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(Occasional Papers)

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evidence from a survey on European SMEs

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# **CREDIT ACCESS FOR FEMALE FIRMS: EVIDENCE FROM A SURVEY ON EUROPEAN SMEs**

by Maria Lucia Stefani\* and Valerio Vacca\*\*

## **Abstract**

This paper uses ECB survey data to assess whether gender matters in the small firms' financial structure and access to credit. Firms owned or managed by women (female firms) use smaller amounts and less heterogeneous sources of external finance than their male counterparts. According to statistical evidence, female firms have difficulty in accessing bank finance: on the demand side, they apply for bank loans less frequently, as they more often anticipate a rejection; on the supply side, they experience a higher rejection rate. Econometric analysis shows that these different patterns are largely explained by the characteristics (such as business size, age and sector of activity) that make female firms structurally different from those led by men, without leaving room for a significant gender effect. An additional contribution of this paper is to compare the major euro-area countries within a homogeneous framework: weak evidence of gender discrimination appears in the supply of bank loans in Germany, Italy and Spain, while some demand obstacles arise in France.

**JEL Classification:** G32, G21, J16.

**Keywords:** financial structure, banking, economics of gender, small business finance.

## **Contents**

|   |    |
|---|----|
| 1. Introduction.....  | 5  |
| 2. Related literature .....   | 5  |
| 3. Description of data.....   | 7  |
| 3.1 The SAFE survey.....  | 7  |
| 3.2 Characteristics of female firms in the sample and differences at country level..... | 9  |
| 4. The access to credit by female firms: statistical evidence .....                     | 10 |
| 4.1 Financing the firm.....   | 10 |
| 4.2 Bank loans: application and results, terms and conditions .....                     | 11 |
| 4.3 Availability of external finance .....  | 12 |
| 4.4 Differences at country level.....   | 13 |
| 5. The econometric analysis.....  | 15 |
| 5.1 Baseline specification .....  | 15 |
| 5.2 Differences at country level.....   | 16 |
| 5.3 Robustness checks and further research .....  | 17 |
| 6. Conclusions.....   | 18 |
| References.....   | 20 |
| Appendix A. The SAFE survey: sample and questionnaire .....                             | 22 |
| Appendix B. Tables .....  | 25 |

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## 1. Introduction<sup>1</sup>

This paper presents a first attempt to use the European Central Bank (ECB) survey data on the access to finance by European small and medium enterprises (SMEs) in order to assess whether gender matters in the financial choices of the enterprises.

It tries to answer two main questions. The first is whether there are differences between men-led and women-led European SMEs as far as their financing structure is concerned (where “women-led” or “female” firms are defined as firms whose owner or director or CEO is a woman as reported in the survey). The second question is whether female enterprises face tighter credit conditions (i.e. lower credit availability and/or worse cost conditions) than their male counterparts. The first issue is tackled through descriptive statistics, whereas the second question is also analysed with an econometric exercise. In both cases the aim is also to disentangle possible differences across the main euro area countries.

The analysis is based on the four waves of the ECB survey that cover the period of time from the second half of 2009 to the first half of 2011.

This study considers different sources of finance and focus on bank credit since SMEs, which represent over 99 per cent of European firms, heavily rely on the latter. Female firms’ discrimination in the access to external finance may hamper their profitability and growth.

The paper is organized as follows. Section 2 offers a review of the related literature; the dataset used in the analysis is described in section 3 together with the main characteristics of the interviewed firms; section 4 shows some stylised facts on the access to finance by female firms, identifying specificities of the largest euro area countries; an econometric analysis run through multinomial logistic models is presented in section 5; section 6 concludes.

## 2. Related literature

There is a wide literature assessing the existence of significant differences in financial structure between male and female owned enterprises (see Cesaroni, 2010, for a survey). In particular, women-led enterprises tend to start their business with a lower capital and rely more heavily on personal rather than external finance also for follow-on investments (Carter and Shaw, 2006; Coleman and Robb, 2009). Moreover, some sources of finance, such as venture capital, are used by female enterprises only to a very limited extent (Aspray and McGrath Cohoon, 2007). Female firms are on average younger and smaller than male businesses, they are more concentrated in commerce and service sectors and more likely to be organised as proprietorships rather than corporations. Each of these specific features might affect the relationship of female firms with providers of external finance. However,

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<sup>1</sup> A previous version of paper was presented at the conference “Women and the Italian Economy” organized by the Bank of Italy, held in Rome on March 7<sup>th</sup>, 2012. The views expressed therein are those of the authors and do not necessarily reflect those of the Bank of Italy. We would like to thank for very useful comments Renée Adams, Magda Bianco, Marcello Bofondi, Giovanni D’Alessio, Leandro D’Aurizio, Silvia Del Prete, Annalisa Ferrando, Giovanni Ferri, Francesca Lotti, Vincenzo Mariani, Paolo Mistrulli and participants at seminars at the Bank of Italy (December 2011) and at the University of Bari (May 2012). The usual disclaimer applies.

even after controlling for age, size and sector female-led firms are characterised by a different financial structure. The literature focuses on two main possible explanations: demand-side debt aversion and supply-side discrimination.

On the demand side, apart from possible discrepancies rooted into the very structural characteristics of the female firm, differences are often linked to the issue of a higher risk aversion of women, which may imply a lower propensity to leverage the firm through external funds (see Croson and Gneezy, 2009, for a survey on experimental literature). Moreover differences in demand behaviour may arise from a possible lower propensity to negotiate of women with respect to men (Babcock and Laschever, 2003). In finance markets, differences in risk preferences and attitude may entail differences in the approach towards application for external finance between male and female enterprises. As for the U.S., Cavalluzzo *et al.* (2002) find some significant evidence on female firms being more likely to avoid credit application because they anticipate a denial as the credit market becomes more concentrated. Some authors find that women show different demand patterns even when their applications do not display a significantly higher probability to be turned down (Coleman, 2000; Cole and Mehran, 2009). Robb and Walken (2002) find that women are more likely to borrow through credit cards (which does not imply entering a bank negotiation) since they fear a denial mainly for reasons linked to credit history. Marlow and Carter (2006) find that women tend to demand less funding because, on the one hand, they prefer to run smaller enterprises (that allow a better work-life balance through a flexible or part-time work) and, on the other, they are more reluctant to assume the burden of a debt (see also Carter and Shaw, 2006). A lower rate or application by females may be the result of past discrimination which entails discouragement (Cavalluzzo and Cavalluzzo, 1998).

Turning to the supply side, evidence from the extant literature is not clear-cut on whether female entrepreneurs face tighter credit conditions. Using survey data for the U.S. National Survey of Small Business Finance (NSSBF), Cavalluzzo and Cavalluzzo (1998) exclude gender discrimination while Cavalluzzo *et al.* (2002) find partially different results. Moreover, Coleman (2000) establishes some sort of price and non-price discrimination, but not as far as credit availability is concerned, while Blanchflower *et al.* (2003) do not find any significant gender discrimination. Turning to evidence from outside the U.S., Madill *et al.* (2006) find that Canadian female firms do not display different application rates or bank rejection rates than their male counterparts, but their relationships with banks are shorter. Using firm survey data (Business Environment and Enterprise Performance Survey, BEEPS) for a number of countries, including Eastern and some Western European economies, Muravyev *et al.* (2009) provide evidence of higher prices and lower probability of obtaining a loan when the entrepreneur is a woman. As for Italy, using banking data, Alesina *et al.* (2012) find that female entrepreneurs pay higher interest rates (after controlling for different borrowers' characteristics and the structure of the credit market) without any evidence of higher riskiness; analyzing credit lines to individual firms made available by one major Italian bank in a given area, Bellucci *et al.* (2010) do not find significant differences in prices but lower credit availability.

Table 1 sums up the main features of the empirical literature reviewed above and a few literature surveys.

The above discussion suggests the need for further evidence concerning a possible gender gap in access to finance by entrepreneurs, particularly for Europe. This paper tries to fill in these gaps by using a survey dataset on euro area SMEs which allows investigating

both demand and supply side aspects of firms' access to finance. The dataset allows to compare results across different European countries, thus highlighting, within a homogeneous framework, country specificities which have been little investigated so far.

**Table 1**

| <b>Empirical literature: survey</b> |             |   |               |  |
|-------------------------------------|-------------|---|---------------|--|
| <b>Author(s)</b>                    | <b>Year</b> | <b>Countries</b>                              | <b>Period</b> | <b>Main finding</b>  |
| Alesina <i>et al.</i>               | 2012        | Italy   | 2004-2006     | Women pay more, are not riskier  |
| Aspray and Cohoon                   | 2007        | Lit. survey                                   |               |  |
| Babcock and Laschever               | 2003        | Survey evidence (US)                          |               | Women initiate negotiations less often than men. When they do negotiate, they ask for and obtain less, since they are pessimistic about how much it is possible to get   |
| Bellucci <i>et al.</i>              | 2010        | Italy (part)                                  | 2004 and 2006 | Women are more credit constrained, do not pay more   |
| Blanchflower <i>et al.</i>          | 2003        | US  | 1993 and 1998 | No gender discrimination in credit markets (loan denials)  |
| Carter and Shaw                     | 2006        | Lit. survey                                   |               | Survey on business ownership by women; women have less access to capital, debt finance, pay more; roots: (i) structural differences in enterprises, (ii) supply, (iii) demand; little evidence on gender-discrimination by banks |
| Cavalluzzo and Cavalluzzo           | 1998        | US  | 1988-1989     | Women not discriminated in credit markets, favoured in concentrated credit markets   |
| Cavalluzzo <i>et al.</i>            | 2002        | US  | 1993-1994     | Women do not pay more, but receive more loan denials   |
| Cesaroni                            | 2010        | Lit. survey                                   |               |  |
| Cole and Mehran                     | 2009        | US  | 1987-2003     | Women not more credit constrained if firm features are controlled for  |
| Coleman                             | 2000        | US  | 1993-1994     | Female firms use less external finance, pay more interest rates, are required more collateral  |
| Coleman and Robb                    | 2009        | US  | 2004-2006     | Female start up more external finance constrained  |
| Croson and Gneezy                   | 2009        | Lit. survey                                   |               | Women are different in risk, social and competitive attitude   |
| Dohmen <i>et al.</i>                | 2005        | Germany                                       | 2004          | Women are more risk averse   |
| Hibbert <i>et al.</i>               | 2008        | US  | 2004          | Women are not more risk averse   |
| Jianakoplos and Bernasek            | 1998        | US  | 1989          | Women are more risk averse   |
| Madill <i>et al.</i>                | 2006        | Canada  | 2001-2002     | Female firms: 1. are not more constrained, 2. do not pay more 3. have shorter bank-firm relationship   |
| Marlow and Carter                   | 2006        | UK (part)                                     |               | Women prefer to run smaller firms; they ask less finance also because of more caution towards finance choices  |
| Muravyev <i>et al.</i>              | 2009        | 34 (transition) countries, mainly East Europe | 2005          | Women are more credit constrained, pay more  |
| Powell and Ansic                    | 1997        | UK-experiment                                 |               | Women are more risk averse   |
| Robb and Wolken                     | 2002        | US  | 1998          | Gender does not matter in financing patterns, with the only exception of credit card borrowing.  |
| Roper and Scott                     | 2009        | UK  | 2004          | Women are more financially constrained and discouraged to start up business  |
| Schubert <i>et al.</i>              | 1999        | Switzerland - experiment                      |               | Women are not more risk averse   |
| Verheul and Thurik                  | 2000        | NL  | 1994          | Direct and indirect effect (via firm features) of gender. Women's start-ups: less capital, less equity, more bank debt   |

### 3. Description of data

#### 3.1 *The SAFE survey*

The following analysis is carried out by using data from the “SAFE - Survey on the access to finance of small and medium-sized enterprises (SMEs) in the euro area”,

conducted by the ECB every six months starting from the first half 2009.<sup>2</sup> Besides breakdowns by economic activity and firm size, this database allows to compare results for the four largest European countries (Germany, France, Italy and Spain) for which the sample is also representative.

The survey tackles several finance-related features of the firms: growth and profitability, levels of debt, internal / external financing, credit applications and outcomes, credit availability and conditions. The aim of the survey is to follow the evolution over time of access to finance conditions for European SMEs: entrepreneurs are therefore generally asked how relevant phenomena changed over time, not their level. More specifically, the answers collected at each wave of the survey refer to the improvement / deterioration, the increase / decrease, or the use / not use of the different aspects of external finance by the firm during the previous 6 months, or, in some cases, to expectations over the following 6 months. This means that the statistics used in this analysis should not be interpreted as referred to the *amount* of external finance used, but rather to its *change* over time.

