Does Corruption Affect the Access to Bank Credit for Women-Led Firms and Small Enterprises? Evidence from European SMEs*

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Abstract

In this paper, we have attempted to assess how a specific socio-institutional environment, identified according to the level of corruption, may affect the access to credit for SMEs.

Using a sample of 62,646 observations – drawn from the ECB-SAFE survey – related to SMEs chartered in 11 Euro-area countries during the period 2009-2014, we first investigate whether the manager's gender and the firm's size have an impact on the demand and the supply of bank loans. We then perform our tests by splitting our sample into low- and high-corrupt countries.

Overall, the level of corruption seems to play a role in the applications and in the outcomes of the applications for bank loans when female firms as well as small firms are under investigation. Interestingly, results highlight that small firms chartered in high corrupt countries face a greater probability of rejection for their loan applications (more than 16%) compared to the small firms located in low corrupt economies (about 9%).

Our findings suggest that anti-corruption policies and measures enhancing transparency in the economy may be crucial in reducing the negative spillovers generated by a low-quality institutional environment on the access to credit by small firms and women-led businesses.

Key words: Credit access, gender discrimination, SMEs, freedom from corruption
JEL classification codes: G20, G30, G32, J16

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1. Introduction

The access conditions to bank credit play a decisive role in the survival and development of the small- and medium-size enterprises (SMEs) in both industrialized and developing countries. This issue is considered crucial also in Europe where, as a consequence of the financial crisis, liquidity shortage and heavy restrictions worsened the credit conditions of non-financial firms, especially SMEs. Other than economic and financial factors, the quality of the institutional environment may play an important role in increasing the level of trust in the credit market and improving the credit conditions for the businesses. Corruption is unanimously recognized in the literature as an important dimension of the quality of institutions. Most of the international organizations consider corruption as one of the major factors that affect the business environment and the performance of firms, especially medium and small (see on this point World Bank, 2007; Business Environment and Enterprise Performance Survey, various years).

A specific concern in this respect regards the impact that the difficulties in the credit market may have on the women-led SMEs in Europe, given that on average female firms resort to bank loans less frequently than their male counterparts – 30% and 37%, respectively (SAFE, various years). Moreover, if we look at the worldwide data on the gender gap in 2015 (World Economic Forum), gender inequalities in economic, political and cultural contexts is still wide among countries. A significant degree of variation in the gap, especially in economic participation and political empowerment, emerges even across European countries.

Several studies have investigated whether there is any evidence of self-restrain in the demand of bank credit and gender discrimination in the supply credit but they provide mixed evidence in different countries. Only a few have verified whether a gender-related prejudice exists in the credit market for SMEs and none has in the Euro area using the SAFE survey data, a recent initiative of the European Central Bank, which, beginning in the first half of 2009, provide six-month information about their access to finances.

Stefani and Vacca (2013) find that in the major Euro-area countries, female firms have difficulty in accessing bank finance because of their characteristics (business size, age and sector of activity) rather than because of gender-discrimination. Moro and Wisniewski (2014) find no evidence that financial institutions are biased against female managers while they show that female-run firms tend to apply less often, as they seem to be less confident and anticipate being rejected. As a consequence of this behavior, firms managed by women obtain less bank financing.

The literature has recently addressed the issue of the role played in the credit market by the social capital (Uzzi, 1999; Guiso et al., 2004; Ostergaard et al., 2009; Guiso et al., 2013; Moro and Fink, 2013; Mistrulli and Vacca, 2015) and the institutional environment (La Porta et al. 1997; Qian and Strahan, 2007; Djankov et al. 2008; Maresch et al., 2015), but no attention has been given to the relation between corruption and credit access. Our paper is an attempt to fill this gap using a sample of 62,646 observations – drawn from the ECB-SAFE survey – related to SMEs chartered in 11 Euro-area countries during the period 2009-2014 to verify whether the level of corruption affects the SMEs access to bank loans. We focus on some intrinsic characteristics of the firms (such as gender of the ownership/management, size, creditworthiness) that may identify a lower capability to resist to corruption.

The paper is organized as follows. In Section 2, we review the literature on the determinants of bank credit access focusing on the gender discrimination issue from both the demand and supply perspective as well as on the socio-institutional environment. In Section 3, we illustrate the data and the methodology. In Section 4, we discuss the steps of our empirical strategy and comment the results. Section 5 draws some conclusions.

2. Related Literature

2.1 Credit access and gender

Several studies have investigated whether the gender of the firm's manager/owner is a major factor that leads to more severe credit rationing. The existing empirical evidence is mixed and mostly affected by the country-context.

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).

On the supply side, earlier studies conclude that women-led firms face different loan contract terms that put them at a relative disadvantage as companies directed by women tend simply to survive, while male-led ones have a propensity to grow (Buttner and Rosen, 1988; Cooper, Gimeno-Gascon, and Woo, 1994; Fabowale, Orser, and Riding 1995). Most of the empirical literature on US data claims that, after controlling for credit history, assets, sales, and years in business, women-led small and medium firms do not face on average higher loan denial rates (Cavalluzzo and Cavalluzzo 1998, Cavalluzzo, Cavalluzzo, and Wolken 2002, Blanchflower, Levine, and Zimmerman 2003). Using data from Trinidad and Tobago, Storey (2004) confirms that women-owned businesses are not discriminated in the credit market. On the contrary, using the cross-country Business Environment and Enterprise Performance Survey (BEEPS), Muravyev, Talavera, and Schäfer (2009) find some evidence that, compared to male counterparts,

female firms are less likely to obtain a bank loan and charged higher interest rates when loan applications are approved. There is also some evidence that the gender differences in access to financing disappear with the level of financial development. Raturi and Swamy (1999) report that in Zimbabwe the probability of receiving a business loan conditional on applying is surprisingly lower for men. Some studies on Italian data find that female firms have greater difficulties than male firms in obtaining bank loans (Calcagnini and Lenti, 2008; Bellucci et al., 2010; Cesaroni, 2010).

As mentioned above, only a few papers specifically address this issue using European data. Stefani and Vacca (2013) 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. Moro and Wisniewski (2014) find that financial institutions are not biased against women managers when considering the loan applications of their companies, as the likelihood of being successful is independent of gender. This holds true regardless of the concentration of the banking industry in a given country. Apparently banks allocate funds according to the creditworthiness of a firm and the increased use of figures-based credit scoring and credit rating tools may have contributed to limiting gender discrimination. More interestingly, female-run firms tend to apply less often, as they seem to be less confident of a positive outcome.

2.2 Credit access and the quality of the socio-institutional environment

It is widely recognized in the literature that the efficiency in the enforcement of legal rights in court (La Porta et al. 1997; Qian and Strahan, 2007; Djankov et al. 2008; Maresch et al., 2015) as well as the competitiveness of the banks' market (Cavalluzzo et al., 2002; Alesina et al., 2013) have an impact on the banks' lending decisions. Recently Maresch et al. (2015) investigate the

impact of the legal environment (i.e. creditor rights protection and judicial enforcement) on credit access and by using the SAFE data related to firms chartered in 11 European countries they verify whether the firm obtained the credit it applied for. They find that the better the judicial enforcement system (reduced costs, reduced time, and limited number of procedures) and the higher the creditor protection (high overall strength of the legal system, high property rights protection), the lower the probability that the firms are credit constrained.

With respect to the role played by the social capital in the credit market, an interesting branch of the literature stresses that by increasing the level of trust and reducing the asymmetric information characterizing credit contracts, the existence of social capital makes the access to bank loans easier and less costly (Uzzi, 1999; Guiso et al., 2004; Ostergaard et al., 2009; Guiso et al., 2013; Moro and Fink, 2013; Mistrulli and Vacca, 2015). Indeed, on the borrower side, social capital affects individual behaviour, thus causing the firm to be less incline in engaging opportunistic conducts that are against moral and social rules. On the creditor side, social capital facilitates the collection of soft information, which in turn reduces adverse selection and moral hazard decisions. Moreover, by stimulating peer monitoring and other social collateral, social capital more efficiently allocates resources in the credit market, thereby reducing transaction costs and costs for credit, especially for small firms. In areas where social capital is high, the access to bank credit is easier for people and firms that generally use informal financing channels, such as friends and families (Guiso et al., 2004), and the ability to reimburse the mortgage is higher (Guiso et al., 2013). By controlling for the financial viability before and after an unexpected shock (such as the 2008 financial crisis), Mistrulli and Vacca (2015) and Lozzi and Mistrulli (2014) show that in areas characterized by high social capital, the negative effect of the 2008 financial crisis on credit access was significantly less pronounced. Alesina et al. (2013) consider social capital across different provinces in Italy and find that interest rates are lower where social capital is higher.

