are among the poorest performing countries. Spain has the lowest market share of cooperative banks while the latter in France, Austria, Finland and Italy is very high.

The gender gap index shows that Italy is the worst performing country, while Finland, Germany and the Netherlands are among the best. This picture is generally confirmed with respect to the strength of the women's economic rights. In the next section we develop an empirical analysis to verify whether the existence of differences in the attitude of female firms towards the recourse to bank credit detected in this sample of European countries might be related to the gender rather than to the specific characteristics of the female enterprises and/or to the banking system features and social capital indicators.

## 4 The econometric analysis

### 4.1 The empirical strategy

We develop our empirical analysis from both the demand and the supply side by using as dependent variables the answers provided by the survey, which are particularly relevant in assessing the capability of women-led firms to access and to obtain bank credit.

First, to capture the demand side we consider the set of four answers (applied; did not apply because of possible rejection; did not apply because of sufficient internal funds; did not apply for other reasons) about applications for a) bank loans; b) bank draft and similar.<sup>4</sup>

For the supply side we consider the outcomes of two types of bank applications (a and b) disentangled into four answers: applied and got everything; applied and got part of it; applied but refused because the cost is too high; applied but rejected.

Since the answers provided by the firms can take more than two, unordered values, we use a multinomial logistic analysis. This technique fits maximum likelihood multinomial logit models with discrete dependent variables when the dependent variable takes more than two outcomes and the outcomes have no natural ordering (see, among others, Greene, 2012; Treiman, 2009). Another advantage of the multinomial logistic model is that we can include continuous variables and multiple categorical variables as regressors.

We proceed in two steps. We first estimate the probability of applying for external funds and the probability of obtaining external funds, controlling only for the firms characteristics, namely:

$$P_i(\text{applying for external funds}) = f(\text{female, size, age, sector, country, type, ownership, wave}) \quad [1a]$$

$$P_i(\text{obtaining external funds}) = f(\text{female, size, age, sector, country, type, ownership, wave}) \quad [1b]$$

Then we add in [1a] and [1b] the set of banking system and social capital indicators:

$$P_i(\text{applying for external funds}) = f(\text{female, banking system concentration, market share of cooperatives, non-performing loans, social capital, size, age, sector, type, ownership, wave, country}) \quad [2a]$$

$$P_i(\text{obtaining external funds}) = f(\text{female, banking system concentration, market share of cooperatives, non-performing loans, social capital, age, sector, type, ownership, wave, country}) \quad [2b]$$

The dependent variable,  $P(\cdot)$ , is the probability that firm  $i$  applies for external finance (eq. 1a and 2a) or, conditional on application, the probability of obtaining the funds (eq. 1b and 2b). The coefficients from the estimation will show whether each independent variable causes either an increase or a decrease in the likelihood of getting the indicated answers by the firm, compared to the reference answer (base case). Additionally, we compute the exponential value of the estimated coefficient  $b$ ,  $e^b$ , for one unit change in the corresponding variable. This measures the relative risk ratio (RRR), i.e. the risk of the outcome relative to the base outcome. We also estimate the marginal effect on the female firm variable to measure how the probability of applying for external funds and

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<sup>4</sup>The SAFE survey includes in the questionnaire the demand for trade credit and demand for other external financing. In our investigation we only consider the demand for bank credit and similar.



of obtaining external funds changes as a consequence of the fact that the respondent firm is led or owned by a woman.

In the first specifications [1a] and [1b] the independent variables are dummies; in particular, female firms takes the value of 1 if the firm is owned or managed by a woman, 0 otherwise. All the others (age, sector, type, ownership, country, wave) are multivariate dummies (see Appendix I for the description).

In the second specifications [2a] and [2b], we include the banking system characteristics and the social capital indicators, which are all continuous variables.