The exact formulation of the questions asked at every wave somehow changed over time: moreover, every two years the survey is run by the ECB jointly with the European Commission (which was so far the case for the first and fifth wave), which entails a richer questionnaire and a slightly different sampling procedure. In this paper four waves of the survey have been used, starting from the second one (covering the second half of 2009), where a question on the gender of the owner or director or CEO was introduced (thus allowing to distinguish female from male firms) to the fifth one.<sup>3</sup> The four waves are homogeneous as for the questions that are relevant to this study and, by pooling their data, a sample of about 24,000 observations becomes available.

Appendix A reports details of some key questions asked in the survey, as well as the number of interviewed firms for the total sample and by representative country.

The analysis is entirely based upon the survey evidence, which should allow to detect whether the gender dimension of the firm has an impact on the relevant phenomena (credit conditions, financial structure), after controlling for firms' features.<sup>4</sup>

The survey has a panel dimension (between 20 and 30 per cent depending on the specific wave). The panel component has not been exploited in this study, thus entailing a possible under-estimation of the true variance of the variables, that one can however assume does not significantly affect the results.<sup>5</sup>

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<sup>2</sup> See <http://www.ecb.europa.eu/stats/money/surveys/sme/html/index.en.html>.

<sup>3</sup> In the dataset used in this paper the answer about the gender is missing for about 5 per cent of the firms. These may be cases in which the identification of the key person amongst the owner *or* the director *or* the CEO is ambiguous. In the basic descriptive and econometric analysis these firms have been added to male ones, but this inclusion does not affect the main results. Also, the inclusion of the sixth wave of the survey (second half 2011) does not change the findings of this paper in a meaningful way.

<sup>4</sup> Even if the identification codes of the surveyed firms were made available by the ECB, it would be difficult to retrieve comparable information from external data bases (e.g. about balance sheets, bank credit, etc.) for small firms belonging to different countries. Moreover classification variables (such as size and age) are made available in discrete classes rather than continuous variables. These facts have to be taken into account in the interpretation of the survey results.

<sup>5</sup> The error which might be made disregarding the panel component depends on the share of the panel firms and on the correlation among answers provided by the same firm in subsequent waves (Fabbris, 1989). In the case at hand, given the share of the panel firms in the SAFE survey and realistic values of possible auto-correlation among the answers of the same firm across different waves, it can be assumed that the estimated variance should be augmented by about 10 per cent in order to get the true variance. Moreover, econometric

Finally, given that the proportions of firms in the sample are distorted with respect to the reference population, all the statistics used in this paper are weighted, in order to restore the proportions of the economic weight of each size class, economic activity and country. Weights are provided by the ECB.

### 3.2 *Characteristics of female firms in the sample and differences at country level*

Women-led SMEs, which account for a 14.4 per cent of the total sample, show significant structural differences with respect to other firms (table b1). Female firms turn out to be smaller than the average, as they are systematically over-represented in the smaller classes by both employees and turnover, and under-represented in the larger ones. In particular, smallest size classes (1 to 9 employees and up to 2 million annual turnover) represent, respectively, 62.6 and 76.9 per cent of the female sample, against 43.5 and 56.7 per cent for male firms. In addition, their ventures are younger, with only 61 per cent having reached 10 years or more of activity compared to the 71 per cent for male-directed firms.

Female enterprises are less frequently part of a group (7.1 per cent against 10.9 for male firms); as a consequence it happens relatively seldom that the owners of the firm are other firms, whereas about a third of female enterprises in the sample are the property of a single entrepreneur (around a quarter for male firms). Women lead more often firms in the sectors of trade or other services, which together account for around 85 per cent of the female sample (71 per cent of the male one).

The picture described above is generally confirmed when the analysis is run by considering separately the four countries for which the sample is representative (see table b2). Some (expected) structural dissimilarities arise at the country level: e.g. German firms are bigger than the euro area mean value; in Italy the share of family firms is much higher. Such differences generally apply to both male and female firms within the country. However, Italy and, partly, Germany display smaller-than-average discrepancies in the size distribution of male and female firms. They also record relatively minor gender discrepancies in terms of firm economic activity. By contrast, Germany shows striking differences in the ownership of the firms: half of female firms are individual ventures (the highest percentage among the four countries), against only 37 per cent for male firms. Under several respects, France is by far the country with the highest gender-related discrepancies: for size indicators, the preponderance of female firms in the smallest class is much higher than in other countries; moreover, as far as the age of the firm is concerned, 45.6 per cent of the French female firms have been in the market for over 10 years, compared to 66.5 per cent for the male subsample.

To summarise, most of these findings basically confirm some stylised facts about female firms that could have an impact in shaping the relationships between firms and providers of external finance. For this reason, after a description of differences that can be observed in answers by firms according to their gender, and concerning their access to finance (next section), an econometric analysis tries to disentangle whether these differences are confirmed after controlling for the features of the firm.

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estimates display variances that are generally so large as to reject coefficient significance, thus making any correction not relevant.

## 4. The access to credit by female firms: statistical evidence

### 4.1 *Financing the firm*

The access to credit, and in general to external finance, is mentioned by female firms as their most pressing problem in a number of cases that is not significantly different from that of their male counterparts (17 versus 16.7 per cent, table b3).<sup>6</sup> Therefore, over the period of time covered in this study, access to finance is not perceived as a typical issue hindering the development of female firms.<sup>7</sup>

By contrast, the evolution of income or financial situation highlights some important differences. First, women-led companies experienced a worse turnover trend (table b4). Second, female enterprises saw a greater deterioration in their profitability and this was also an effect of a negative trend in profit margin. Finally, for female indebted firms, the debt-to-assets ratio decreased less and more often stayed stable with respect to their male counterparts. The evolution of leverage raises the question whether its higher stability for female firms is fully driven by the firm's choice or, at least in part, is the consequence of a different attitude by providers of finance towards male and female firms, especially in a credit slowdown situation.

Figure 1 helps to shed some light on this question: the share of firms that have no recourse at all to external finance amounts to around a quarter for female firms, against 18.5 per cent for others. This difference is statistically significant at the 1 per cent confidence level (see also table b5, panel a) and appears in line with the literature according to which female firms make less use of external finance (see section 2). Furthermore, and more importantly, a less frequent use of external finance is not offset by a wider recourse to internally generated funds by female firms. On the one hand, this might suggest that a significant share of these enterprises experiences financial constraints, hindering their investment capacity and in the end their growth and development, but, on the other, it is also in line with the evidence showing that female entrepreneurs tend to maintain their venture smaller than the average (and therefore they need less external finance, in spite of a smaller availability of internal resources).

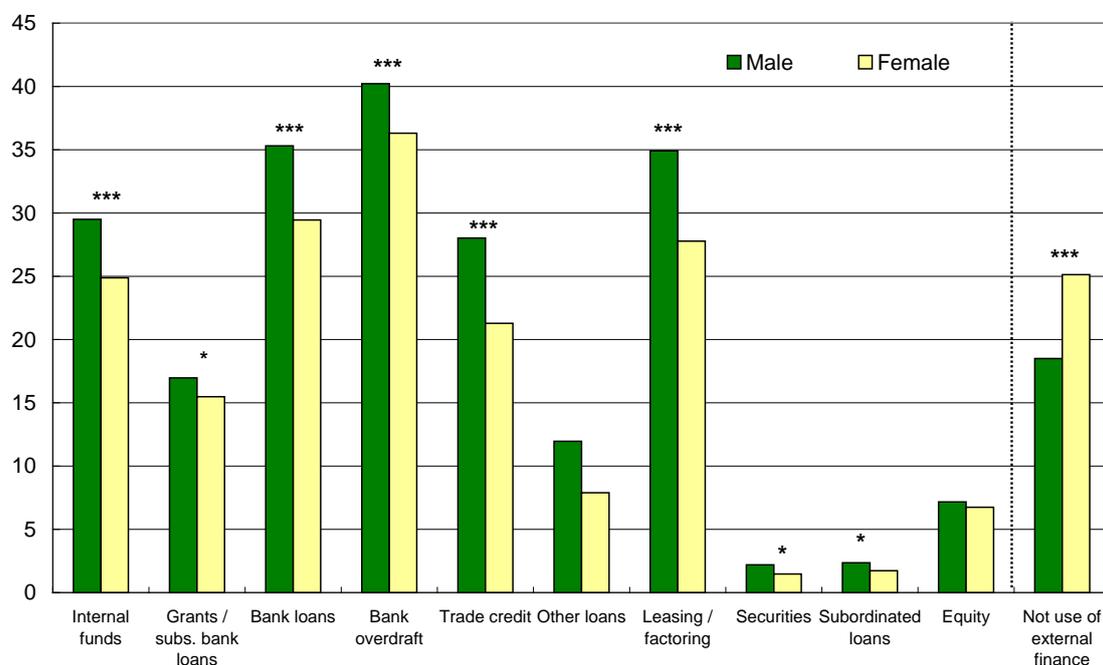
When they use external finance, women-led enterprises display a narrower range of sources of funds. In particular, the largest differences are found for bank loans (6 percentage points) and for trade credit, leasing, hire purchase and factoring (7 percentage points). These are also the most used sources of external finance, together with bank overdraft. Moreover, female respondents also reported all the sources of external finance as “not relevant” with higher frequency than other firms.

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<sup>6</sup> In general, in the period of time considered here, euro area firms did not display gender differences in the perception of the most serious issue to deal with. “Finding customers” was stated as the most pressing problem by more than a quarter of survey respondents, and “access to finance” came second with almost 17 per cent.

<sup>7</sup> By using the same question of the ECB survey, Ferrando and Griesshaber (2011) find that only firm age and ownership matter in detecting which enterprises are more likely to report financial obstacles. Their results partially differ from the ones of Beck *et al.* (2006), who state that also size is effective in this respect. Neither work, however, investigates the role of the gender of the entrepreneur in predicting financially constrained firms.

**Sources of financing (1)**  
(percentage frequencies)



Source: ECB SAFE survey, waves from the second half of 2009 to the first half of 2011.

(1) \*\*\* = difference is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent.

Gender differences also arise as for the factors affecting the financing needs (table b5, panel c). Fixed investment, inventories and working capital contributed to a net increase in financing needs more for male than for female firms. In particular, the weaker contribution of investments to the increase of financing needs could be interpreted as a harsher consequence of the cyclical downturn on female firms.<sup>8</sup>

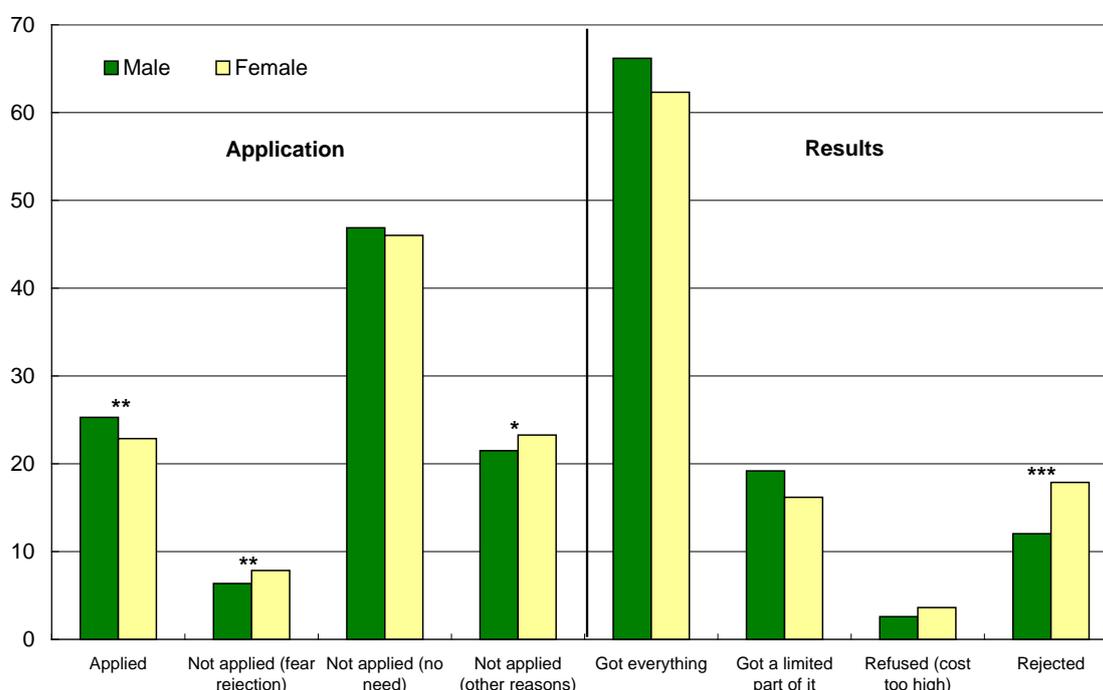
#### 4.2 Bank loans: application and results, terms and conditions

An important issue in assessing access to finance is whether there are gender differences in approaching the providers of external funds and in the probability of success in getting the funds. Table b6, panel a, deals with demand side (credit application), whereas panel b focuses on supply side issues (credit provision).