Corruption supposedly stimulates the opposite mechanisms in the credit market. Most of the economic literature considers corruption as a major obstacle to the social development and the

economic growth (see, among others, Myrdal, 1989; Andvig and Moene, 1990; Shleifer and Vishny, 1993; Tanzi and Davoodi, 2002; Blackburn et al., 2006). Corruption reduces private investments acting as a barrier to competition, and misallocates private and public resources; at the same time reduces the level of trust in the institutions and produce uncertainty, thereby making the economic transactions more costly and inefficient. Mauro (1995), Keefer and Knack (1997), Hall and Jones (1999), La Porta et al. (1999), Li et al. (2000), Gyimah - Brempong (2002) and Kauffman (2005) estimate a negative impact of corruption on growth for a wide cross - section of countries. Some papers (Bhagwati, 1982; Campos, Estrin e Proto, 2010, for example) focus on the mechanisms through which corruption modifies the structure of incentives and the behavior of firms. They emphasize that in a highly corrupt environment the bribes represent a barrier to entry, especially for the medium and small firms which rely on more limited financial resources. As matter of fact corruption acts as a regressive tax on businesses, especially for small firms that are not able to financially sustain the costs of corruption. Small and medium firms are characterized by an informal structure that makes corruption more tolerable. This because the scarsity of their financial resources and the difficulty of having access to bank credit constrain their economic activity thereby making impossible for them to refuse the payment of bribes whose burden per output is obviously greater than for the big companies and multinationals. Moreover, the smaller are the firms, the lower their bargaining power and capability to influence officials and institutions (Gbetnkom, 2012; Seker and Yang, 2012). However no empirical analyses have included corruption among the determinants of the SMEs access to bank credit.

3. Data and Methodology

3.1 Data description

The SAFE represents the main source of data used in this paper. This survey is jointly run by the European Central Bank (ECB) and the European Commission (EC) and conducted every six months (via the so-called waves), since 2009. The aim of the survey is gathering information

about SME's financial needs, their experience in the access to finance, as well as a series of financial and other firm-level characteristics. Each wave of the survey is addressed to a randomly selected sample of non-financial enterprises included in the Dun & Bradstreet business register. Firms in agriculture, public administration and financial services, however, are intentionally excluded. Moreover, the sample is stratified by country, firm's size and activity.

Since one of the key variables of our tests (namely the one concerning the gender) is only available from the second to the tenth wave of the SAFE, we limit our analysis to 9 waves of the survey (i.e., from July 1, 2009, to March 31, 2014). Moreover, our study is restricted to the eleven largest Euro-area economies (i.e., Austria, Belgium, France, Finland, Germany, Greece, Italy, Ireland, The Netherlands, Portugal, Spain). Such countries pertain to different European macro areas where heterogeneities in the micro and macroeconomic features, as well as in the social-institutional environment, are not negligible. Table 1 shows the distribution of our observations by country, with France, Germany, Spain and Italy displaying the highest values.

TABLE 1 HERE

3.2 Dependent variables

In order to carry out our tests, we employ questions q7a_a and q7b_a, of the survey, as dependent variables.

In particular, the first question is aimed at detecting whether a firm applied for bank loans, as well as the reasons why it did not. More specifically, the question is:

"[With regards to bank loans], *could you please indicate whether you:* (1) *applied for them over the past 6 months;* (2) *did not apply because you thought you would be rejected;* (3) *did not apply because you had sufficient internal funds;* (4) *or did not apply for other reasons?"*

The latter, instead, is addressed to only those firms who have applied and is intended to get some additional information as specified here:

"If you applied and tried to negotiate for [bank loans] *over the past 6 months, did you:* (1) *receive all the financing you requested;* (2) *receive only part of the financing you requested;* (3) *refuse to proceed because of unacceptable costs or terms and conditions;* (4) *or have you not received anything at all?"*

The values from 1 to 4, outlined in parentheses for both questions, represent the way each respondent's answers were coded.

3.3 Key variables

In this study we conduct a series of tests aimed at assessing how (*i*) the gender of the owner/director/CEO of the enterprise, and (*ii*) the firm's size affect the bank loan applications and, for the firms that applied, the results of the applications.

In particular, the SAFE collects information about the gender of either the owner, director, or CEO of the surveyed firms from the second to the tenth wave (i.e., from July 1, 2009, to March 31, 2014). This information is, thus, used to create a dummy that becomes the key part of our empirical analysis. Specifically, we generate "female" as a dichotomous variable equal to one if the owner/director/CEO of the firm is female, and zero otherwise. Figure 1 shows the percentage of female firms, in our sample, by country. Interestingly, we note that The Netherlands is the country with the lowest share of female firms (about 9.8%) in the sample. On the other hand, Germany and Portugal present the highest shares of female enterprises – about 14% and 14.6%, respectively. Overall, female firms cover about 12.5% of the sample. Such very modest figure – namely, the low share of female-led enterprises throughout our sample – may be explained by the fact that women struggle in reaching top managerial positions (Bush, 2011; Grosvold, 2011; Moro, 2014).

We then create our "small firms" dummy that is the second key variable of our analysis. More specifically, such dummy is equal to one when a firm has less than 50 employees, and zero otherwise. Figure 2 reports the percentage of small firms in our sample, by country. Interestingly

we observe that in Belgium, Finland, Greece and Ireland small firms cover more than 75% of the observations.

FIGURE 1 and FIGURE 2 HERE

3.4 Econometric methodology and control variables

The hypotheses under investigation are the following:

H_{1a}: *Female firms are more likely to self-restrain from applying for bank loans, compared to male firms.*

H_{1b}: *Small firms are more likely to self-restrain from applying for bank loans, compared to larger firms.*

H_{2a}: *Female firms face higher rejection rates for their bank loans' applications, than male counterparts.*

H_{2b}: *Small firms face higher rejection rates for their bank loans' applications, than larger counterparts.*

To test our hypotheses, we follow specifications [1a] and [1b] for the loan applications, and specifications [2a] and [2b] for the results of the applications, where we also control for the freedom from corruption[2] and a wide set of firm-level characteristics.

P_i (applying) = *f (**female**, firm-level characteristics, freedom from corruption, country, wave)* [1a]

P_i (applying) = *f (**small**, firm-level characteristics, freedom from corruption, country, wave)* [1b]

P_i (obtaining) = *f (**female**, firm-level characteristics, freedom from corruption, country, wave)* [2a]

P_i (obtaining) = *f (**small**, firm-level characteristics, freedom from corruption, country, wave)* [2b]

[2] Corruption erodes economic freedom by introducing insecurity and uncertainty into economic relationships. In the literature, three alternative approaches to measuring corruption are used: survey data on corruption perceptions, survey data on corruption experiences and 'objective' measures of corruption, such as the number of corruption-related trials or cases. We use freedom from corruption drawn from the Heritage Foundation whose score is primarily derived from Transparency International's Corruption Perceptions Index (CPI).

Later, after having calculated the mean level of the freedom from corruption across the full sample, we run the following estimates ([3a], [3b], [4a], [4b]) on two distinct clusters that identify the low-corrupted territories (observations above the mean) and the high-corrupted territories (observations below the mean).[3] The idea is to test whether we can identify a specific socio-economic environment that can positively or negatively affect the access to credit for SMEs.

P_i (applying) = *f (**female**, firm-level characteristics, country, wave)* [3a]

P_i (applying) = *f (**small**, firm-level characteristics, country, wave)* [3b]

P_i (obtaining) = *f (**female**, firm-level characteristics, country, wave)* [4a]

P_i (obtaining) = *f (**small**, firm-level characteristics, country, wave)* [4b]

Additionally, we repeat this last analysis for a sub-sample of firms that decreased their leverage throughout the observed period. This test aims at investigating the existence of any gender or size bias even in presence of decreased levels of indebtedness.

We carry out our analysis via a multinomial logit model as in Demirguc-Kunt et al. (2013), Badoer and James (2016). This choice is motivated by the fact that: a) the discrete dependent variables take more than two outcomes and the outcomes have no natural ordering; b) this technique allows the use of continuous variables and multiple categorical variables as regressors.