## 4.2 Results

The empirical results of our estimations are presented in tables 2 and 3. Looking at the demand side, as the descriptive analysis has already shown, we confirm that there are gender differences in credit access. Table 2 reports the coefficients of the multinomial logistic regressions and the RRR for both the specifications [1a] and [1b]. For convenience, we omit to report in the table the coefficients of the control variables (age, sector, type, ownership, country, wave) which are all significant. In other terms, once we control for a set of firms' characteristics, significant differences in the bank loan applications emerge for female firms as opposed to male counterparts. Specifically, the positive and highly significant coefficient of female firms in the specification [1a] suggests that the latter more likely self-restrain from applying for bank loans because of fear of rejection, availability of sufficient internal funds and other reasons, as opposed to the base outcome ("applied"). Additionally the RRR shows that the risk of self-restrain for female firms as opposed to the base outcome ("applied") is 1.418, 1.139 and 1.186 times higher than for male firms, respectively for fear of rejection, availability of internal funds and other reasons. These results are confirmed when bank overdraft is concerned (see table 2).<sup>5</sup> The estimated marginal effect is 6 percentage point with respect to the self-restrain motivation while increase to 48 and 20 percentage points when the question concerns respectively the availability of other sources and other reasons.

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<sup>5</sup>Results for the applications for trade credit and other external financing are available upon request.

**Table 2. Bank loan applications. Multinomial logistic estimations**

	Applied	Did not applied because of possible rejection		Did not apply because of sufficient internal funds		Did not apply for other reasons	
		Specif. # 1a	Specif. # 2a	Specif. #1a	Specif. #2a	Specif. #1a	Specif. #2a
		Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients
		[RRR]	[RRR]	[RRR]	[RRR]	[RRR]	[RRR]
[Base outcome]							
Dependent variable: <b>Application for bank loan</b>							
Female firm		0.350 *** [1.418] <i>0.062</i>	0.346 *** [1.414] <i>0.063</i>	0.130 *** [1.139] <i>0.485</i>	0.134 *** [1.143] <i>0.484</i>	0.171 *** [1.186] <i>0.200</i>	0.176 *** [1.193] <i>0.199</i>
Gender gap		-	-0.958 *** [0.384]	-	0.257 ** [1.294]	-	-0.060 [0.942]
Bankconcentration		-	-0.060 *** [0.942]	-	0.023 *** [1.024]	-	0.002 [1.002]
Cooperative banks market share		-	-0.085 *** [0.919]	-	-0.012 ** [0.988]	-	-0.011 * [0.989]
Non-performing loans ratio		-	0.151 *** [1.163]	-	0.047 *** [1.048]	-	-0.006 [0.994]
No of observations		42176	41675	42176	41675	42176	41675
Pseudo R2		0.038	0.039	0.038	0.039	0.038	0.039

Starred values \*\*\*, \*\*, \* denote significance at the 1%, 5% and 10% levels, respectively. In quadratic bracket, we report the RRR. The estimated marginal effects for female firm are reported in italics.

Results from the second specification [2a] are noteworthy. Here we verify whether banking system characteristics and social capital affect credit access demand. First, we observe that the coefficients on female firms remain positive and highly significant in all the cases under consideration, suggesting that female firms more likely self-restrain from applying for bank loans because of fear of rejection, availability of internal funds and other reasons, as opposed to the base outcome (“applied”). Second, the coefficients related to the banking system characteristics and social capital indicators are significant and consistent in their signs with the predictions of the model, in most cases under investigation. More in details, we detect a negative and highly significant coefficient for the market share of cooperative banks, which suggests that the likelihood that firms do not apply for bank loans because of fear of rejection, as opposed to the base outcome (“applied”) is lower when the market share of cooperative banks is higher. Consistently with the prediction of the theories, the positive and highly significant coefficient of the non-performing loans (proxy for the bank credit risk), suggests that the higher is the bank credit risk, the higher is the likelihood that firms do not apply because of fear of rejection and availability of internal funds, as opposed to the base outcome (“applied”).

Looking at the social capital indicator, the coefficient on gender gap turns out negative and highly significant, suggesting that higher social capital reduces the likelihood that female firms do not apply because of fear of rejection. Interestingly, the coefficient of the gender gap turns to be positive and significant in the case of “Did not apply because of sufficient internal funds”, suggesting that an higher level of social capital increases the probability of financial autonomy for small – medium firms. When we use alternatively the index of woman economic rights, our results are confirmed in all cases.<sup>6</sup> Then we focus on the supply side and report our results on the outcomes of credit applications in table 3.