The share of female enterprises which did not apply for external funds is as a whole higher. Gender differences are negligible when the motivation is “no fund needs”, while they become statistically significant when the non-application is due to fear of rejection (apart from the case of bank overdraft). In particular, the gender gap is significant for bank loans (figure 2).

<sup>8</sup> In general terms, the female firms often judged the various determinants of external finance as “not relevant” (not reported in table b5): this is probably due to the above mentioned higher share of female firms having no recourse at all to external finance.

**Application for bank loans and results (1)**  
(percentage frequencies)



Source: ECB SAFE survey, waves from the second half of 2009 to the first half of 2011.

(1) \*\*\* = difference is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent.

Table b6, panel b, shows that, conditional on having applied, the likelihood of obtaining the full amount of requested funds is not significantly lower for female firms; however, in the case of bank loans, female firms reported a significantly higher bank rejection rate (17.9 versus 12 percent).

As regards terms and conditions at which banking finance is granted, in the period dealt with in this study a slight relative deterioration emerges for female enterprises with respect to other firms (table b7). In particular, as for interest rates, the share of female-directed firms that reported a level decrease is comparatively lower (10.9 versus 14.8 percent). For non-interest costs (i.e. charges, fees and commissions), the share of female respondents who reported an increase is 55.8 percent (compared with 50.8 for male firms). Turning to non-price conditions, in a context of a general worsening of bank financing conditions reported by survey respondents, no significant gender differences emerge for the available size of the loan or collateral requirements.

#### 4.3 *Availability of external finance*

In the period covered by the analysis, the availability of external finance improved less for female enterprises than for their male-directed counterparts (table b8). The difference is statistically significant for all the main forms of finance.

As for the factors that can affect external finance availability, important gender differences arise. As regards demand-related factors, a significant higher proportion of female firms reported a deterioration in general or firm-specific outlook and in the firm's own capital, while a higher percentage of male firms experienced an improvement in the

same factors as well as in their credit history. As for supply-related factors, a lower share of female enterprises reported an improved willingness of banks to provide a loan, of business partners to provide trade credit, or of investors to invest in equity or debt securities issued by the firm.

Coming to expectations, women-led firms appear to be less optimistic than those led by men, across the board, when they are asked about their perspectives on future availability of external funds (table b9).

This last question has an additional interest. Of course, future expectations might be affected to a significant extent by the actual financial health of the firm, regardless of the entrepreneur's attitude. Nevertheless, answers provided by firms contribute to gauge the intrinsic optimism of women directors/entrepreneurs. In other words, they allow to address the issue of whether female firms obtain the desired credit less frequently because they more often refrain from asking for credit, due to self-restraint stemming from pessimism about the chances to get it or from risk aversion. The answer to the question about expectations is used in the econometric analysis as a proxy for pessimism/risk aversion on the demand side as opposed to supply side constraints and disadvantages (see section 5.3).

#### 4.4 *Differences at country level*

We identified some differences in financing between male and female enterprises at the euro area. In what follows we test whether these results hold for each of the four countries that the survey design allows to deal with singularly, namely Germany, France, Italy and Spain.

Female enterprises tend to use a narrower set of sources of financing in every country; a higher proportion of female enterprises do not use external finance at all. However, even though almost all the categories of sources of financing are less used by female firms, these differences are not always statistically significant (table b10). More precisely, bank loans are used less by female firms in all countries except France; German female firms display the lowest recourse to bank loans compared to female enterprises in other countries. Moreover, with the only exception of Italy, female firms recur with a significant lower intensity to leasing and factoring.

Turning to bank loan application, the share of female enterprises which did not apply for bank loans over the previous 6 months due to fear of rejection is higher compared to male ones in every country, but this difference is statistically significant only in Germany and France (see table b11, panel a, and figure 3).

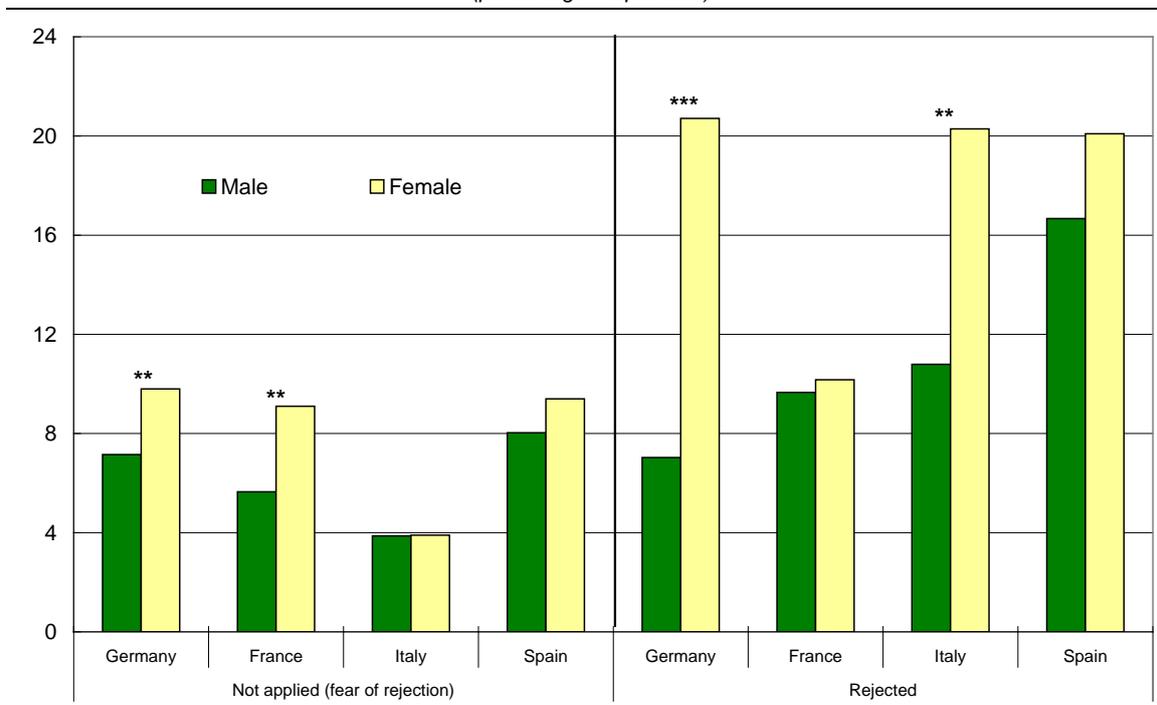
On the supply side, the likelihood that a request of loan is rejected by the bank is significantly higher for female firms in Germany and Italy. Moreover, German female firms find it harder to obtain all the requested bank funds and face also a significantly higher probability of refusing a loan proposal because its cost is too high. Spanish female firms display a lower likelihood to obtain at least part of the loan (see table b11, panel b).

To summarise, demand and supply side display heterogeneous patterns in the four countries. On the one hand, German and French female firms refrain more often from asking for bank loans than their male counterpart, but, once an application has been made, only German firms display differences in responses. By contrast, in Italy and Spain female firms do not show a significant different behaviour as for self-restraint in the request of loans due to fear of rejection, but some gender-based discrepancy appears in the results

from their application, when the latter is made. Germany is therefore the only country where – for female firms – self-restraint in loan demand is coupled with relatively higher likelihood to be denied credit upon application.

**Figure 3**

**Application for bank loans and results, by country (1)**  
(percentage frequencies)



Source: ECB SAFE survey, waves from the second half of 2009 to the first half of 2011.

(1) \*\*\* = difference is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent.

As regards terms and conditions of bank financing, only in Italy the share of female firms that faced an increase in bank interest rates in the period covered by the analysis is significantly higher than the male one (see table b12). This worsening seems even more “bad news” to Italian firms if one takes into account the findings by Alesina *et al.* (2012), suggesting that Italian female firms pay comparatively more for bank credit. Italian female firms were also more often asked to increase collateral. By contrast, Spanish female firms seem to have faced an increase in both interest rates and collateral less often than their male counterparts. German and French female firms were charged higher costs of financing other than interest rates and German ones also experienced a lower likelihood to have the maturity of their loan extended. Interestingly, in virtually no country significant gender differences arise as for variations in the available size of loan or credit line.

To conclude this descriptive analysis, Germany displays the largest differences between male and female firms as regards the likelihood to obtain credit and the recent evolution of term and conditions in a credit slowdown environment. In France gender gaps tend to be lower on all aspects but the application for bank loans. Finally, Italy and Spain usually score larger gender-based differences when it comes to the results of a bank loan request.

## 5. The econometric analysis

### 5.1 Baseline specification

As suggested above, the differences detected in the attitude of female firms towards the recourse to external finance might stem from the characteristics of the firms, i.e. they might depend on structural differences between male and female enterprises unrelated to the gender of the director (e.g., business age, size, sector, ownership and so on). In order to investigate if female firms experience a more difficult access to external finance *because* they are directed or owned by a woman, one needs to control for such confounding factors; to this aim a multinomial logistic analysis is run on some of the answers provided in the survey.

The analysis is applied to the two questions which have a particular interest in assessing the capability of women-led firms to access to finance, namely the probability of applying for external funds, and the outcome of this application. The baseline analysis is:

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

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

The dependent variable,  $P(\cdot)$ , is the probability that firm  $i$  applies for external finance (eq. [1a]) or, conditional on application, the probability of obtaining the funds (eq. [1b]). Since possible answers can take more than two, unordered values, the coefficients from the estimation will show whether each independent variable entails either an increase or a decrease in the likelihood of getting the different answers by the firm, compared to the reference answer (base case): a positive coefficient means that the factor under consideration will make, *ceteris paribus*, more likely to get that answer from the respondent firm. The independent variables are dummies: in particular, *female* is a dummy variable which takes the value of 1 if the firm is directed by a woman, 0 otherwise.<sup>9</sup>

Table b13 reports the results for the probability of applying for external finance (eq. [1a]). According to panel a, after controlling for a set of firm's features, no significant differences emerge for female firms as opposed to male counterparts as far as application for bank loan is concerned. In particular, the sign of the coefficient mildly suggests that female firms more often refrain from applying for bank loans due to fear of rejection, but the coefficient is not statistically significant. The same result is found by considering the application for bank overdraft or for other loans (panel b and d). Nevertheless, some evidence of gender based differences emerges when looking at non-bank sources of

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<sup>9</sup> Dummies are constructed following the general characteristics of the firms collected in the survey and displayed in table b1. In particular, there are four dummies for size assessed through the number of employees and four dummies for size measured by turnover; four dummies are for age classes; four dummies are for the sector of activity (construction, manufacturing, trade, other services), 11 dummies for country; two dummies for type (financial autonomy) and six for ownership. Moreover four dummies denote the survey wave (i.e. from the second to the fifth one).

external finance, namely trade credit (panel c). In this case, a female firm is more likely to answer that it did not bid for trade credit over the past 6 months due to fear of rejection, as opposed to the base outcome (“Applied”), even after controlling for structural features. The estimated marginal effect is 1.0 percentage point, where is the increase in the likelihood to get this answer due to the mere fact that the respondent firm is directed or owned by a woman. This differential compares with the original 1.6 percentage points gap that was obtained with the descriptive evidence (section 4.2). Other motivations for refraining from application of trade credit are also significantly higher for female firms, with lower marginal effects (“sufficient funds” displays a marginal effect of 0.9 percentage points, “other reasons” one of 0.4 p.p.).

As for the supply side and the outcomes of credit applications, the estimates from equation [1b] show that female firms do not display a significantly higher likelihood of having their bank loan application rejected, after controlling for features such as age, size and industry sector (table b14, panel a). The coefficient of the female dummy is positive, but not significant. The same result applies to other sources of external finance. Only a weak significant effect emerges with respect to the application for trade credit, where female firms appear more likely than their male counterparts to refuse proposed arrangements due to their cost (with a marginal effect of 1.5 percentage points, even higher than the 1.2 p.p. retrieved from the descriptive analysis).