All regressions include time and country dummies. Calibrated weights are employed to adjust the sample to be representative of the population from which it is extracted. Standard errors are corrected for heteroskedasticity, as well as clustered at the country-level, to remove possible bias in the estimations.

Table 2 shows the summary statistics of the variables employed in our analysis. Table A1 in Appendix, instead, provides variables' description and sources.

[3] For the sake of clarity, the most corrupt territories are represented by Greece, Italy, Portugal and Spain. The less corrupt ones are, instead, the rest of the countries in the sample (i.e., Austria, Belgium, Finland, France, Germany, Ireland and Netherlands). In this regard, see Figure 3 showing the degree of freedom from corruption by country.

TABLE 2 HERE

4. Empirical Results

4.1 Multinomial logit models – full sample

The empirical results of our estimations of the effects of gender and firm's size on the demand for bank credit and its related outcomes are presented in Table 3 and Table 4, respectively, where we report the coefficients (and, in brackets, the related marginal effects) of the multinomial logit estimates of equations [1a], [1b], [2a], [2b].

Starting with the demand side (where we considered the answer "did not applied for other reasons" as the base outcome), in Table 3 (Panel A) we report the estimates of specification [1a]. In particular, in Column 1 we observe that – after having controlled for a wide set of firm characteristics – women-led firms are about 27% less likely to apply for bank loans (compared to male firms). Moreover, moving to Column 2, the positive and significant sign of our female dummy highlights that women-led businesses are 6.4% more likely than their male counterparts to self-restrain from applying for bank loans due to fear of rejection. Interestingly, we also note that a higher freedom from corruption significantly anticipates a lower likelihood of self-restrain from applying for fear of rejection.

TABLE 3 HERE

In Table 3 (Panel B) we report the multinomial logit estimates when our key variable is the dummy "small firms" – specification [1b]. Here we find that small firms less likely apply for bank loans (–25%) and more likely (6,8%) to self-restrain from applying due to the fear of possible rejection, compared to larger firms. As for the effect of corruption, this variable presents a

negative and significant coefficient in Column 2, thus suggesting that the higher the freedom from corruption, the lower the likelihood that firms do not apply because of fear of rejection.

With regards to the supply side (where we considered the answer "applied and got everything" as the base outcome), results are reported in Table 4. Panel A shows the results of the estimates related to specification [2a] where the variable of interest is the dummy female. Here, the econometric analysis does not provide evidence that banks are biased against female-led firms, since the female dummy never turns to be significant. Interestingly, the variable freedom from corruption is negative and significant (at the 10% level) indicating that when the level of corruption is lower, firms experience a lower probability of being credit-constrained.

TABLE 4 HERE

Moving to Panel B – which is based on specification [2b] – we note that small firms are 12% more likely to see their application rejected, compared to larger firms. Additionally, we also find that small businesses are 2.7% more likely than their larger peers to refuse the loan because the cost is too high.

4.2 Multinomial logit models – sample split by corruption

In this section we discuss the results from our specifications [3a], [3b], [4a], [4b], when the sample is split into two clusters obtained by sorting the observations according to the level of corruption. We recall that one cluster includes the observations pertaining to the countries with low level of corruption (or, alternatively, high level of freedom from corruption), whereas the other cluster gathers together the observations related to countries characterized by a higher level of corruption (or, alternatively, a lower level of freedom from corruption).

Following the scheme of the analysis carried out in the previous section, we first discuss the results of our tests on the demand for loans (specification [3a] and [3b]), then we proceed with the analysis of the outcomes of the loan applications (specification [4a] and [4b]).

As for the demand of bank loans, the results of our estimations are tabulated in Table 5.

TABLE 5 HERE

More specifically in Panel A we present the coefficients and the marginal effects of our key variable (dummy female) in the economies characterized by lower and higher levels of corruption. In both cases, results in Column 1 confirm the evidence previously found in the overall sample (Table 3, Panel A) – namely, women-led firms are less likely to apply for bank loans. However, in countries characterized by a lower level of corruption, the probability that female firms decrease their applications for bank loans is lower (–26%) than in countries with higher level of corruption (–28%). Moving to Column 2, results show that – in countries characterized by a lower degree of corruption – women-led businesses are more likely to not applying for bank loans (as they anticipate a deny from the lender) – i.e., self-restrain. Surprisingly, this evidence is not confirmed in countries with higher levels of corruption – thus suggesting no difference in the behaviours held by male and female-led businesses.

Looking at the estimates in Panel B of Table 5, results show that small firms (in both regional clusters) apply less for bank loans, compared to larger firms, and they are also more likely to not applying due to the fear of rejection. However, the probability of a decrease in the applications for bank loans by small firms located in the cluster characterized by a low level of corruption is lower (–23.4%) than the corresponding probability related to small firms pertaining to the more corrupted cluster (–27.7%). Consistently, small firms are 7.4% more likely than their larger peers to self-restrain from applying for fear of rejection in high corrupt economies, as opposed to the 6.3% probability of self-restrain experienced by small firms in low corrupt countries.

With regards to the results of the applications, the estimates of equations [4a] and [4b] are presented in Table 6.

TABLE 6 HERE

Consistently with the results obtained for the overall sample (Table 4, Panel A), the evidence does not support any bias of the banks against women-led firms. Indeed, the coefficients of the dummy female are never significant (Table 6, Panel A) suggesting that female firms do not face a significantly higher likelihood of having their bank loan application rejected.

In contrast, the evidence presented in Panel B shows that small firms, compared to larger firms, display a significantly higher likelihood of having their bank loan application rejected, and this is consistent in both environments. Interestingly, the marginal effects suggest that small firms located in countries where the level of corruption is low are 9% more likely (than their larger peers) to see their application for a bank loan denied; whereas for small firms located in countries where the degree of corruption is higher, the probability of being constrained is almost doubled (16%). Interestingly, this result calls for an action by the policy maker aimed at smoothing the negative spillovers emerging in the access to credit by small firms in highly corrupted territories.

4.3 Further analysis: testing our hypotheses on a sample of firms that decreased their leverage position – sample split by corruption

We also check whether any gender effect and any firm size effect is detected from either the demand and supply side (see Tables 7 and 8, respectively) – in both high and low corrupt countries – when we restrict our sample to only including the observations related to the firms that have improved their exposure to external creditors by decreasing the level of indebtedness. This test is therefore aimed at investigating the existence of any gender or size bias even in presence of an improvement of the firm's leverage position.

On the demand side (Table 7, Panel A), our estimates do not confirm the results of the full sample as they show that in low corrupt countries the difference with male firms in the application for bank loans in not significant. In more corrupted countries, instead, female firms seem to apply less for bank loans, although the coefficient is not statistically significant. However, if we move to Column 2 we observe that, in the cluster of low corrupt countries, female firms are 6.2% more likely to self-restrain due to the fear of rejection.

TABLE 7 HERE

Panel B in Table 7 displays the estimates when the key variable is the "small firms" dummy. Here all the coefficients confirm the findings obtained in Table 5. Specifically, even though we selected only the firms that decreased their leverage, size matters when considering the probability to apply and the fear of rejection. Indeed, in more corrupted countries, small firms are 26.3% more likely to decrease their applications for bank loans *versus* 23.5% of their peers in less corrupt environments. Additionally, small firms in high-corruption countries show a higher probability of self-restrain for fear of rejection (7.9%) compared the case of small firms located in low-corrupt countries (6.2%).

On the supply side, results displayed in Table 8 are worthy of note as well. Specifically, in Panel A we find that – in the cluster made of observations pertaining to high-corruption countries – women-led firms are 20% more likely than their male counterparts to see their application for a bank loan denied. Such probability of rejection is almost three times higher than the likelihood of a female-led business to being rejected in a low corrupt environment (i.e., actually 7.4%).

TABLE 8 HERE

Regarding Panel B, we note that small firms (compared to their larger peers) in the cluster of high-corruption countries face a higher probability of being credit-constrained by the bank (17.5%), as opposed to the 9.6% likelihood of a small firm to be credit-denied in lower corrupted environments. This result highlights that, although firms decreased their level of indebtedness, small firms are still discriminated and, interestingly, firms in highly corrupt countries are those more penalized. Again, this finding should draw the attention of the policy maker in order to easing the access to credit for small firms in general, and in particular for those located in the most corrupt territories.

4.4 Additional test – cost of funding

Finally, as a further analysis we aim at investigating whether the level of corruption has also an effect on the cost of financing borne by female enterprises. Since the information on the cost of funding reported in the SAFE is qualitative and ordinal, to address this question we employ an ordered logit model as in Öztürk and Mrkaic (2014).