**Table 3. Bank loan results. Multinomial logistic estimations**

	Applied and got Everything	Applied and got a part of it		Applied but refused because cost too high		Appliedbutwasrejected	
		Specif. # 1b	Specif. # 2b	Specif. #1b	Specif. #2b	Specif. #1b	Specif. #2b
	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients
	[RRR]	[RRR]	[RRR]	[RRR]	[RRR]	[RRR]	[RRR]
[Base outcome]							
Dependent variable: <b>Application for bank loan</b>							
Female firm	-0.140 [0.870] <i>0.157</i>	-0.139 [0.870] <i>0.158</i>	-0.305 [0.737] <i>0.015</i>	-0.302 [0.740] <i>0.015</i>	0.183 * [1.201] <i>0.118</i>	0.165 * [1.179] <i>0.116</i>	
Gender gap	-	-0.759 *** [0.468]	-	0.246 [1.279]	-	-1.871 *** [0.154]	
Bank concentration	-	-0.039 *** [0.962]	-	-0.089 ** [0.915]	-	-0.091 *** [0.913]	
Cooperative banks market share	-	-0.039 *** [0.962]	-	-0.093 *** [0.911]	-	-0.094 *** [0.911]	
Non-performing loans ratio	-	0.093 *** [1.097]	-	0.176 *** [1.193]	-	0.114 *** [1.121]	
No of observations	11438	11351	11438	11351	11438	11351	
Pseudo R2	0.065	0.068	0.065	0.068	0.065	0.068	

<sup>6</sup>Results are available upon request.

Starred values \*\*\*, \*\*, \* denote significance at the 1%, 5% and 10% levels, respectively. In quadratic bracket, we report the RRR. The estimated marginal effects for female firm are reported in italics.

The estimates of equation [1b] show that, after controlling for firm features, female firms display a significantly higher likelihood of having their bank loan application rejected, as opposed to the base outcome (“applied and got everything”). The risk of having the bank loan application rejected for female, as shown by the RRR, is 1.2 times higher than male firms and the marginal effect is about 12 percentage point. In the second specification [2b] we verify whether banking system characteristics and social capital affect bank credit supply. The evidence obtained from this specification [2b] seems to corroborate the presence of gender differences. The coefficient on female firms is negative and significant showing that the latter more likely have their bank loan application rejected, as opposed to the base outcome (“applied and got everything”). In this case, as shown by the RRR, the risk of having the bank loan application rejected for female firms is 1.18 times higher than male and the marginal effect is about 12. Moreover, the coefficients of the banking system characteristics and social capital turn out significant and consistent in their signs with the predictions of our hypotheses in most cases under investigation. For convenience we omit to report, in table 3 the coefficients of the control variables (age, sector, type, ownership, country, wave). Our results show that the higher is the market share of cooperative banks, the lower is the likelihood that the application for bank credit of firms is rejected, as opposed to the base outcome (“applied and got everything”).

Consistently with the prediction of the model, the positive and highly significant coefficient of the non-performing loans suggests that the higher is the bank credit risk, the higher is the likelihood that the application for bank loan is rejected, as opposed to the base outcome (“applied and got everything”).

Finally, the coefficient on the gender gap index turns out negative and highly significant, suggesting that the higher is the social capital the lower is the likelihood of bank loan rejection. When we use alternatively the index of woman economic rights, the results are confirmed in all cases.<sup>7</sup>

In order to verify the robustness of our results, we introduce some interaction terms in the specification [2a] and [2b]. Specifically we interact the variable ‘female firms’ either with gender gap or with the market share of cooperative banks. Alternatively we estimate our model only on the sub-sample of female firms. In both cases we confirm the existence of gender differences in the access to bank credit from both the demand and the supply side.

## 5 Conclusions

Following the global financial crisis, liquidity shortage and heavy restrictions worsened the conditions of the credit market. Under such circumstances, access to formal credit by female small- and medium-size firms is crucial to the survival of the businesses. In this paper, we review two different strands of literature on the issue, one which focuses on the determinants of gender discrimination in credit access from the demand and/or supply side, and the other, which addresses the effects of social capital on financial access of female and male firms. Based on the literature, we perform an empirical analysis on bank loan access that is stratified by gender using the ECB SAFE survey for a sample of 7 European countries during the period 2009 to 2013.

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<sup>7</sup>Results are available upon request.

Our results show that female firms have some difficulty in accessing bank finance. As far as the application for bank loan is concerned, significant differences emerge for female firms as opposed to male counterparts after controlling for a set of firm's features, banking systems characteristics and social capital level. Overall, female firms apply for bank loans less frequently than their male counterparts, especially due to fear of rejection; when applying, they face a higher rate of rejection than male firms.

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