The findings of this econometric exercise can be summarised as follows: the differences in the access to external finance for firms led by a woman, that have been found in section 4, seem to be widely explained by their structural features, which are in general different from the ones of male enterprises, as reported in the section 3.

## 5.2 *Differences at country level*

Given the differences in both the structural features and the attitude towards external finance in the major European countries (see section 4.4), the baseline econometric specifications have been run for the subsets of the four major countries, for which the sample is also representative. In particular, the aim is to investigate whether differences emerge between German, Spanish, French and Italian enterprises, as far as the attitude towards bank loan application and results from the application are concerned.

As for application for bank loans, table b15 suggests that the results found for the whole sample basically hold for each of the four countries, i.e. no gender-based differences can be detected, once structural differences in the characteristics of the enterprises are duly taken into account. Only some weak evidence appears for French female firms that present a higher likelihood of abstaining from applying for loans than their male counterparts, for reasons other than fear of rejection or availability of sufficient funds (panel c). The relevant coefficient, barely significant at a 10 per cent confidence level, entails a marginal effect of 3.2 percentage points, i.e., after controlling for the respective features, French female firms still have a likelihood to refrain from application for unspecified reasons that is a 3.2 percentage points higher than other firms (against 4.3 percentage points without controlling for structural features).

Turning to the outcomes from bank loan application, the results found for the whole sample generally also hold at the country level, but in some countries some evidence emerges of a lower likelihood of female firms to have their applications accepted, with respect to male comparable businesses (table b16). For Spanish firms, weak evidence emerges that female entrepreneurs are less likely to secure to their firms at least a part of

the loan required (panel b). German and Italian firms show a higher frequency of rejected applications, even after checking for non gender-related differences; marginal effects suggest that female firms have a higher probability than their male counterparts to get a denial as large as 6.6 and 8.8 percentage points in Germany and Italy, respectively (panel a and d).<sup>10</sup> By contrast, in the French case, the general descriptive findings shown for the whole sample are fully confirmed, that is the dummy for female firms turns out to be not significant (panel c).

### 5.3 Robustness checks and further research

Extant literature has pointed out that a different attitude towards application for external finance might depend on personal characteristics of women directors/owners, such as generally higher risk aversion, lower propensity to negotiate and higher inclination to discouragement following past denials (see section 2). The dataset used in this paper allows, to some extent, to shed some light on these hypotheses. As mentioned, the last question of the SAFE survey deals with future prospects for the availability of finance showing that, on average, women present worse expectations (see section 4.3). These answers have been therefore added to the baseline specification [1a] and, in order to reduce possible endogeneity, the answer about the prospects for internal funds has been used. The new specification (not reported) yields results very similar to the baseline, and the likelihood that a firm refrains from loan application because led by a woman does not show statistical significance. An additional specification of the supply-side equation [1b] has been obtained by adding the discouraged borrowers (i.e. those who refrained from application fearing rejection) to the applicants that resulted to be turned down. This procedure should provide, according to Muravyev *et al.* (2009), an upper bound for possible discrimination. The estimation (not reported) yields the same results as the baseline.

Regressions based on several alternative specifications have also been run (results not reported), in particular by adding a few explanatory variables which might help capturing the idiosyncratic riskiness of the firm, as perceived by third parties. The idea is to test the impact on demand and supply of credit of the different perception that providers of funds may have on the riskiness of female versus male firms. The risk variables that have been used are retrieved from the questions in the survey which refer to the recent evolution in the (i) firm-specific outlook, (ii) the firm's credit history, (iii) the willingness of business partners to provide trade credit, (iv) the willingness of investors to invest in equity or debt securities issued by the firm, (v) the firm's profitability. The results from these extended specifications confirm the main outcomes of the baseline equation.

Although the analysis provides consistent evidence, other factors may also explain this result. The dataset cannot be matched with other sources of information on small firms, so that an omitted variables problem cannot be tackled. A possible improvement of this study may be to take into account demand and supply determinants of bank credit variations by using the results of the ECB Bank Lending Survey at country level, in order to disentangle and explain possible differences in the situation of female firms in different time periods, i.e. in different waves of the SAFE survey.

The latter point is relevant since previous results have been obtained, as stated, by pooling four waves of the survey that are homogenous as for the questions that are

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<sup>10</sup> For Italian female firms also emerges a lower likelihood of refusing loans because costs are assessed to be too high, but the estimated coefficient is driven by just one observation in the whole sample.

relevant to the analysis, with the aim of enlarging the sample, to make results as robust as possible. However, during the period of time dealt with in this paper, there might have been some relevant changes, e.g. in the bank lending policy stance, that deserve to be duly considered. Further research should be therefore devoted to understand why econometric results are in some cases different across waves. The fourth wave (covering the second half of 2010), for instance, presents some strong econometric evidence of a more difficult access to credit for female firms, after having taken firms' characteristics into account (table b17); the fifth one, related to the first half of 2011, by contrast, shows in some cases the opposite (not reported).<sup>11</sup>

Moreover, more precise estimations may be obtained by exploiting the panel component of the dataset. Extending the analysis to a panel econometric exercise might in principle shed light on partly contrasting outcomes in different periods. However, due to the relatively small panel component, the key results of this paper should not change in a significant way. Finally, a subsample of male firms might be drawn from the whole sample, mirroring the same structural features as the female subsample (matching sample), and the subsequent analysis might be focused on comparing the access to credit by these similar firms, in order to wipe out the confounding effect of the different (and more diverse) features of the male firms.

## 6. Conclusions

The access to finance is one of the most serious issues that firms have to face, especially smaller ones. This paper tries to assess whether gender matters in firm's availability of different sources of external finance and, therefore, in their financing structure. The analysis is conducted by using the results of the ECB SAFE survey both at euro area level and for the four largest countries whose sample is representative.

Firstly, firms in the euro area do not display significant gender differences in how relevant they perceive credit constraints as an obstacle to their activity. Secondly, women-led enterprises tend to operate with a narrower variety of sources of finance compared to those led by men, and often do use external finance at all. Thirdly, even though banks are the major source of finance also for female small firms, the latter have greater difficulties in obtaining credit with respect to their male counterparts, because of both demand-side and supply-side factors. As for the demand side, female firms tend to apply less frequently for a bank loan: in particular they more often do not ask because they anticipate a rejection. As for the supply side, female firms receive more frequently a rejection.

The econometric analysis suggests that this evidence is almost completely explained by the fact that male and female firms are structurally different (in terms of size, age, sector, proprietorship, etc.). Female firms are significantly smaller and younger than male ones; moreover they are more often owned by a single entrepreneur and they operate mostly in trade or other services. These characteristics may explain the lower need for external finance and, on the supply side, may render female firms less desirable borrowers from the bank's point of view. To sum up, female enterprises apparently do experience a tougher access to finance, but not merely *due to the fact* they are led by a woman.

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<sup>11</sup> It should also be noted that these results from a single wave (un-pooled) are not affected by the downward bias in variance estimation, originated from the use of pooled survey waves with an unexploited panel component. See section 3.1.

Results appear to be sensitive to the sub-period considered, pointing to a disadvantage in credit access for female firms in some periods, counterbalanced by no evidence of such disadvantage in others.

Some differences emerge across countries: German and Italian women-led firms are more likely to have their loan request rejected, while Spanish female firms exhibit a lower probability of obtaining at least part of the requested loan. French female firms are more likely not to not apply for reasons different from fear of rejection or sufficient internal funds.

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## Appendix A. The SAFE survey: sample and questionnaire

Methodological information on the survey is provided in the ECB documents “Survey on the access to finance of SMEs in the euro area” (SAFE), available in the ECB web site. In particular, table a1 presents the number of interviewed firms in the four waves of the survey that have been used in this paper, from second half 2009 to first half 2011.

**Table a1**

| Wave   | Number of interviewed firms |           |        |       |       |
|--------|-----------------------------|-----------|--------|-------|-------|
|        | Total                       | Of which: |        |       |       |
|        |                             | Germany   | France | Italy | Spain |
| 2009H2 | 5,320                       | 1,001     | 1,001  | 1,004 | 1,004 |
| 2010H1 | 5,312                       | 1,000     | 1,003  | 1,000 | 1,000 |
| 2010H2 | 7,532                       | 1,000     | 1,004  | 1,000 | 1,000 |
| 2011H1 | 8,316                       | 1,006     | 1,002  | 1,001 | 1,001 |

In what follows, a few key questions from SAFE survey (fourth wave) are reported, for reference (table a2).<sup>12</sup>

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<sup>12</sup> The whole questionnaire is available at:

[http://www.ecb.europa.eu/stats/pdf/surveys/sme/SME\\_survey\\_Questionnaire\\_publication201104.pdf](http://www.ecb.europa.eu/stats/pdf/surveys/sme/SME_survey_Questionnaire_publication201104.pdf). In the second wave (second half 2009) the answer to question Q7B was slightly different from the subsequent waves, in that options 5 and 6 were not in place, and an option “got a part of it” was allowed. As a consequence, more detailed answers in waves 3 to 5 were homogenised to the second wave simpler format, when needed for wave pooling (i.e. answers 5 and 6 were translated into “got a part of it”).

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**Excerpt from the SAFE questionnaire**

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**European Commission and European Central Bank  
Survey on the access to finance of SMEs,  
March to September 2010 (4th wave)**

[...]

**Section 1: General characteristics of the firm (Demographic part, common)**

[...]

**D6b. What is the gender of the owner/director/CEO of your firm?**

[READ OUT – ONLY ONE ANSWER IS POSSIBLE]

- Male ..... 1
- Female..... 2
- [DK/NA] ..... 9

**Section 2: General information on the type and situation of the firm**

We will now turn to the situation of your firm. When asked for the changes over the preceding six months, please report just the changes over this period, regardless of how they stand relative to longer-term norms.

**Q0. What is currently the most pressing problem your firm is facing?**

[READ OUT – ROTATE – ONLY ONE ANSWER IS POSSIBLE]

- Finding customers..... 1
- Competition ..... 2
- Access to finance [EXPLAIN IF NEEDED: FINANCING OF YOUR FIRM –  
BANK LOANS, TRADE CREDIT, EQUITY, DEBT SECURITIES,  
OTHEREXTERNAL FINANCING] ..... 3
- Costs of production or labour ..... 4
- Availability of skilled staff or experienced managers..... 5
- Regulation [EUROPEAN AND NATIONAL LAWS, INDUSTRIAL REGULATIONS, ETC.].. 6
- Other ..... 7
- [DK/NA] ..... 9

[...]

**Section 3: Financing of the firm**

We turn now to the financing of your firm. All firms participating in the survey are asked the same questions. Some financing sources that will be covered might not be relevant for your firm. You will be allowed to indicate that this source is not applicable to your firm, but please only do so if your firm has never used this source of financing in the past.

[...]

**Q7A. For each of the following ways of financing, could you please indicate whether you applied for them over the past 6 months, or if you did not apply because you thought you would be rejected, because you had sufficient internal funds, or you did not apply for other reasons? [PROMPT IF NEEDED: Other external financing includes loans from other lenders, overdrafts, credit lines, equity or debt issuance, leasing, factoring, etc., but excludes overdrafts, credit lines, bank loans and trade credit]**

[READ OUT – ONE ANSWER PER LINE]

- Applied ..... 1
  - Did not apply because of possible rejection .....2
  - Did not apply because of sufficient internal funds..... 3
  - Did not apply for other reasons .....4
  - [DK/NA]..... 9
-

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|   |           |
|---|-----------|
| d) Bank overdraft, credit line or credit cards overdraft.....             | 1 2 3 4 9 |
| a) Bank loan (new or renewal; excluding overdraft and credit lines) ..... | 1 2 3 4 9 |
| b) Trade credit .....   | 1 2 3 4 9 |
| c) Other external financing .....   | 1 2 3 4 9 |

**[FILTER: FOR EACH OF THE ITEMS OF Q7A WHICH IS “APPLIED”, FILL THE RELEVANT ITEM IN Q7B]**

**Q7B. [COMMON] If you applied and tried to negotiate for this type of financing over the past 6 months, did you receive all the financing you requested, or only part of the financing you requested, or only at unacceptable costs or terms and conditions so you did not take it, or you have not received anything at all? [PROMPT IF NEEDED: Other external financing includes loans from other lenders, overdrafts, credit lines, equity or debt issuance, leasing, factoring, etc., but excludes overdrafts, credit lines, bank loans and trade credit]**

[READ OUT – ONLY ONE ANSWER PER LINE]

|   |             |
|---|-------------|
| - Applied and got everything .....  | 1           |
| - Applied and got most of it [BETWEEN 75% AND 99%] .....                  | 5           |
| - Applied but only got a limited part of it [BETWEEN 1% AND 74%].....     | 6           |
| - Applied but refused because cost too high .....                         | 3           |
| - Applied but was rejected .....  | 4           |
| - [DK] .....  | 9           |
| d) Bank overdraft, credit line or credit cards overdraft.....             | 1 3 4 5 6 9 |
| a) Bank loan (new or renewal; excluding overdraft and credit lines) ..... | 1 3 4 5 6 9 |
| b) Trade credit .....   | 1 3 4 5 6 9 |
| c) Other external financing .....   | 1 3 4 5 6 9 |

[...]