The evidence provided in Table 9 is worthy of note. Specifically, female firms based in highly corrupt countries are 4% more likely, than their male counterparts, to experience an increase in the cost of funding (in terms of fees and commissions).

TABLE 9 HERE

5. Conclusions

Following the global financial crisis, liquidity shortage and heavy restrictions in the bank financing worsened the access conditions to the credit market by SMEs. Under such circumstances, improving the access to formal credit by female firms, as well as small enterprises, becomes pivotal to safeguard the survival of their businesses. In this paper, we attempt to assess

how a specific socio-institutional environment – identified according to the level of corruption – may affect the access to credit for SMEs.

To this end we utilize a sample of 62,646 observations – drawn from the ECB-SAFE survey – related to SMEs chartered in 11 Euro-area countries during the period 2009-2014. Our target is to investigate whether the manager's gender and the firm's size have an impact on the demand and the supply of bank loans. We then perform our tests by splitting our sample into low- and high-corrupt countries.

Overall, the level of corruption seems to play a role in the applications and in the outcomes of the applications for bank loans when female firms as well as small firms are under consideration.

More specifically, our results show that, while women-led enterprises seem to self-restrain from the application for bank loans, on the supply side they do not appear to be discriminated. In other terms, results do not support the hypothesis that banks are biased against women-led firms. However, if we restrict our sample to only considering the firms that decreased their level of indebtedness, we find that women-led firms in highly corrupted territories face about 20% higher probability (than male counterparts) of rejection for their loan applications. In addition to that, we find that women-led businesses in highly corrupt economies are 4% more likely, than their male counterparts, to face an increase in the level of the cost of funding.

As for the firm's size, results highlight that small enterprises are likely to self-restrain from the application for bank loans, compared to their larger peers. Moreover, for those who apply, we also find that small firms are more likely to see their application denied compared to their larger counterparts. Additionally, we discover that smaller firms are 16.4% (9%) more likely than their larger peers to see their application rejected in high- (low-) corrupt countries. This result turns to be even more intensified when we limit our analysis to the firms that decreased their leverage position. Overall, our results advise an intervention by the policy maker in the most corrupt areas in order to limit the aforementioned negative spillovers and to support the access to bank credit for women-led businesses and, more importantly, for small firms.

References

1. Alesina A, Lotti F, Mistrulli PE (2013) Do women pay more for credit? Evidence from Italy. Journal of the European Economic Association, European Economic Association 11 (1): 45-66
2. Andvig J C, Moene, KO (1990) How corruption may corrupt Journal of Economic Behavior and Organization, 13: 63-76.
3. Bae, K H, Goyal, V K (2009) Creditor rights, enforcement, and bank loans, Journal of Finance 64 (2): pp. 823–860.
4. Badoer DC, James CM (2016) The Determinants of Long-Term Corporate Debt Issuances. The Journal of Finance 71 (1), 457–492.
5. Bhagwati, J. (1982), Directly unproductive profit-seeking (DUP) activities, Journal of Political Economy 90: pp. 988-1002.
6. Barber BM, Odean T (2001) Boys will be boys: gender, overconfidence, and common stock investment. Quarterly Journal of Economics 116: 261-292
7. Beck T, Behr P, Güttler A (2009) Are women better loan officers? Tilburg University. Available via http://siteresources.worldbank.org/INTFR/Resources/Becketal022409.pdf
8. Bellucci A, Borisov A, Zazzaro A (2010) Does gender matter in bank-firm relationships? Evidence from small business lending. Journal of Banking and Finance 34(12): 2968-2984
9. Blanchflower DG, Levine PB, Zimmerman DJ (2003) Discrimination in the Small-Business Credit Market. The Review of Economics and Statistics 85(4): 930-943
10. Blackburn, K, Sarmah, R (2008) Corruption, development and demography, Economics of Governance (9): 341-362
11. Bush S S (2011) International politics and the spread of quotas for women in legislatures, International Organization 65 (1): 103-137
12. Buttner E H, Rosen B, (1988) Bank loan officers' perceptions of the characteristics of men, women, and successful entrepreneurs, Journal of Business Venturing 3(3): 249-258.
13. Calcagnini G, Lenti E (2008) L'accesso al credito per l'imprenditoria femminile. In: Zazzaro A (ed) I vincoli finanziari alla crescita delle imprese, Carocci, Roma
14. Campos, N, Estrin, S, Proto, E (2010) Corruption as a barrier to entry: Theory and evidence, CEPR Discussion Paper n. 8061
15. Carter N, Brush C, Greene P et al (2003) Women entrepreneurs who break through to equity financing: the influence of human, social and financial capital. Venture Capital 5(1): 1-28
16. Cavalluzzo KS, Cavalluzzo LC, Wolken JD (2002) Competition, Small Business Financing, and Discrimination: Evidence from a New Survey. Journal of Business 75(4): 641-679
17. Cesaroni F (2010) Donne imprenditrici e banche. Le ragioni di un rapporto difficile. In: Calcagnini G, Favaretto I (eds) L'economia della piccola impresa. Franco Angeli, Milan
18. Cole RA, Mehran H (2011) Gender and the Availability of Credit to Privately Held Firms: Evidence from the Surveys of Small Business Finances (March 30, 2011). FRB of New York, Staff Report No. 383. Available via SSRN. http://ssrn.com/abstract=1799649 or http://dx.doi.org/10.2139/ssrn.1799649
19. Coleman J S (1994) Foundations of Social Theory. Harvard University Press, Cambridge MA
20. Coleman S (2000) Access to Capital and Terms of Credit: A Comparison of Men and Women-owned Businesses. Journal of Small Business Management 38: 37-52
21. Coleman S (2002) Constraints Faced by Women Small Business Owners: Evidence from the Data. Journal of Developmental Entrepreneurship 7(2): 151-174
22. Coleman S, Robb A (2009) A comparison of new firm financing by gender: evidence from the Kaufman Firm Survey data. Small Business Economics 33: 397-411
23. Cooper A C, Gimeno-Gascon F J and Woo C Y (1994) Initial human and financial capital and predictors of venture performance, Journal of Business Venturing 9: 371-395.
24. Croson R, Gneezy U (2009) Gender Differences in Preferences. Journal of Economic Literature 47: 448-474
25. De Blasio G, Scalise D, Sestito P (2012) Universalism vs. Particularism: a Round Trip from Economics to Sociology. Bank of Italy, Questioni di Economia e Finanza No. 212
26. Demirguc-Kunt, A., L. Klapper, and D. Singer. 2013. "Financial Inclusion and Legal Discrimination against Women: Evidence from Developing Countries." Policy Research Working Paper 6616, World Bank, Washington, DC

