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# Borrower discouragement in a bank-based economy: empirical evidence for spanish SMEs<sup>1</sup>

El desánimo del prestatario en una economía dominada por los bancos: evidencia empírica para PYME españolas

## I. INTRODUCTION

Financial literature has focused on arguments which attempt to explain small firm financing problems solely in terms of lack of access to credit supply, while those factors which limit the demand for resources have been ignored. Surveys on the access to finance of enterprises, conducted by the European Central Bank and the European Commission between 2009 and 2015, show that the impact of borrower discouragement is twice the size of rejected borrowers. This paper offers new empirical evidence on the factors explaining borrower discouragement.

There are theoretical reasons for expecting a more negative effect of borrower discouragement in bank-based economies and for SMEs. Borrower discouragement arises from informational asymmetries and loan application costs (Kon and Storey, 2003). Firms in bank-based economies have, compared to market-based economies, limited access to capital markets. This lack of alternative sources of funding may increase loan application costs, and it also makes firms more likely to suffer from financial restrictions when they are discouraged from applying for a loan. As for SMEs, their opaqueness makes them more affected by informational asymmetries, while their reduced dimension makes loan application costs extremely burdensome.



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### **EXECUTIVE SUMMARY**

This paper analyzes the factors explaining borrower discouragement for a sample of SMEs operating in a bank-based economy. We find that higher informational asymmetries and loan application costs increase the likelihood of borrower discouragement for smaller firms and for firms working with less banks. We also show that firms whose managers show an attitude towards growth and business improvement are less likely to be discouraged from applying for a loan.

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### **RESUMEN DEL ARTÍCULO**

Este trabajo analiza los factores explicativos del desánimo del prestatario en una muestra de PYME que operan en una economía dominada por los bancos. Los resultados muestran que elevadas asimetrías informativas y costes de solicitud del préstamo incrementan la probabilidad del desánimo del prestatario entre las empresas más pequeñas y aquellas que trabajan con menos bancos. También mostramos que es menos probable que empresas cuyos gerentes muestren una actitud proactiva hacia el crecimiento y la mejora del negocio se desanimen a solicitar un préstamo.

We analyze how informational asymmetries and applications costs influence borrower discouragement for SMEs operating in a bank-based economy. We use a survey data-set of 837 Spanish SMEs.

Our paper makes two important contributions. First, we contribute to the general debate of SMEs financing restrictions for the Spanish market. Up to the best of our knowledge this is the first paper analyzing the determining factors of borrower discouragement for Spanish SMEs. Second, we use several survey proxies to control for the ability of the firm managers to overcome application costs. Managers pursuing growth and improvement in their business performance are expected to be more willing and better able to deal with application costs.

***We analyze how informational asymmetries and applications costs influence borrower discouragement for SMEs operating in a bank-based economy.***

We find that factors limiting the demand for resources and therefore, reducing the availability of funds, can be to a large extent traced back to management attitudes. Our results show that SMEs whose managers seek growth or improvement in their business performance are less likely to be discouraged from applying for a loan than those which are content with their current business situation. We also show that the likelihood of borrower discouragement decreases with the size of the firm and the number of banking relationships.

We proceed as follows. In section 2 we discuss the factors that determine the existence of borrower discouragement and present the research questions of this study. In section 3 we present the information and the analysis carried out in this study. In section 4 we show our evidence and discuss the answers to our research questions, while in section 5 we conclude.

## **2. EXPLAINING THE FACTORS THAT DETERMINE THE EXISTENCE OF BORROWER DISCOURAGEMENT**

Discouraged borrowers are defined as firms that do not apply for a bank loan because they anticipate that their applications will be rejected (Levenson and Willard, 2000; Cavalluzzo *et al.*, 2002; Kon and Storey, 2003; Chakravarty and Xiang, 2013; Popov, 2013; Cole and Sokolyk, 2016) or that tough lending conditions will be imposed (Diagne, 1999; Brown *et al.*, 2011; Popov, 2013).

According to Kon and Storey (2003), the scale of borrower discouragement should depend to a large extent on the screening error which, in turn, depends on the degree of informational asymmetries. When

banks have no information, the probability of screening errors reaches its maximum level, whereas with perfect information, this probability decreases to zero. In addition to the screening error, borrower discouragement also arises due to the existence of application costs incurred by the borrower during the process of seeking and applying for a bank loan. According to Kon and Storey (2003), these so-called application costs include financial, in-kind, and psychic costs which depend on factors such as the ability of firms to complete forms, time spent in meeting with bank representatives and the discomfort experienced when providing information to a third party, among others.