#### Section 4: Future, growth and obstacles to growth

**[FILTER: ALL FIRMS]**

**Q23. For each of the following types of financing available to your firm, could you please indicate whether you think their availability will improve, deteriorate, or remain unchanged over the next 6 months?**

[READ OUT – ONE ANSWER PER LINE]

|  |   |
|--|---|
| - Will improve .....                             | 1 |
| - Will remain unchanged .....                    | 2 |
| - Will deteriorate.....                          | 3 |
| - [Instrument is not applicable to my firm]..... | 7 |
| - [DK] .....                                     | 9 |

**[FOR ITEMS g), b) AND d) BELOW, CODE 7 IS NOT TO BE USED FOR FIRMS HAVING “APPLIED” IN Q7A.a) and Q7A.b) RESPECTIVELY]**

|  |           |
|--|-----------|
| a) Internal funds Retained earnings or sale of assets [INTERNAL FUNDS] .....   | 1 2 3 7 9 |
| g) Bank overdraft, credit line or credit cards overdraft .....   | 1 2 3 7 9 |
| b) Bank loans (new or renewal; excluding overdraft and credit lines) .....   | 1 2 3 7 9 |
| d) Trade credit .....  | 1 2 3 7 9 |
| c) Equity investments in your firm.....  | 1 2 3 7 9 |
| e) Debt securities issued .....  | 1 2 3 7 9 |
| f) Other [LOAN FROM A RELATED COMPANY OR SHAREHOLDERS AND FROM FAMILY AND FRIENDS, LEASING AND FACTORING, GRANTS]..... | 1 2 3 7 9 |

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## Appendix B: Tables

Note: unless differently specified, data in the following tables refer to the firms with less than 250 employees, surveyed in the four SAFE waves run from the second half of 2009 to the first half of 2011.

**Table b1**

| <b>General characteristics of the firms in the sample</b> |   |        |     |                 |         |
|---|---|--------|-----|-----------------|---------|
| <i>(percentage frequencies)</i>                           |   |        |     |                 |         |
|   | <b>Gender of the owner/director/CEO</b> |        |     | t-statistic (1) | Overall |
|   | Male                                    | Female |     |                 |         |
| <b>Memo: Total firms</b>                                  | 85.56                                   | 14.44  |     |                 | 100     |
| <b>Size (employment)</b>                                  |   |        |     |                 |         |
| From 1 to 9 employees                                     | 43.46                                   | 62.60  | *** |                 | 46.28   |
| From 10 to 49 employees                                   | 30.96                                   | 24.64  | *** |                 | 30.03   |
| From 50 to 249 employees                                  | 25.57                                   | 12.76  | *** |                 | 23.69   |
| <i>Total</i>  | 100                                     | 100    |     |                 | 100     |
| <b>Size (annual turnover in euros)</b>                    |   |        |     |                 |         |
| Up to 2 million   | 56.65                                   | 76.90  | *** |                 | 59.55   |
| More than 2 and up to 10 million                          | 26.48                                   | 17.07  | *** |                 | 25.13   |
| More than 10 and up to 50 million                         | 14.25                                   | 5.12   | *** |                 | 12.94   |
| More than 50 million                                      | 2.62                                    | 0.92   | *** |                 | 2.37    |
| <i>Total</i>  | 100                                     | 100    |     |                 | 100     |
| <b>Financial autonomy</b>                                 |   |        |     |                 |         |
| part of a profit-oriented firm (2)                        | 10.92                                   | 7.08   | *** |                 | 10.36   |
| autonomous profit-oriented firm                           | 89.08                                   | 92.92  | *** |                 | 89.64   |
| <i>Total</i>  | 100                                     | 100    |     |                 | 100     |
| <b>Main activity</b>                                      |   |        |     |                 |         |
| Construction  | 10.97                                   | 6.09   | *** |                 | 10.27   |
| Manufacturing   | 17.72                                   | 9.42   | *** |                 | 16.52   |
| Wholesale or retail trade                                 | 19.40                                   | 23.34  | *** |                 | 19.97   |
| Other services to bs or persons                           | 51.90                                   | 61.15  | *** |                 | 53.24   |
| <i>Total</i>  | 100                                     | 100    |     |                 | 100     |
| <b>Age (years)</b>  |   |        |     |                 |         |
| 10 years or more  | 71.01                                   | 61.14  | *** |                 | 69.59   |
| 5 years or more but less than 10                          | 16.19                                   | 18.86  | *** |                 | 16.58   |
| 2 years or more but less than 5                           | 10.20                                   | 15.44  | *** |                 | 10.95   |
| Less than 2   | 2.60                                    | 4.56   | *** |                 | 2.88    |
| <i>Total</i>  | 100                                     | 100    |     |                 | 100     |
| <b>Ownership</b>  |   |        |     |                 |         |
| Public (the company is listed)                            | 3.92                                    | 1.77   | *** |                 | 3.61    |
| Family or entrepreneurs                                   | 53.29                                   | 53.60  |     |                 | 53.34   |
| Other firm or business associates                         | 12.71                                   | 7.39   | *** |                 | 11.94   |
| Venture capital firms                                     | 1.35                                    | 0.59   | *** |                 | 1.24    |
| A natural single person                                   | 26.68                                   | 35.28  | *** |                 | 27.92   |
| Other   | 2.05                                    | 1.36   | **  |                 | 1.95    |
| <i>Total</i>  | 100                                     | 100    |     |                 | 100     |

(1) \*\*\* = difference is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent. – (2) An enterprise that does not take fully autonomous financial decisions (e.g. a subsidiary or a branch).

Table b2

## General characteristics of the firms in the sample by country

(percentage frequencies)

|  | Germany |        |     | France |        |     | Italy |        |     | Spain |        |     |
|--|---------|--------|-----|--------|--------|-----|-------|--------|-----|-------|--------|-----|
|  | Male    | Female | (1) | Male   | Female | (1) | Male  | Female | (1) | Male  | Female | (1) |
| <b>Memo: N. of firms</b>               | 84.43   | 15.57  |     | 85.54  | 14.46  |     | 86.00 | 14.00  |     | 84.72 | 15.28  |     |
| <b>Size (employment)</b>               |         |        |     |        |        |     |       |        |     |       |        |     |
| From 1 to 9 employees                  | 30.95   | 48.66  | *** | 35.35  | 66.81  | *** | 58.10 | 71.78  | *** | 49.01 | 68.10  | *** |
| From 10 to 49                          | 34.73   | 33.43  |     | 34.83  | 22.44  | *** | 26.14 | 18.16  | *** | 30.23 | 21.36  | *** |
| From 50 to 249                         | 34.32   | 17.91  | *** | 29.82  | 10.75  | *** | 15.77 | 10.05  | *** | 20.76 | 10.54  | *** |
| <i>Total</i>                           | 100     | 100    |     | 100    | 100    |     | 100   | 100    |     | 100   | 100    |     |
| <b>Size (annual turnover in euros)</b> |         |        |     |        |        |     |       |        |     |       |        |     |
| Up to 2 million                        | 51.30   | 72.60  | *** | 50.99  | 80.35  | *** | 65.30 | 77.75  | *** | 62.05 | 78.50  | *** |
| 2 to 10 million                        | 28.40   | 20.69  | *** | 29.56  | 14.81  | *** | 21.52 | 15.60  | **  | 25.19 | 16.51  | *** |
| 10 to 50 million                       | 18.03   | 5.75   | *** | 17.20  | 3.80   | *** | 10.87 | 5.82   | *** | 10.40 | 4.23   | *** |
| More than 50 million                   | 2.27    | 0.97   | *   | 2.26   | 1.04   | **  | 2.31  | 0.84   | **  | 2.36  | 0.76   | *** |
| <i>Total</i>                           | 100     | 100    |     | 100    | 100    |     | 100   | 100    |     | 100   | 100    |     |
| <b>Financial autonomy</b>              |         |        |     |        |        |     |       |        |     |       |        |     |
| part of a profit-oriented firm         | 12.57   | 11.62  |     | 12.08  | 4.92   | *** | 5.42  | 1.13   | *** | 9.28  | 7.62   |     |
| an autonomous profit-oriented firm     | 87.43   | 88.38  |     | 87.92  | 95.08  | *** | 94.58 | 98.87  | *** | 90.72 | 92.38  |     |
| <i>Total</i>                           | 100     | 100    |     | 100    | 100    |     | 100   | 100    |     | 100   | 100    |     |
| <b>Main activity</b>                   |         |        |     |        |        |     |       |        |     |       |        |     |
| Construction                           | 6.62    | 5.21   |     | 11.11  | 4.00   | *** | 11.87 | 8.55   |     | 17.06 | 7.40   | *** |
| Manufacturing                          | 20.70   | 13.08  | *** | 16.55  | 4.45   | *** | 22.59 | 13.21  | *** | 14.20 | 7.38   | *** |
| Wholesale or retail trade              | 17.20   | 20.21  | *   | 19.23  | 23.27  | **  | 18.62 | 24.57  | *** | 18.84 | 25.19  | *** |
| Other services                         | 55.48   | 61.50  | **  | 53.11  | 68.28  | *** | 46.92 | 53.67  | **  | 49.91 | 60.03  | *** |
| <i>Total</i>                           | 100     | 100    |     | 100    | 100    |     | 100   | 100    |     | 100   | 100    |     |
| <b>Age (years)</b>                     |         |        |     |        |        |     |       |        |     |       |        |     |
| 10 years or more                       | 73.76   | 66.10  | *** | 66.52  | 45.61  | *** | 66.42 | 62.34  |     | 72.27 | 63.99  | *** |
| 5 years or more but less than 10       | 13.66   | 16.43  |     | 16.07  | 22.30  | *** | 20.65 | 19.99  |     | 15.94 | 20.37  | **  |
| 2 years or more but less than 5        | 10.32   | 13.16  | *   | 11.74  | 21.91  | *** | 10.59 | 14.91  | **  | 10.69 | 13.20  |     |
| Less than 2                            | 2.27    | 4.31   | **  | 5.68   | 10.19  | *** | 2.36  | 2.76   |     | 1.10  | 2.45   | **  |
| <i>Total</i>                           | 100     | 100    |     | 100    | 100    |     | 100   | 100    |     | 100   | 100    |     |
| <b>Ownership</b>                       |         |        |     |        |        |     |       |        |     |       |        |     |
| Public (listed company)                | 2.56    | 0.70   | **  | 2.82   | 1.98   |     | 2.39  | 1.22   |     | 4.36  | 2.06   | *** |
| Family or entrepreneurs                | 45.59   | 43.06  |     | 39.77  | 41.07  |     | 68.33 | 73.35  | *   | 57.74 | 62.00  |     |
| Other firm or business associates      | 11.08   | 4.52   | *** | 24.53  | 17.98  | *** | 7.88  | 0.66   | *** | 13.58 | 9.37   | **  |
| Venture capital firms                  | 1.66    | 0.27   | *** | 0.80   | 0.65   |     | 1.23  | 0.00   | **  | 1.42  | 1.18   |     |
| A natural single person                | 37.04   | 50.09  | *** | 29.99  | 36.36  | **  | 18.48 | 22.87  | *   | 21.53 | 25.06  |     |
| Other                                  | 2.07    | 1.35   |     | 2.09   | 1.96   |     | 1.69  | 1.90   |     | 1.37  | 0.33   | **  |
| <i>Total</i>                           | 100     | 100    |     | 100    | 100    |     | 100   | 100    |     | 100   | 100    |     |

(1) t-statistic: \*\*\* = difference is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent.