27. Djankov S, La Porta R, Lopez-de-Silanes F, and Shleifer A (2008) The law and economics of self-dealing, Journal of Financial Economics 88: 430-465.
28. ECB Survey on the access to finance of enterprises (SAFE). Available via https://www.ecb.europa.eu/stats/money/surveys/sme/html/index.en.html
29. Fabowale L, Orser B and Riding A, (1995) Gender, structural factors, and credit terms between Canadian small businesses and financial institutions, Entrepreneurship: Theory & Practice 19(4): 41-65
30. Gbetnkom D. (2012) Corruption and small and medium-sized enterprise growth in Cameroon, mimeo
31. Gyimah-Brempong K (2002) Corruption, economic growth, and income inequality in Africa, Economics of Governance 3: 183–209
32. Grosvold J (2011) Where are all the women? Institutional context and the prevalence of women on the corporate board of directors, Business & Society 50(3) 531-555.
33. Guiso L, Sapienza P, Zingales L (2004) The Role of Social Capital in Financial Development. American Economic Review 94 (3): 526-556
34. Guiso L, Sapienza P, Zingales L (2013) The Determinants of Attitudes Toward Strategic Default on Mortgages. Journal of Finance 68 (4): 1473-1515
35. Kaufmann D (2005) Myths and realities of governance and corruption, 2005. Available via http://ssrn.com/abstract=829244
36. Keefer S, Knack P (1997) Does Social Capital Have an Economic Payoff? A Cross-Country Investigation, The Quarterly Journal of Economics 112 (4): 1251-1288
37. Hall R E, Jones C (1999) Why do some countries produce so much more output per worker than others?, Quarterly Journal of Economics,114: 83–116
38. La Porta R, Lopez De-Silanes F, Shleifer A et al (1997) Legal Determinants of External Finance. The Journal of Finance 7(3): 1131- 1150
39. Laeven, L, Majnoni, G (2005) Does judicial efficiency lower the cost of credit?, Journal of Banking and Finance 29: 1791-1812
40. La Porta R, Lopez-de-Silanes, F, Shleifer A, Vishny R W (1999) The quality of government. Journal of Economics, Law and Organization 15, 1: 222-279
41. Li H, Xu C L and Zou H (2000) Corruption, income distribution and growth, Economics and Politics, 12: 155 - 182.
42. Lozzi M, Mistrulli P E (2014) Loan Applications and Social Capital in the Great Recession. Bank of Italy, mimeo
43. Maresch, D, Ferrando, A and Moro, A (2015) Creditor protection, judicial enforcement and credit access, ECB Working Paper Series, No 1829/July
44. Mauro P (1995) Corruption and Growth, Quarterly Journal of Economics 110 (3): 681-712
45. Myrdal G. (1989) Corruption: its causes and effects. Political Corruption: A Handbook. Transaction Books, New Brunswick N.J.
46. Mistrulli PE, Vacca V (2014) Social Capital and the cost of credit in a crisis. Bank of Italy, mimeo
47. Moro A, Fink M (2013) Loan Managers' Trust and Credit Access for SMEs. Journal of Banking and Finance 37: 927-36
48. Moro A, Wisniewski T.P (2014) Does a Manager's Gender Matter when Accessing Credit? Evidence from European Data, mimeo
49. Muravyev A, Talavera O, Shäfer D (2009) Entrepreneurs' gender and financial constraints: Evidence from international data. Journal of Comparative Economics 37(2): 270-286
50. Ostergaard, C, Schindele, I and Vale, B (2009) Social Capital and the Viability of Non-profit Firms: Evidence from Norwegian Savings Banks, Norges Bank, Working Paper No. 14
51. Öztürk B, Mrkaic M (2014) SMSs' Access to Finance in the Euro area: What helps of Hampers? IMF WP 14/78
52. Putnam, R (2001) Social Capital: Measurement and Consequences. In Helliwell, J F (ed.) The Contribution of Human and Social Capital to Sustained Economic Growth and Well-being, International Symposium Report, Human Resources Development Canada and OECD
53. Qian, J, Strahan, P E (2007) How laws and institutions shape financial contracts: The case of bank loans, Journal of Finance 62 (6): 2803–2834
54. Shleifer A, Vishny, R W (1993) Corruption, Quarterly Journal of Economics CVIII: 599-617
55. Svensson J. (2003) Who must pay bribes and how much? Evidence from a cross-section of firms,

Quarterly Journal of Economics, 118 (1)
56. Seker M, Yang J S (2012), How bribery distorts firm growth. Differences by firm attributes, The World Bank, Financial and Private Sector Development; Entrepreneurship and Innovation; and Enterprise Analysis Units
57. Stefani ML, Vacca V (2013) Credit access for female firms: evidence from a survey on European SMEs. Bank of Italy, Occasional paper No. 176
58. Tanzi V, Davoodi H R (2002) Corruption, growth, and public finances, in G T Abed and S Gupta (eds) Governance, corruption, and economic performance, Washington, DC
59. Uzzi, B (1999) Embeddedness in the Making of Financial Capital: How Social Relations and the Networks Benefit Firms Seeking Financing, American Sociological Review 64: 481–505.
60. World Bank, Investment Climate Survey. In UNIDO/UNODC (2007) Corruption prevention to foster small and medium-sized enterprise development, Vienna
61. World Economic Forum. The Global Gender Gap Report, various years

Figure 1: Percentage of female firms by country

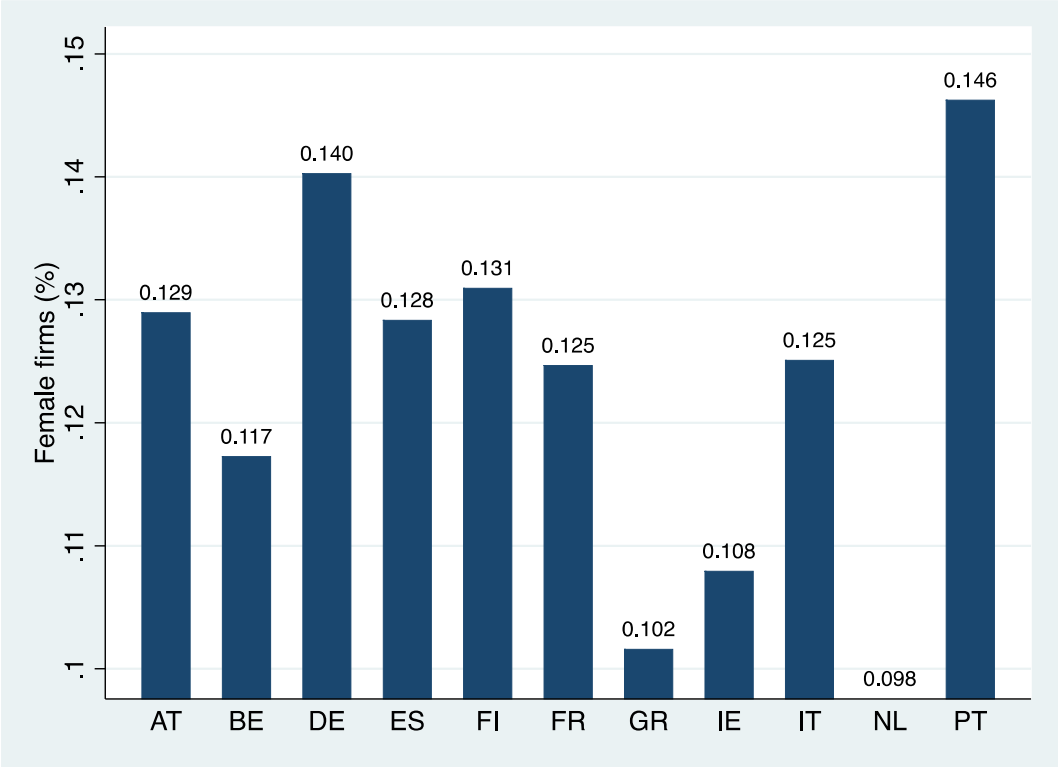

Figure 2: Percentage of small firms by country

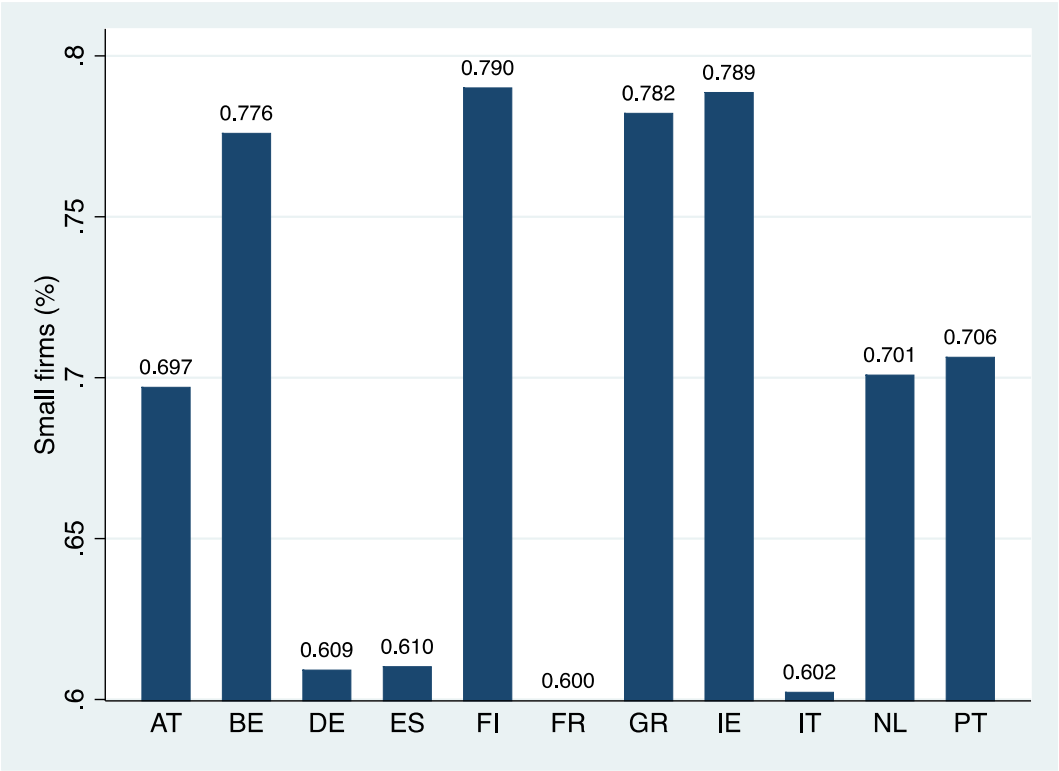

Figure 3: Freedom from corruption by country

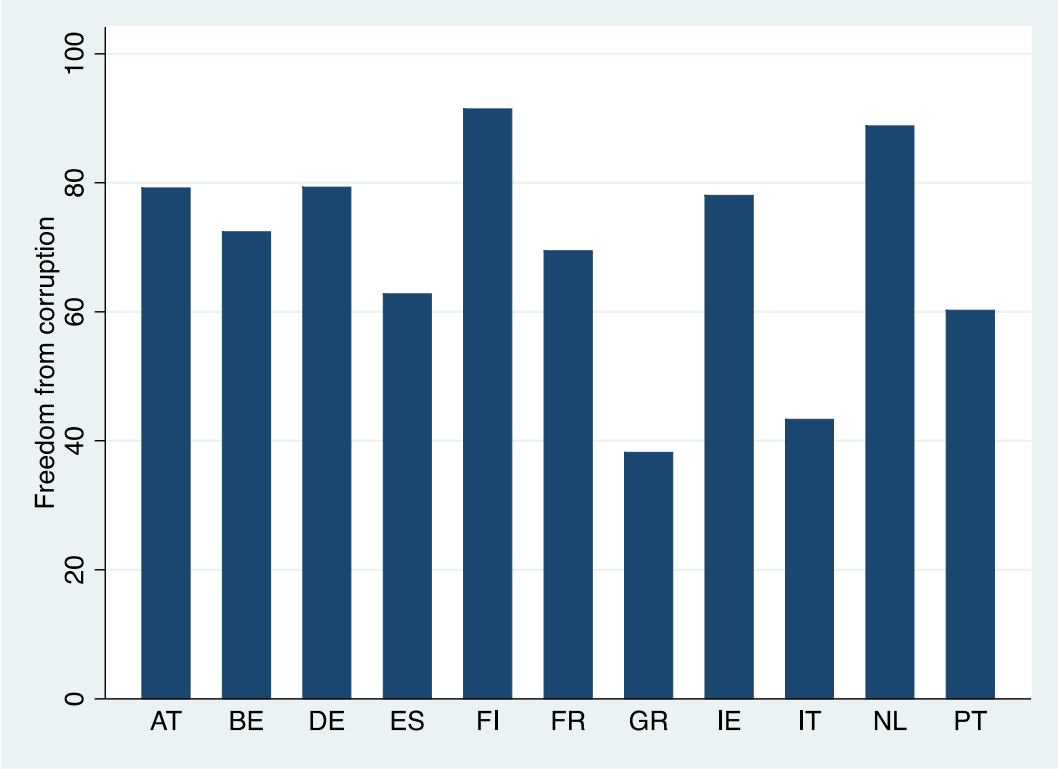

Table 1: Observations by country

Country Name	Freq.	Percent
Austria	3,888	6.21
Belgium	3,869	6.18
Finland	3,676	5.87
France	8,996	14.36
Germany	8,955	14.29
Greece	3,869	6.18
Ireland	3,599	5.74
Italy	8,953	14.29
Netherlands	3,924	6.26
Portugal	3,964	6.33
Spain	8,953	14.29
Total	62,646	100

Table 2: Summary statistics

	Observations	Mean	Median	St. Dev.	p1	p99
Dependent variables						
Bank loan – application	62,646	2.625	3.000	1.086	1.000	4.000
Bank loan – result	15,530	1.590	1.000	0.992	1.000	4.000
Level of the cost of financing	20,527	2.484	3.000	0.582	1.000	3.000
Key variables						
Female	60,058	0.125	0.000	0.331	0.000	1.000
Small firms	62,646	0.666	1.000	0.471	0.000	1.000
Country-level control						
Freedom from corruption	62,646	67.448	69.000	15.769	34.000	94.000
Firm-level controls						
Demand up	62,646	0.190	0.000	0.393	0.000	1.000
Demand down	62,646	0.134	0.000	0.341	0.000	1.000
Profit up	62,646	0.245	0.000	0.430	0.000	1.000
Profit down	62,646	0.467	0.000	0.499	0.000	1.000
Creditworthiness up	62,646	0.212	0.000	0.409	0.000	1.000
Creditworthiness down	62,646	0.141	0.000	0.348	0.000	1.000
Micro	62,646	0.331	0.000	0.470	0.000	1.000
Small	62,646	0.335	0.000	0.472	0.000	1.000
Medium	62,646	0.258	0.000	0.437	0.000	1.000
Very recent	62,646	0.017	0.000	0.129	0.000	1.000
Recent	62,646	0.066	0.000	0.249	0.000	1.000
Old	62,646	0.126	0.000	0.331	0.000	1.000
Construction	62,646	0.098	0.000	0.298	0.000	1.000
Manufacturing	62,646	0.254	0.000	0.435	0.000	1.000
Wholesale/Retail	62,646	0.336	0.000	0.472	0.000	1.000

Table 3: Bank loan applications

This table shows regression results for the multinomial logit model presented in Section 3.4, concerning the impact of gender (Panel A) and firm's size (Panel B) on the application for bank loans. The estimation period is 1st July 2009 – 31st March 2014 (from the second to the tenth of the SAFE waves). The dependent variable – which is also described in Section 3.2 – is a variable that equals one/two/three/four if a firm applied/did not apply because of possible rejection/did not apply because of sufficient internal funds/did not apply for other reasons during the past six months, respectively. **Female** is a dummy that equals one if the firm's owner/director/CEO is female, and zero otherwise. **Small firms** is a dummy that equals one if the firm has less than 50 employees, and zero otherwise. Regressions control for the country's freedom from corruption and, though not showing, for a wide set of firm-level characteristics (i.e., demand up/down, profit up/down, creditworthiness up/down, firm's age and sector, and – limited to Panel A – also for firm's size). See Table A1 in the Appendix for all variable definitions and sources. All regressions use sampling weights that adjust the sample to be representative of the population. Additionally, all regressions include time and country dummies. Heteroskedasticity-robust standard errors, clustered at the country level, appear in parentheses. Estimated marginal effects are reported in brackets. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

	(1) Applied	(2) Did_not_apply_because_of_possibl	(3) Did_not_apply_because_of_suffici	(4) Did_not_apply_for_other_reasons
Panel A				
Female	**-0.108***** **(0.03)** **[0.268]**	**0.201**** **(0.08)** **[0.064]**	**-0.007** **(0.02)** **[0.469]**	(base outcome)
Freedom from corruption	0.012 (0.02)	-0.079** (0.03)	-0.011 (0.01)	
SAFE controls	YES	YES	YES	
Observations	60,058	60,058	60,058	60,058
Pseudo R-squared	0.140	0.140	0.140	0.140
Panel B				
Small firms	**-0.558***** **(0.07)** **[0.251]**	**0.515***** **(0.06)** **[0.068]**	**-0.195***** **(0.03)** **[0.469]**	(base outcome)
Freedom from corruption	0.011 (0.02)	-0.080*** (0.03)	-0.012 (0.01)	
SAFE controls	YES	YES	YES	
Observations	62,646	62,646	62,646	62,646
Pseudo R-squared	0.139	0.139	0.139	0.139

Table 4: Bank loan results

This table shows regression results for the multinomial logit model presented in Section 3.4, concerning the impact of gender (Panel A) and firm's size (Panel B) on the results of the applications for bank loans. The estimation period is 1st July 2009 – 31st March 2014 (from the second to the tenth of the SAFE waves). The dependent variable – which is also described in Section 3.2 – is a variable that equals one/two/three/four if a firm applied and got everything/applied but only got part of it/applied but refused because cost too high/applied but was rejected during the past six months, respectively. **Female** is a dummy that equals one if the firm's owner/director/CEO is female, and zero otherwise. **Small firms** is a dummy that equals one if the firm has less than 50 employees, and zero otherwise. Regressions control for the country's freedom from corruption and, though not showing, for a wide set of firm-level characteristics (i.e., demand up/down, profit up/down, creditworthiness up/down, firm's age and sector, and – limited to Panel A – also for firm's size). See Table A1 in the Appendix for all variable definitions and sources. All regressions use sampling weights that adjust the sample to be representative of the population. Additionally, all regressions include time and country dummies. Heteroskedasticity-robust standard errors, clustered at the country level, appear in parentheses. Estimated marginal effects are reported in brackets. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