Table b3

| <b>Most pressing problem of the firm</b>              |            |            |                 |            |
|---|------------|------------|-----------------|------------|
| <i>(percentage frequencies)</i>                       |            |            |                 |            |
|   | Male       | Female     | t-statistic (1) | Overall    |
| Finding customers                                     | 26.22      | 26.85      |                 | 26.31      |
| Access to finance                                     | 16.71      | 17.01      |                 | 16.75      |
| Competition   | 14.34      | 14.61      |                 | 14.38      |
| Availability of skilled staff or experienced managers | 13.54      | 12.22      |                 | 13.35      |
| Costs of production or labour                         | 12.34      | 12.76      |                 | 12.40      |
| Regulation  | 6.91       | 8.07       | *               | 7.08       |
| Other   | 9.94       | 8.47       | **              | 9.73       |
| <i>Total</i>  | <i>100</i> | <i>100</i> |                 | <i>100</i> |

(1) \*\*\* = difference is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent.

Table b4

| <b>Income and financial situation of the firm (1)</b> |           |        |                 |        |        |                 |           |        |                 |
|---|-----------|--------|-----------------|--------|--------|-----------------|-----------|--------|-----------------|
| <i>(percentage frequencies)</i>                       |           |        |                 |        |        |                 |           |        |                 |
| <b>Relevant indicators</b>                            | Increased |        |                 | Stable |        |                 | Decreased |        |                 |
|   | Male      | Female | t-statistic (2) | Male   | Female | t-statistic (2) | Male      | Female | t-statistic (2) |
| Turnover  | 35.54     | 29.71  | ***             | 29.98  | 32.33  | **              | 34.49     | 37.96  | ***             |
| Labour cost   | 48.33     | 49.00  |                 | 41.30  | 41.79  |                 | 10.37     | 9.22   |                 |
| Other cost  | 61.67     | 64.74  | ***             | 30.40  | 29.12  |                 | 7.93      | 6.14   | ***             |
| Net interest expenses                                 | 34.58     | 34.97  |                 | 50.14  | 53.50  | ***             | 15.28     | 11.52  | ***             |
| Profit  | 25.21     | 21.08  | ***             | 28.53  | 31.08  | **              | 46.27     | 47.84  |                 |
| Profit margin   | 17.06     | 14.47  | ***             | 33.32  | 35.02  |                 | 49.62     | 50.52  |                 |
| Debt compared to assets (3)                           | 23.65     | 24.02  |                 | 47.62  | 50.01  | *               | 28.73     | 25.97  | **              |

(1) Evolution of the indicators over the past six months. – (2) \*\*\* = difference is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent. – (3) Results concern only firms that have debt.

Table b5

**Financing of the firm (1)**  
(percentage frequencies)

|  | Answer 1       |        |                 | Answer 2  |        |                 | Answer 3       |        |                 |
|--|----------------|--------|-----------------|-----------|--------|-----------------|----------------|--------|-----------------|
|  | Male           | Female | t-statistic (2) | Male      | Female | t-statistic (2) | Male           | Female | t-statistic (2) |
| <b>a) Sources of financing</b>   | Used           |        |                 | Not used  |        |                 | Not relevant   |        |                 |
| Retained earnings or sale of assets                                      | 29.50          | 24.88  | ***             | 25.44     | 24.77  |                 | 45.05          | 50.35  | ***             |
| Grants or subsidised bank loans  | 16.97          | 15.48  | *               | 38.90     | 37.47  |                 | 44.13          | 47.05  | **              |
| Bank loan  | 35.31          | 29.45  | ***             | 41.25     | 41.88  |                 | 23.44          | 28.67  | ***             |
| Bank overdraft, credit line or credit cards overdraft                    | 40.22          | 36.31  | ***             | 29.92     | 30.59  |                 | 29.85          | 33.10  | ***             |
| Trade credit   | 28.02          | 21.18  | ***             | 27.31     | 25.58  |                 | 44.67          | 53.24  | ***             |
| Other loan   | 11.96          | 7.89   | ***             | 31.70     | 28.88  | **              | 56.34          | 63.23  | ***             |
| Leasing or hire-purchase or factoring                                    | 34.92          | 27.78  | ***             | 35.98     | 33.95  | *               | 29.09          | 38.26  | ***             |
| Debt securities issued   | 2.20           | 1.47   | *               | 18.92     | 15.91  | ***             | 78.88          | 82.62  | ***             |
| Subordinated loans, participation loans or similar financing instruments | 2.36           | 1.73   | *               | 21.69     | 18.91  | ***             | 75.95          | 79.35  | ***             |
| Equity   | 7.17           | 6.75   |                 | 24.51     | 22.02  | **              | 68.31          | 71.23  | ***             |
| <i>Pro memoria:</i>  |                |        |                 |           |        |                 |                |        |                 |
| <i>Use of external financing (3)</i>                                     | 81.50          | 74.87  | ***             | 18.50     | 25.13  | ***             |                |        |                 |
| <b>b) Needs for external finance (4)</b>                                 | Increased      |        |                 | Stable    |        |                 | Decreased      |        |                 |
| Bank loans   | 18.73          | 16.95  | *               | 45.32     | 46.27  |                 | 11.72          | 9.43   | ***             |
| Bank overdraft, credit line or credit cards overdraft                    | 20.58          | 19.36  |                 | 42.27     | 43.18  |                 | 10.16          | 8.31   | **              |
| Trade credit   | 10.57          | 7.26   | ***             | 38.30     | 35.30  | **              | 6.30           | 4.50   | ***             |
| Equity   | 2.96           | 2.08   | **              | 22.38     | 18.85  | ***             | 2.13           | 1.84   |                 |
| Debt securities issued   | 1.01           | 0.39   | ***             | 14.54     | 11.35  | ***             | 1.47           | 1.34   |                 |
| Other  | 8.06           | 6.76   | **              | 33.52     | 30.58  | **              | 4.92           | 4.58   |                 |
| <b>c) Determinants of ext. finance (4)</b>                               | Increased need |        |                 | No impact |        |                 | Decreased need |        |                 |
| Fixed investments  | 16.12          | 13.61  | ***             | 45.49     | 41.96  | ***             | 4.19           | 3.37   | *               |
| Inventories and working capital  | 19.05          | 15.76  | ***             | 50.48     | 49.73  |                 | 8.11           | 6.84   | **              |
| Availability of Internal funds   | 15.20          | 15.12  |                 | 54.77     | 51.77  | **              | 9.70           | 8.22   | **              |
| M&A and corporate restructuring  | 4.37           | 4.71   |                 | 22.24     | 20.59  | *               | 1.47           | 1.35   |                 |

(1) Evolution over the past six months. – (2) \*\*\* = difference is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent. – (3) Due to a discontinuity in the content of the related question, the second wave (second half of 2009) has been excluded from the computation. – (4) The percentages could not sum to 100 due to the answers of "not relevant item", which are not reported in the table.

Table b6

### Application for external funds and results from application

(percentage frequencies)

|                              | Bank loan |        |     | Bank overdraft, credit line or credit cards overdraft |        |     | Trade credit |        |     | Other |        |     |
|------------------------------|-----------|--------|-----|---|--------|-----|--------------|--------|-----|-------|--------|-----|
|                              | Male      | Female | (1) | Male  | Female | (1) | Male         | Female | (1) | Male  | Female | (1) |
| <b>a) Application</b>        |           |        |     |   |        |     |              |        |     |       |        |     |
| Applied                      | 25.29     | 22.87  | **  | 21.20   | 19.82  |     | 14.00        | 9.92   | *** | 10.80 | 8.34   | *** |
| Not applied (fear rejection) | 6.36      | 7.85   | **  | 5.80  | 6.20   |     | 3.91         | 5.53   | *** | 3.79  | 4.54   | *   |
| Not applied (no need)        | 46.88     | 46.01  |     | 51.58   | 51.27  |     | 44.89        | 44.48  |     | 46.24 | 46.49  |     |
| Not applied (other reasons)  | 21.48     | 23.27  | *   | 21.42   | 22.71  |     | 37.20        | 40.07  | **  | 39.17 | 40.62  |     |
| <b>b) Results</b>            |           |        |     |   |        |     |              |        |     |       |        |     |
| Got everything               | 66.18     | 62.31  |     | 61.16   | 59.31  |     | 65.03        | 70.73  |     | 75.51 | 76.41  |     |
| Got partially                | 19.19     | 16.18  |     | 24.84   | 23.99  |     | 24.94        | 20.85  |     | 13.74 | 11.79  |     |
| Refused (cost too high)      | 2.59      | 3.63   |     | 3.17  | 4.05   |     | 1.16         | 2.37   | *   | 2.18  | 0.96   |     |
| Rejected                     | 12.04     | 17.88  | *** | 10.83   | 12.65  |     | 8.87         | 6.05   |     | 8.56  | 10.84  |     |

(1) t-statistics: \*\*\* = difference is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent.

Table b7

### Terms and conditions of the bank financing (1)

(percentage frequencies)

|  | Increased by bank |        |                 | Unchanged |        |                 | Decreased by bank |        |                 |
|--|-------------------|--------|-----------------|-----------|--------|-----------------|-------------------|--------|-----------------|
|  | Male              | Female | t-statistic (2) | Male      | Female | t-statistic (2) | Male              | Female | t-statistic (2) |
| Level of interest rates                                  | 50.73             | 54.56  | *               | 34.44     | 34.57  |                 | 14.82             | 10.88  | ***             |
| Level of the cost of financing other than interest rates | 50.83             | 55.80  | **              | 44.96     | 41.43  |                 | 4.21              | 2.77   | *               |
| Available size of loan or credit line                    | 19.59             | 19.34  |                 | 61.13     | 60.43  |                 | 19.28             | 20.23  |                 |
| Available maturity of the loan                           | 8.48              | 7.90   |                 | 82.57     | 83.88  |                 | 8.95              | 8.21   |                 |
| Collateral requirements                                  | 37.73             | 38.75  |                 | 59.24     | 58.99  |                 | 3.04              | 2.26   |                 |
| Other, e.g. loan covenants                               | 34.73             | 36.06  |                 | 62.52     | 61.26  |                 | 2.75              | 2.68   |                 |

(1) Evolution of the indicators over the past six months. – (2) \*\*\* = difference is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent.

Table b8

| Availability of external finance (1)  |          |        |                 |           |        |                 |              |        |                 |
|---|----------|--------|-----------------|-----------|--------|-----------------|--------------|--------|-----------------|
| <i>(percentage frequencies)</i>   |          |        |                 |           |        |                 |              |        |                 |
|   | Improved |        |                 | Unchanged |        |                 | Deteriorated |        |                 |
|   | Male     | Female | t-statistic (2) | Male      | Female | t-statistic (2) | Male         | Female | t-statistic (2) |
| <b>a) Sources of external finance</b>   |          |        |                 |           |        |                 |              |        |                 |
| Bank loans  | 8.77     | 6.59   | ***             | 45.35     | 43.38  |                 | 18.80        | 18.26  |                 |
| Bank overdraft, credit line or credit cards overdraft                               | 8.37     | 5.92   | ***             | 47.51     | 46.41  |                 | 17.39        | 17.91  |                 |
| Trade credit  | 4.77     | 2.93   | ***             | 35.83     | 31.79  | ***             | 10.98        | 8.83   | ***             |
| Equity  | 3.00     | 1.86   | *               | 18.48     | 13.80  | ***             | 3.74         | 3.50   |                 |
| Debt securities issued  | 0.90     | 0.31   | **              | 11.42     | 9.81   |                 | 2.46         | 1.82   |                 |
| Other   | 6.08     | 6.13   |                 | 35.97     | 32.12  | **              | 6.95         | 7.45   |                 |
| <b>b) Factors impacting on availability of external finance</b>                     |          |        |                 |           |        |                 |              |        |                 |
| General economic outlook  | 16.30    | 12.91  | ***             | 41.81     | 41.76  |                 | 41.89        | 45.33  | ***             |
| Access to public financial support including guarantees                             | 4.29     | 3.74   |                 | 28.75     | 24.94  | ***             | 21.54        | 24.87  | ***             |
| Firm-specific outlook   | 21.10    | 17.49  | ***             | 51.18     | 51.64  |                 | 27.72        | 30.87  | ***             |
| Firm's own capital  | 23.99    | 17.68  | ***             | 55.07     | 56.89  |                 | 20.95        | 25.43  | ***             |
| Firm's credit history   | 21.85    | 17.71  | ***             | 63.18     | 65.57  | **              | 14.96        | 16.72  | *               |
| Willingness of banks to provide a loan  | 12.25    | 9.51   | ***             | 38.94     | 36.98  |                 | 31.28        | 32.27  |                 |
| Willingness of business partners to provide trade credit                            | 6.67     | 4.44   | ***             | 34.60     | 28.93  | ***             | 14.04        | 13.22  |                 |
| Willingness of investors to invest in equity or debt securities issued by your firm | 1.81     | 1.01   | ***             | 13.01     | 10.96  | ***             | 3.65         | 3.54   |                 |

(1) Evolution over the past six months. The percentages could not sum to 100 due to the answers of "not relevant item", which are not reported in the table. – (2) \*\*\* = difference is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent.

Table b9

| Future availability of sources of finance (1) |              |        |                 |                       |        |                 |                  |        |                 |
|---|--------------|--------|-----------------|-----------------------|--------|-----------------|------------------|--------|-----------------|
| <i>(percentage frequencies)</i>               |              |        |                 |                       |        |                 |                  |        |                 |
|   | Will improve |        |                 | Will remain unchanged |        |                 | Will deteriorate |        |                 |
|   | Male         | Female | t-statistic (2) | Male                  | Female | t-statistic (2) | Male             | Female | t-statistic (2) |
| Internal funds                                | 18.73        | 17.10  | *               | 47.05                 | 46.52  |                 | 16.83            | 15.58  |                 |
| Bank overdraft (3)                            | 11.92        | 11.75  |                 | 48.83                 | 48.51  |                 | 16.22            | 14.43  | *               |
| Bank loan                                     | 13.67        | 12.72  |                 | 49.03                 | 49.91  |                 | 18.18            | 16.30  | **              |
| Trade credit                                  | 7.33         | 5.14   | ***             | 39.91                 | 36.69  | ***             | 11.09            | 9.10   | ***             |
| Equity  | 6.52         | 4.64   | ***             | 23.68                 | 22.57  |                 | 4.17             | 4.24   |                 |
| Debt securities                               | 1.36         | 0.91   | *               | 15.88                 | 13.52  | ***             | 2.84             | 2.73   |                 |
| Other   | 6.23         | 4.46   | ***             | 37.98                 | 36.36  |                 | 5.80             | 5.57   |                 |

(1) Evolution over the next 6 months. The percentages could not sum to 100 due to the answers of "not relevant item", which are not reported in the table. – (2) \*\*\* = difference is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent. – (3) Include credit line or credit card overdraft.

Table b10

| <b>Use of sources of finance by country</b>                   |                |       |     |               |       |     |              |       |     |              |       |     |
|---|----------------|-------|-----|---------------|-------|-----|--------------|-------|-----|--------------|-------|-----|
| <i>(percentage frequencies; M=Male firms, F=Female firms)</i> |                |       |     |               |       |     |              |       |     |              |       |     |
|   | <b>Germany</b> |       |     | <b>France</b> |       |     | <b>Italy</b> |       |     | <b>Spain</b> |       |     |
|   | M              | F     | (1) | M             | F     | (1) | M            | F     | (1) | M            | F     | (1) |
| Retained earnings or sale of assets                           | 38.42          | 28.60 | *** | 24.89         | 23.37 |     | 24.67        | 22.63 |     | 27.60        | 23.89 |     |
| Grants or subsidised bank loans                               | 14.27          | 11.82 |     | 14.68         | 15.71 |     | 18.73        | 18.10 |     | 22.93        | 19.03 | *   |
| Bank loan   | 34.61          | 28.11 | *** | 38.22         | 34.06 |     | 36.65        | 30.60 | *   | 37.64        | 28.58 | *** |
| Bank overdraft, credit line or credit cards overdraft         | 37.18          | 35.10 |     | 40.49         | 37.08 |     | 49.61        | 44.18 |     | 36.12        | 35.51 |     |
| Trade credit  | 15.39          | 10.92 | **  | 16.33         | 11.51 | **  | 35.10        | 34.32 |     | 38.20        | 28.13 | *** |
| Other loan  | 16.39          | 10.76 | *** | 7.70          | 4.68  | *   | 6.35         | 5.80  |     | 12.97        | 8.31  | *** |
| Leasing or hire-purchase or factoring                         | 50.66          | 42.33 | *** | 38.68         | 26.02 | *** | 25.40        | 20.73 |     | 27.08        | 20.99 | *** |
| Debt securities issued  | 0.45           | 0.25  |     | 0.95          | 0.68  |     | 1.40         | 0.46  | **  | 1.36         | 1.83  |     |
| Subordinated loans, participation loans or similar            | 2.48           | 2.23  |     | 0.62          | 0.30  |     | 0.92         | 0.74  |     | 2.17         | 1.72  |     |
| Equity  | 15.97          | 14.92 |     | 6.03          | 6.89  |     | 3.35         | 2.20  |     | 2.39         | 3.09  |     |
| Did not use (2)   | 15.10          | 23.63 | *** | 19.65         | 29.35 | *** | 17.75        | 20.94 |     | 21.18        | 25.45 |     |

(1) t-statistics: \*\*\* = difference is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent. – (2) Due to a discontinuity in the content of the related question, the second SAFE wave (second half of 2009) has been excluded from the computation.

Table b11

| <b>Application for bank loans and results from application by country</b> |                |        |     |               |        |     |              |        |     |              |        |     |
|---|----------------|--------|-----|---------------|--------|-----|--------------|--------|-----|--------------|--------|-----|
| <i>(percentage frequencies)</i>   |                |        |     |               |        |     |              |        |     |              |        |     |
|   | <b>Germany</b> |        |     | <b>France</b> |        |     | <b>Italy</b> |        |     | <b>Spain</b> |        |     |
|   | Male           | Female | (1) | Male          | Female | (1) | Male         | Female | (1) | Male         | Female | (1) |
| <b>a) Application</b>   |                |        |     |               |        |     |              |        |     |              |        |     |
| Applied   | 20.97          | 20.09  |     | 30.64         | 24.20  | **  | 29.19        | 27.00  |     | 31.34        | 27.13  | *   |
| Not applied (fear rejection)  | 7.15           | 9.81   | **  | 5.65          | 9.08   | **  | 3.87         | 3.94   |     | 8.03         | 9.44   |     |
| Not applied (no need)   | 58.13          | 54.66  |     | 43.78         | 42.47  |     | 43.95        | 47.46  |     | 36.00        | 33.09  |     |
| Not applied (other reasons)   | 13.75          | 15.44  |     | 19.93         | 24.25  | *   | 22.99        | 21.60  |     | 24.63        | 30.34  | **  |
| <b>b) Results</b>   |                |        |     |               |        |     |              |        |     |              |        |     |
| Got everything  | 77.44          | 64.36  | *** | 78.82         | 78.78  |     | 64.82        | 58.15  |     | 52.64        | 56.39  |     |
| Got partial   | 13.49          | 9.58   |     | 9.94          | 9.29   |     | 22.40        | 19.10  |     | 27.85        | 19.19  | **  |
| Refused (cost too high)   | 2.04           | 5.35   | *   | 1.58          | 1.76   |     | 1.99         | 2.47   |     | 2.84         | 4.33   |     |
| Rejected  | 7.03           | 20.71  | *** | 9.66          | 10.17  |     | 10.79        | 20.29  | **  | 16.67        | 20.09  |     |

(1) t-statistics: \*\*\* = difference is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent.

Table b12

## Terms and conditions of the bank financing by country (1)

(percentage frequencies)

|  | Increased by the bank |        |                 | Unchanged |        |                 | Decreased by the bank |        |                 |
|--|-----------------------|--------|-----------------|-----------|--------|-----------------|-----------------------|--------|-----------------|
|  | Male                  | Female | t-statistic (2) | Male      | Female | t-statistic (2) | Male                  | Female | t-statistic (2) |
| <b>Germany</b>   |                       |        |                 |           |        |                 |                       |        |                 |
| Level of interest rates                                  | 30.26                 | 34.48  |                 | 50.77     | 52.11  |                 | 18.97                 | 13.41  |                 |
| Level of the cost of financing other than interest rates | 22.70                 | 32.39  | **              | 74.80     | 65.21  | **              | 2.51                  | 2.40   |                 |
| Available size of loan or credit line                    | 21.00                 | 21.24  |                 | 70.24     | 67.26  |                 | 8.76                  | 11.50  |                 |
| Available maturity of the loan                           | 8.18                  | 3.81   | *               | 87.81     | 90.15  |                 | 4.00                  | 6.04   |                 |
| Collateral requirements                                  | 27.71                 | 33.61  |                 | 68.93     | 64.72  |                 | 3.36                  | 1.67   |                 |
| Other, e.g. loan covenants                               | 23.42                 | 31.64  | *               | 74.32     | 64.91  | **              | 2.26                  | 3.45   |                 |
| <b>France</b>  |                       |        |                 |           |        |                 |                       |        |                 |
| Level of interest rates                                  | 39.33                 | 44.95  |                 | 39.49     | 38.04  |                 | 21.18                 | 17.00  |                 |
| Level of the cost of financing other than interest rates | 48.96                 | 57.81  | *               | 45.33     | 38.08  |                 | 5.70                  | 4.11   |                 |
| Available size of loan or credit line                    | 21.38                 | 17.40  |                 | 67.43     | 71.74  |                 | 11.19                 | 10.86  |                 |
| Available maturity of the loan                           | 7.87                  | 7.03   |                 | 86.80     | 83.01  |                 | 5.33                  | 9.96   | *               |
| Collateral requirements                                  | 37.43                 | 38.68  |                 | 58.70     | 60.62  |                 | 3.87                  | 0.70   | ***             |
| Other, e.g. loan covenants                               | 26.85                 | 27.96  |                 | 70.19     | 68.75  |                 | 2.96                  | 3.29   |                 |
| <b>Italy</b>   |                       |        |                 |           |        |                 |                       |        |                 |
| Level of interest rates                                  | 52.84                 | 68.72  | ***             | 33.46     | 25.60  |                 | 13.70                 | 5.68   | ***             |
| Level of the cost of financing other than interest rates | 55.05                 | 63.08  |                 | 40.64     | 35.17  |                 | 4.31                  | 1.75   |                 |
| Available size of loan or credit line                    | 16.51                 | 15.38  |                 | 66.41     | 64.49  |                 | 17.08                 | 20.13  |                 |
| Available maturity of the loan                           | 5.93                  | 8.90   |                 | 86.68     | 86.43  |                 | 7.39                  | 4.67   |                 |
| Collateral requirements                                  | 27.22                 | 40.35  | **              | 70.20     | 58.79  | **              | 2.58                  | 0.86   | *               |
| Other, e.g. loan covenants                               | 28.36                 | 33.85  |                 | 69.31     | 65.22  |                 | 2.33                  | 0.93   |                 |
| <b>Spain</b>   |                       |        |                 |           |        |                 |                       |        |                 |
| Level of interest rates                                  | 76.16                 | 66.37  | **              | 15.23     | 26.16  | ***             | 8.61                  | 7.47   |                 |
| Level of the cost of financing other than interest rates | 75.43                 | 74.20  |                 | 21.09     | 22.59  |                 | 3.48                  | 3.22   |                 |
| Available size of loan or credit line                    | 20.94                 | 17.38  |                 | 45.10     | 42.88  |                 | 33.96                 | 39.74  |                 |
| Available maturity of the loan                           | 11.38                 | 8.59   |                 | 73.35     | 79.13  |                 | 15.27                 | 12.29  |                 |
| Collateral requirements                                  | 58.95                 | 50.46  | *               | 38.90     | 46.92  | *               | 2.15                  | 2.62   |                 |
| Other, e.g. loan covenants                               | 58.45                 | 49.37  | **              | 38.77     | 47.66  | **              | 2.78                  | 2.97   |                 |

(1) Evolution of the indicators over the past six months. – (2) \*\*\* = difference is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent.