	(1) Applied_and_got_everything	(2) Applied_but_only_got_part	(3) Applied_but_refused_because_cost	(4) Applied_but_was_rejected
Panel A				
Female	**(base outcome)**	**0.040** **(0.17)** **[0.184]**	**0.026** **(0.38)** **[0.020]**	**0.198** **(0.14)** **[0.106]**
Freedom from corruption		-0.045*** (0.02)	-0.075 (0.05)	-0.066* (0.04)
SAFE Controls		YES	YES	YES
Observations	14,866	14,866	14,866	14,866
Pseudo R-squared	0.120	0.120	0.120	0.120
Panel B				
Small firms	**(base outcome)**	**-0.049** **(0.14)** **[0.171]**	**0.678***** **(0.17)** **[0.027]**	**0.841***** **(0.15)** **[0.120]**
Freedom from corruption		-0.037*** (0.01)	-0.092** (0.04)	-0.051 (0.04)
SAFE Controls		YES	YES	YES
Observations	15,530	15,530	15,530	15,530
Pseudo R-squared	0.117	0.117	0.117	0.117

Table 5: Bank loan applications – splitting by corruption

This table shows regression results for the multinomial logit model presented in Section 3.4, concerning the impact of gender (Panel A) and firm's size (Panel B) on the application for bank loans, in territories characterized by low and high corruption. The estimation period is 1st July 2009 – 31st March 2014 (from the second to the tenth of the SAFE waves). The dependent variable – which is also described in Section 3.2 – is a variable that equals one/two/three/four if a firm applied/did not apply because of possible rejection/did not apply because of sufficient internal funds/did not apply for other reasons during the past six months, respectively. **Female** is a dummy that equals one if the firm's owner/director/CEO is female, and zero otherwise. **Small firms** is a dummy that equals one if the firm has less than 50 employees, and zero otherwise. Though not showing, regressions control for a wide set of firm-level characteristics (i.e., demand up/down, profit up/down, creditworthiness up/down, firm's age and sector, and – limited to Panel A – also for firm's size). See Table A1 in the Appendix for all variable definitions and sources. All regressions use sampling weights that adjust the sample to be representative of the population. Additionally, all regressions include time and country dummies. Heteroskedasticity-robust standard errors, clustered at the country level, appear in parentheses. Estimated marginal effects are reported in brackets. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

	(1) Applied	(2) Did_not_apply_because_of_possibl	(3) Did_not_apply_because_of_suffici	(4) Did_not_apply_for_other_reasons
Panel A				
Low corruption				
Female	-0.084**	0.278**	-0.019	(base outcome)
	(0.04)	(0.11)	(0.03)	
	[0.260]	[0.059]	[0.519]	
SAFE Controls	YES	YES	YES	
Observations	35,728	35,728	35,728	35,728
Pseudo R-squared	0.145	0.145	0.145	0.145
High corruption				
Female	-0.128***	0.127	0.020	(base outcome)
	(0.03)	(0.13)	(0.03)	
	[0.284]	[0.074]	[0.390]	
SAFE Controls	YES	YES	YES	
Observations	24,330	24,330	24,330	24,330
Pseudo R-squared	0.120	0.120	0.120	0.120
Panel B				
Low corruption				
Small firms	-0.575***	0.534***	-0.228***	(base outcome)
	(0.12)	(0.06)	(0.02)	
	[0.234]	[0.063]	[0.523]	
SAFE Controls	YES	YES	YES	
Observations	36,907	36,907	36,907	36,907
Pseudo R-squared	0.142	0.142	0.142	0.142
High corruption				
Small firms	-0.555***	0.435***	-0.152*	(base outcome)
	(0.04)	(0.11)	(0.08)	
	[0.277]	[0.074]	[0.384]	
SAFE Controls	YES	YES	YES	
Observations	25,739	25,739	25,739	25,739
Pseudo R-squared	0.120	0.120	0.120	0.120

Table 6: Bank loan results – splitting by corruption

This table shows regression results for the multinomial logit model presented in Section 3.4, concerning the impact of gender (Panel A) and firm's size (Panel B) on the results of the applications for bank loans, in territories characterized by low and high corruption. The estimation period is 1st July 2009 – 31st March 2014 (from the second to the tenth of the SAFE waves). The dependent variable – which is also described in Section 3.2 – is a variable that equals one/two/three/four if a firm applied and got everything/applied but only got part of it/applied but refused because cost too high/applied but was rejected during the past six months, respectively. **Female** is a dummy that equals one if the firm's owner/director/CEO is female, and zero otherwise. **Small firms** is a dummy that equals one if the firm has less than 50 employees, and zero otherwise. Though not showing, regressions control for a wide set of firm-level characteristics (i.e., demand up/down, profit up/down, creditworthiness up/down, firm's age and sector, and – limited to Panel A – also for firm's size). See Table A1 in the Appendix for all variable definitions and sources. All regressions use sampling weights that adjust the sample to be representative of the population. Additionally, all regressions include time and country dummies. Heteroskedasticity-robust standard errors, clustered at the country level, appear in parentheses. Estimated marginal effects are reported in brackets. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

	(1) Applied_and_got_everything	(2) Applied_but_only_got_part	(3) Applied_but_refused_because_cost	(4) Applied_but_was_rejected
Panel A				
Low corruption				
Female	(base outcome)	0.234	0.373	0.424
		(0.34)	(0.58)	(0.27)
		[0.129]	[0.025]	[0.080]
SAFE Controls		YES	YES	YES
Observations	7,892	7,892	7,892	7,892
Pseudo R-squared	0.115	0.115	0.115	0.115
High corruption				
Female	(base outcome)	-0.098**	-0.303**	0.028
		(0.04)	(0.13)	(0.14)
		[0.264]	[0.016]	[0.143]
SAFE Controls		YES	YES	YES
Observations	6,974	6,974	6,974	6,974
Pseudo R-squared	0.0681	0.0681	0.0681	0.0681
Panel B				
Low corruption				
Small firms	(base outcome)	0.270**	0.630***	1.097***
		(0.11)	(0.23)	(0.11)
		[0.123]	[0.026]	[0.090]
SAFE Controls		YES	YES	YES
Observations	8,124	8,124	8,124	8,124
Pseudo R-squared	0.108	0.108	0.108	0.108
High corruption				
Small firms	(base outcome)	-0.256***	0.794***	0.625***
		(0.07)	(0.20)	(0.13)
		[0.246]	[0.028]	[0.164]
SAFE Controls		YES	YES	YES
Observations	7,406	7,406	7,406	7,406
Pseudo R-squared	0.0636	0.0636	0.0636	0.0636

Table 7: Bank loan applications by firms that decreased their leverage position – splitting by corruption

This table shows regression results for the multinomial logit model presented in Section 3.4, concerning the impact of gender (Panel A) and firm's size (Panel B) on the application for bank loans made by firms that decreased their leverage position, in territories characterized by low and high corruption. The estimation period is 1st July 2009 – 31st March 2014 (from the second to the tenth of the SAFE waves). The dependent variable – which is also described in Section 3.2 – is a variable that equals one/two/three/four if a firm applied/did not apply because of possible rejection/did not apply because of sufficient internal funds/did not apply for other reasons during the past six months, respectively. **Female** is a dummy that equals one if the firm's owner/director/CEO is female, and zero otherwise. **Small firms** is a dummy that equals one if the firm has less than 50 employees, and zero otherwise. Though not showing, regressions control for a wide set of firm-level characteristics (i.e., demand up/down, profit up/down, creditworthiness up/down, firm's age and sector, and – limited to Panel A – also for firm's size). See Table A1 in the Appendix for all variable definitions and sources. All regressions use sampling weights that adjust the sample to be representative of the population. Additionally, all regressions include time and country dummies. Heteroskedasticity-robust standard errors, clustered at the country level, appear in parentheses. Estimated marginal effects are reported in brackets. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

	(1) Applied	(2) Did_not_apply_because_of_possibl	(3) Did_not_apply_because_of_suffici	(4) Did_not_apply_for_other_reasons
Panel A				
Low corruption				
Female	0.084	0.531***	0.192***	(base outcome)
	(0.07)	(0.09)	(0.07)	
	[0.265]	[0.062]	[0.545]	
SAFE Controls	YES	YES	YES	
Observations	11,043	11,043	11,043	11,043
Pseudo R-squared	0.116	0.116	0.116	0.116
High corruption				
Female	-0.112	0.052	0.073	(base outcome)
	(0.10)	(0.27)	(0.16)	
	[0.272]	[0.071]	[0.425]	
SAFE Controls	YES	YES	YES	
Observations	5,912	5,912	5,912	5,912
Pseudo R-squared	0.0918	0.0918	0.0918	0.0918
Panel B				
Low corruption				
Small firms	-0.714***	0.364***	-0.368***	(base outcome)
	(0.13)	(0.13)	(0.10)	
	[0.235]	[0.062]	[0.527]	
SAFE Controls	YES	YES	YES	
Observations	11,405	11,405	11,405	11,405
Pseudo R-squared	0.113	0.113	0.113	0.113
High corruption				
Small firms	-0.562***	0.395***	-0.229**	(base outcome)
	(0.15)	(0.07)	(0.09)	
	[0.263]	[0.079]	[0.404]	
SAFE Controls	YES	YES	YES	
Observations	6,256	6,256	6,256	6,256
Pseudo R-squared	0.0922	0.0922	0.0922	0.0922

Table 8: Bank loan results of firms that decreased their leverage position – splitting by corruption

This table shows regression results for the multinomial logit model presented in Section 3.4, concerning the impact of gender (Panel A) and firm's size (Panel B) on the results of the applications for bank loans made by firms that decreased their leverage position, in territories characterized by low and high corruption. The estimation period is 1st July 2009 – 31st March 2014 (from the second to the tenth of the SAFE waves). The dependent variable – which is also described in Section 3.2 – is a variable that equals one/two/three/four if a firm applied and got everything/applied but only got part of it/applied but refused because cost too high/applied but was rejected during the past six months, respectively. **Female** is a dummy that equals one if the firm's owner/director/CEO is female, and zero otherwise. **Small firms** is a dummy that equals one if the firm has less than 50 employees, and zero otherwise. Though not showing, regressions control for a wide set of firm-level characteristics (i.e., demand up/down, profit up/down, creditworthiness up/down, firm's age and sector, and – limited to Panel A – also for firm's size). See Table A1 in the Appendix for all variable definitions and sources. All regressions use sampling weights that adjust the sample to be representative of the population. Additionally, all regressions include time and country dummies. Heteroskedasticity-robust standard errors, clustered at the country level, appear in parentheses. Estimated marginal effects are reported in brackets. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

	(1) Applied_and_got_everything	(2) Applied_but_only_got_part	(3) Applied_but_refused_because_cost	(4) Applied_but_was_rejected
Panel A				
Low corruption				
Female	(base outcome)	0.631*	0.525	0.413*
		(0.35)	(0.39)	(0.25)
		[0.158]	[0.022]	[0.074]
SAFE Controls		YES	YES	YES
Observations	2,405	2,405	2,405	2,405
Pseudo R-squared	0.174	0.174	0.174	0.174
High corruption				
Female	(base outcome)	-0.551***	0.200	0.396*
		(0.17)	(0.46)	(0.23)
		[0.163]	[0.033]	[0.202]
SAFE Controls		YES	YES	YES
Observations	1,651	1,651	1,651	1,651
Pseudo R-squared	0.0905	0.0905	0.0905	0.0905
Panel B				
Low corruption				
Small firms	(base outcome)	-0.249**	1.044***	1.227***
		(0.10)	(0.36)	(0.25)
		[0.083]	[0.026]	[0.096]
SAFE Controls		YES	YES	YES
Observations	2,473	2,473	2,473	2,473
Pseudo R-squared	0.159	0.159	0.159	0.159
High corruption				
Small firms	(base outcome)	-0.423	0.393	0.703***
		(0.27)	(0.33)	(0.15)
		[0.206]	[0.031]	[0.175]
SAFE Controls		YES	YES	YES
Observations	1,742	1,742	1,742	1,742
Pseudo R-squared	0.0845	0.0845	0.0845	0.0845

Table 9: The impact of gender (in marginal effects) on the level of the cost of financing other than interest rates – sample split by corruption

This table shows the marginal effects of an ordered logit model employed to assess the impact of gender on the level of the cost of financing other than interest rates, in territories characterized by low and high corruption. The estimation period is 1st July 2009 – 31st March 2014 (from the second to the tenth of the SAFE waves). The dependent variable is an ordinal variable that equals one/two/three if the level of the cost of financing (experienced by each firm) decreased/remained unchanged/increased during the past six months, respectively. **Female** is a dummy that equals one if the firm's owner/director/CEO is female, and zero otherwise. Though not showing, regressions control for a wide set of firm-level characteristics (i.e., demand up/down, profit up/down, creditworthiness up/down, firm's age, sector, and size). See Table A1 in the Appendix for all variable definitions and sources. All regressions use sampling weights that adjust the sample to be representative of the population. Additionally, all regressions include time and country dummies. Heteroskedasticity-robust standard errors, clustered at the country level, appear in parentheses. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

	Level of the cost of financing other than interest rates (e.g. fees and commissions)	
	dy/dx Y = Decreased	dy/dx Y = Increased
Low corruption		
Female	-0.006	0.029
	(0.003)	(0.022)
Observations	10,557	10,557
Pseudo R-squared	0.052	0.052
High corruption		
Female	-0.005***	0.040**
	(0.001)	(0.019)
Observations	9,217	9,217
Pseudo R-squared	0.048	0.048

Appendix

Table A1: Variable descriptions and sources

Variables	Description	Source
Dependent variables		
Bank loan – application	Variable that equals one/two/three/four if (considering the bank loans) a firm applied/did not apply because of possible rejection/did not apply because of sufficient internal funds/did not apply for other reasons during the past six months, respectively.	ECB: SAFE
Bank loan – result	Variable that equals one/two/three/four if (considering the bank loans) a firm applied and got everything/applied but only got part of it/applied but refused because cost too high/applied but was rejected during the past six months, respectively.	ECB: SAFE
Level of the cost of financing	Ordinal variable that equals one/two/three if the level of the cost of financing (other than interest rates) – experienced by each firm – decreased/remained unchanged/increased during the past six months, respectively.	ECB: SAFE
Key variables		
Female	Dummy variable that equals one if the firm's owner/director/CEO is female, and zero otherwise.	ECB: SAFE
Small firms	Dummy variable that equals one if the firm has less than 50 employees.	ECB: SAFE
Country-level controls		
Freedom from corruption	The higher the level of corruption, the lower the level of overall economic freedom and the lower a country's score.	Heritage Foundation
Firm-level controls		
Demand up	Dummy variable that equals one if a firm's needs of bank loan increased in the past six months.	ECB: SAFE
Demand down	Dummy variable that equals one if a firm's needs of bank loan decreased in the past six months.	ECB: SAFE
Profit up	Dummy variable that equals one if a firm experienced an increase of the net income after taxes in the past six months.	ECB: SAFE
Profit down	Dummy variable that equals one if a firm experienced a decrease of the net income after taxes in the past six months.	ECB: SAFE
Creditworthiness up	Dummy variable that equals one if the firm's credit history improved in the past six months.	ECB: SAFE
Creditworthiness down	Dummy variable that equals one if the firm's credit history worsened in the past six months.	ECB: SAFE
Micro	Dummy variable that equals one if the firm has between 1 and 9 employees.	ECB: SAFE
Small	Dummy variable that equals one if the firm has between 10 and 49 employees.	ECB: SAFE
Medium	Dummy variable that equals one if the firm has between 50 and 249 employees.	ECB: SAFE
Very recent	Dummy variable that equals one if the firm is less than 2 years old.	ECB: SAFE
Recent	Dummy variable that equals one if the firm is between 2 and 5 years old.	ECB: SAFE
Old	Dummy variable that equals one if the firm is between 5 and 10 years old.	ECB: SAFE
Construction	Dummy variable that equals one if the firm's main activity is construction.	ECB: SAFE
Manufacturing	Dummy variable that equals one if the firm's main activity is manufacturing.	ECB: SAFE
Wholesale/Retail	Dummy variable that equals one if the firm's main activity is wholesale or retail trade.	ECB: SAFE