Table b13

## Econometric analysis: application for external finance (1)

*(multinomial logistic estimates)*

|  | Applied | Did not apply because<br>of possible rejection | Did not apply because<br>of sufficient internal<br>funds | Did not apply for other<br>reasons |
|--|---------|--|--|------------------------------------|
| a. Dependent variable: Application for bank loan                     |         |  |  |                                    |
| Female firm  | [base]  | .062<br>[.108]                                 | .008<br>[.068]   | .014<br>[.079]                     |
|  |         | <i>.003</i>                                    | <i>-.001</i>   | <i>.001</i>                        |
| N. observations  | 22,744  |  |  |                                    |
| Pseudo R2  | 0.045   |  |  |                                    |
| b. Dependent variable: Application for bank overdraft or similar (2) |         |  |  |                                    |
| Female firm  | [base]  | .009<br>[.138]                                 | 0.084<br>[.076]  | .069<br>[.090]                     |
|  |         | <i>-.003</i>                                   | <i>.013</i>  | <i>.002</i>                        |
| N. observations  | 18,375  |  |  |                                    |
| Pseudo R2  | .043    |  |  |                                    |
| c. Dependent variable: Application for trade credit                  |         |  |  |                                    |
| Female firm  | [base]  | .428 ***<br>[.139]                             | .215 **<br>[.091]  | .205 **<br>[.091]                  |
|  |         | <i>.010</i>                                    | <i>.009</i>  | <i>.004</i>                        |
| N. observations  | 22,501  |  |  |                                    |
| Pseudo R2  | .056    |  |  |                                    |
| d. Dependent variable: Application for other loan                    |         |  |  |                                    |
| Female firm  | [base]  | .133<br>[.149]                                 | .127<br>[.097]   | .072<br>[.099]                     |
|  |         | <i>.002</i>                                    | <i>.016</i>  | <i>-.008</i>                       |
| N. observations  | 22,443  |  |  |                                    |
| Pseudo R2  | .040    |  |  |                                    |
| Memo: Controls for every specification                               |         |  |  |                                    |
| - wave   | Y       | Y  | Y  | Y                                  |
| - size (employees)   | Y       | Y  | Y  | Y                                  |
| - size (turnover)  | Y       | Y  | Y  | Y                                  |
| - age  | Y       | Y  | Y  | Y                                  |
| - type of firm   | Y       | Y  | Y  | Y                                  |
| - ownership  | Y       | Y  | Y  | Y                                  |
| - country  | Y       | Y  | Y  | Y                                  |

(1) Robust standard errors are reported in square brackets under the coefficient estimate. \*\*\* = coefficient is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent. Estimated marginal effects are reported in italics. – (2) Include credit line or credit card overdraft.

Table b14

## Econometric analysis: results from application for external finance (1)

*(multinomial logistic estimates)*

|  | Applied and got everything | Applied and got a part of it | Applied but refused because cost too high | Applied but was rejected |
|--|----------------------------|------------------------------|---|--------------------------|
| a. Dependent variable: Application for bank loan                     |                            |                              |   |                          |
| Female firm  | [base]                     | -.154<br>[.166]              | .109<br>[.306]                            | .172<br>[.174]           |
|  |                            | <i>-.026</i>                 | <i>.003</i>                               | <i>.022</i>              |
| N. observations  | 5,650                      |                              |   |                          |
| Pseudo R2  | .076                       |                              |   |                          |
| b. Dependent variable: Application for bank overdraft or similar (2) |                            |                              |   |                          |
| Female firm  | [base]                     | .044<br>[.160]               | .385<br>[.372]                            | .121<br>[.214]           |
|  |                            | <i>.001</i>                  | <i>.012</i>                               | <i>.008</i>              |
| N. observations  | 3,573                      |                              |   |                          |
| Pseudo R2  | .062                       |                              |   |                          |
| c. Dependent variable: Application for trade credit                  |                            |                              |   |                          |
| Female firm  | [base]                     | -.260<br>[.189]              | .814 *<br>[.478]                          | -.549<br>[.257]          |
|  |                            | <i>-.037</i>                 | <i>.015</i>                               | <i>-.031</i>             |
| N. observations  | 3,354                      |                              |   |                          |
| Pseudo R2  | .084                       |                              |   |                          |
| d. Dependent variable: Application for other loan                    |                            |                              |   |                          |
| Female firm  | [base]                     | -.199<br>[.285]              | -.832<br>[1.030]                          | .321<br>[.338]           |
|  |                            | <i>-.023</i>                 | <i>-.012</i>                              | <i>.029</i>              |
| N. observations  | 2,088                      |                              |   |                          |
| Pseudo R2  | .109                       |                              |   |                          |
| Memo: Controls for every specification                               |                            |                              |   |                          |
| - wave   | Y                          | Y                            | Y   | Y                        |
| - size (employees)   | Y                          | Y                            | Y   | Y                        |
| - size (turnover)  | Y                          | Y                            | Y   | Y                        |
| - age  | Y                          | Y                            | Y   | Y                        |
| - type of firm   | Y                          | Y                            | Y   | Y                        |
| - ownership  | Y                          | Y                            | Y   | Y                        |
| - country  | Y                          | Y                            | Y   | Y                        |

(1) Robust standard errors are reported in square brackets under the coefficient estimate. \*\*\* = coefficient is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent. Estimated marginal effects are reported in italics. – (2) Include credit line or credit card overdraft.

Table b15

## Country analysis. Econometric analysis: application for bank loans (1)

*(multinomial logistic estimates)*

|  | Applied | Did not apply because<br>of possible rejection | Did not apply because<br>of sufficient internal<br>funds | Did not apply for other<br>reasons     |
|--|---------|--|--|--|
| <i>a. Germany</i>                      |         |  |  |  |
| Female firm                            | [base]  | <i>-.035</i><br>[.218]<br><i>.004</i>          | <i>-.104</i><br>[.137]<br><i>-.011</i>                   | <i>-.161</i><br>[.179]<br><i>-.010</i> |
| N. observations                        | 3,363   |  |  |  |
| Pseudo R2                              | .037    |  |  |  |
| <i>b. Spain</i>                        |         |  |  |  |
| Female firm                            | [base]  | <i>.131</i><br>[.217]<br><i>.009</i>           | <i>-.072</i><br>[.153]<br><i>-.029</i>                   | <i>.118</i><br>[.157]<br><i>.025</i>   |
| N. observations                        | 3,389   |  |  |  |
| Pseudo R2                              | .032    |  |  |  |
| <i>c. France</i>                       |         |  |  |  |
| Female firm                            | [base]  | <i>.362</i><br>[.256]<br><i>.012</i>           | <i>.152</i><br>[.154]<br><i>-.000</i>                    | <i>.315</i> *<br>[.176]<br><i>.032</i> |
| N. observations                        | 3,497   |  |  |  |
| Pseudo R2                              | .030    |  |  |  |
| <i>d. Italy</i>                        |         |  |  |  |
| Female firm                            | [base]  | <i>-.102</i><br>[.358]<br><i>-.003</i>         | <i>-.007</i><br>[.171]<br><i>.004</i>                    | <i>-.046</i><br>[.198]<br><i>-.006</i> |
| N. observations                        | 3,400   |  |  |  |
| Pseudo R2                              | .035    |  |  |  |
| Memo: Controls for every specification |         |  |  |  |
| - size (employees)                     | Y       | Y  | Y  | Y                                      |
| - size (turnover)                      | Y       | Y  | Y  | Y                                      |
| - age                                  | Y       | Y  | Y  | Y                                      |
| - type of firm                         | Y       | Y  | Y  | Y                                      |
| - ownership                            | Y       | Y  | Y  | Y                                      |
| - country                              | Y       | Y  | Y  | Y                                      |

(1) Robust standard errors are reported in square brackets under the coefficient estimate. \*\*\* = coefficient is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent. Estimated marginal effects are reported in italics.

Table b16

## Country analysis. Econometric analysis: results from application for bank loans (1)

*(multinomial logistic estimates)*

|  | Applied and got everything | Applied and got a part of it | Applied but refused because cost too high | Applied but was rejected |
|--|----------------------------|------------------------------|---|--------------------------|
| <i>a. Germany</i>                      |                            |                              |   |                          |
| Female firm                            | [base]                     | <i>-0.378</i>                | <i>.870</i>                               | <i>.874</i> ***          |
|  |                            | [.398]                       | [.623]                                    | [.318]                   |
|  |                            | <i>-.057</i>                 | <i>.019</i>                               | <i>.066</i>              |
| N. observations                        | 696                        |                              |   |                          |
| Pseudo R2                              | .110                       |                              |   |                          |
| <i>b. Spain</i>                        |                            |                              |   |                          |
| Female firm                            | [base]                     | <i>-.486</i> *               | <i>.600</i>                               | <i>.000</i>              |
|  |                            | [.291]                       | [.532]                                    | [.295]                   |
|  |                            | <i>-.096</i>                 | <i>.020</i>                               | <i>.019</i>              |
| N. observations                        | 1,122                      |                              |   |                          |
| Pseudo R2                              | .054                       |                              |   |                          |
| <i>c. France</i>                       |                            |                              |   |                          |
| Female firm                            | [base]                     | <i>-.235</i>                 | <i>-.300</i>                              | <i>-.738</i>             |
|  |                            | [.406]                       | 1.170                                     | .453                     |
|  |                            | <i>-.012</i>                 | <i>-.003</i>                              | <i>-.057</i>             |
| N. observations                        | 1,015                      |                              |   |                          |
| Pseudo R2                              | .095                       |                              |   |                          |
| <i>d. Italy</i>                        |                            |                              |   |                          |
| Female firm                            | [base]                     | <i>.029</i>                  | <i>-14.636</i> ***                        | <i>.755</i> *            |
|  |                            | [.361]                       | .606                                      | .455                     |
|  |                            | <i>.039</i>                  | <i>-.205</i>                              | <i>.088</i>              |
| N. observations                        | 1,067                      |                              |   |                          |
| Pseudo R2                              | .100                       |                              |   |                          |
| Memo: Controls for every specification |                            |                              |   |                          |
| - size (employees)                     | Y                          | Y                            | Y   | Y                        |
| - size (turnover)                      | Y                          | Y                            | Y   | Y                        |
| - age                                  | Y                          | Y                            | Y   | Y                        |
| - type of firm                         | Y                          | Y                            | Y   | Y                        |
| - ownership                            | Y                          | Y                            | Y   | Y                        |
| - country                              | Y                          | Y                            | Y   | Y                        |

(1) Robust standard errors are reported in square brackets under the coefficient estimate. \*\*\* = coefficient is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent. Estimated marginal effects are reported in italics.

Table b17

**Robustness check. Econometric analysis: application for external finance, and results**  
**Fourth wave (second half 2010) (1)**

(multinomial logistic estimates; sample: fourth wave)

| a. Application for external finance (bank loan)                |                               |  |  |   |                             |
|--|-------------------------------|--|--|---|-----------------------------|
|  | Applied                       | Did not apply because<br>of possible rejection | Did not apply because<br>of sufficient internal<br>funds | Did not apply for other<br>reasons              |                             |
| Female firm  | [base]                        | .499 ***<br>[.190]                             | .092<br>[0.127]  | -.146<br>[.151]                                 |                             |
|  |                               | <i>.036</i>                                    | <i>.017</i>  | <i>-.037</i>                                    |                             |
| N. observations  | 6,620                         |  |  |   |                             |
| Pseudo R2  | 0.053                         |  |  |   |                             |
| b. Outcome of the application for external finance (bank loan) |                               |  |  |   |                             |
|  | Applied and got<br>everything | Applied and got<br>most of it                  | Applied but got<br>only a limited part<br>of it          | Applied but<br>refused because<br>cost too high | Applied but was<br>rejected |
| Female firm  | [base]                        | -0.646<br>[.436]                               | -.340<br>[.349]  | 1.694 **<br>[.669]                              | .716 ***<br>[.308]          |
|  |                               | <i>-.055</i>                                   | <i>-.031</i>   | <i>.020</i>                                     | <i>.069</i>                 |
| N. observations  | 1,620                         |  |  |   |                             |
| Pseudo R2  | .1207                         |  |  |   |                             |
| Memo: Controls for every specification                         |                               |  |  |   |                             |
| - size (employees)   | Y                             | Y  | Y  | Y   | Y                           |
| - size (turnover)  | Y                             | Y  | Y  | Y   | Y                           |
| - age  | Y                             | Y  | Y  | Y   | Y                           |
| - type of firm   | Y                             | Y  | Y  | Y   | Y                           |
| - ownership  | Y                             | Y  | Y  | Y   | Y                           |
| - country  | Y                             | Y  | Y  | Y   | Y                           |

(1) Robust standard errors are reported in square brackets under the coefficient estimate. \*\*\* = coefficient is statistically significant at 1 per cent; \*\* = at 5 per cent; \* = at 10 per cent. Estimated marginal effects are reported in italics.