The above theory suggests that, even with perfect information and without screening errors, firms might be discouraged from applying for a loan due to the application costs. In addition, SMEs can be more reluctant to apply for financing because application costs are proportionally more important for them than for large companies (Freel *et al.*, 2012). However, there are also empirical arguments suggesting that some SMEs might be more willing or able to deal with the loan application procedure than others. Vos *et al.* (2007) state that financial contentment and lack of growth ambitions would be the main reasons why SMEs do not participate more in capital markets. They suggest that there are few SMEs desiring external capital and show that growth-oriented SMEs are more likely to access external finance than those who are less interested in growth. Previous evidence also indicates that most SMEs do not pursue rapid growth (Hakim, 1989), but those with above average growth have better access to external finance (Storey, 1994). Using innovation to represent growth opportunities, Xiang *et al.* (2015) argue that SMEs with growth opportunities are more likely to require external funding. These arguments lead us to the first research question of this study.

*Research question 1: Are firms less likely to be discouraged when they undertake strategic decisions aimed at improving their business performance and growth?*

Older, larger firms have more assets to use as collateral and there is more information available (both public and private) about them. This reduces asymmetric information problems and improves the screening process by banks. On the demand side, the longer the firm has been in business the more efficient the loan application process is, while application costs borne by large companies are proportionately smaller than those paid by small firms (Vos *et al.*, 2007; Freel *et al.*, 2012). Results provided by Vos *et al.* (2007), Han *et al.* (2009), Fre-

#### KEY WORDS

Borrower discouragement, SME financing, informational asymmetries, application costs, financial constraints.

#### PALABRAS CLAVE

Desánimo del prestatario, financiación de las PYME, asimetrías informativas, costes de solicitud, restricciones financieras.

el *et al.* (2012), Chakravarty and Xiang (2013), Xiang *et al.* (2015), Cole and Sokolyk (2016) and Mac an Bhaired *et al.* (2016) show that larger firms are less likely to be discouraged, while Vos *et al.* (2007), Chakravarty and Xiang (2013) and Mac an Bhaired *et al.* (2016) show that fear of denial reduces as firms mature.

*Research question 2: Are larger, older firms less likely to be discouraged?*

Han *et al.* (2009) state that the establishment of banking relationships may have two important effects on borrower discouragement. On the one hand, private information gathered throughout the relationship helps the bank to better assess borrower quality, reducing screening errors and discouragement. Freel *et al.* (2012) finds that firms with an established banking relationship are less discouraged from applying for a loan, and longer banking relationships increase bank debt availability in bank-based economies (Hernández-Cánovas and Martínez-Solano, 2010). On the other hand, high quality borrowers can be trapped in a relationship with their bank (hold-up problem), where no competitive loan terms are offered, and exorbitant changing costs discourage borrowers from applying for financing from other banks. Existing empirical evidence shows that working with more banks reduces borrower discouragement (Han *et al.*, 2009; Chakravarty and Xiang, 2013; Cole and Sokolyk, 2016), and increases SMEs credit availability in continental bank-based economies (Hernández-Cánovas and Martínez-Solano, 2007).

*Research question 3: Are firms less likely to be discouraged when they establish close banking relationships?*

*Research question 4: Are firms less likely to be discouraged when they work with more banks?*

### 3. ANALYSIS OF BORROWER DISCOURAGEMENT: A STUDY FOR SPANISH SMES

#### 3.1. Description of the information used in the analysis

The initial sample uses two data sources. First, financial statement information from the years 2007 and 2008 comes from the database SABI<sup>3</sup>. Second, firm and owner specific characteristics have been obtained from the 2009 Survey on Small and Medium-Sized Enterprises provided by the Economic Observatory for Firms of the Region of Murcia, in Spain. The regional origin of our sample might limit the



representativeness our sample, but it also helps to assure that our study focuses in a bank-based economy due to the absence of capital markets in the Region of Murcia. The main limitation of our sample comes from the design of the survey, where firms with less than five employees were not included. However, the percentages of firms in the small and medium-sized categories are in line with those reported for the Spanish market (DIRCE, 2009). From the 900 checked and approved interviews that are available in the survey, there are 836 observations which contain information about loan application processes, of which 523 are in need of financing. Due to missing observations for some of the variables, in our regressions we will only use a sample of 456 firms. **Table 1** describes the characteristics of this sample. Firms with less than 9 employees (micro firms) represent the 19.74% of the sample, while small and medium-sized firms account for the 64.04% and 16.23% of the sample respectively. As for the activity sector, 49.56% of firms in our sample operate in the manufacturing sector, 38.38% in the service sector and only 12.06% in the construction sector.



**Table 1. Firm specific characteristics**

VARIABLE	NUM. OBS.	MEAN
Micro firms	456	19.74%
Small firms	456	64.04%
Medium-sized firms	456	16.23%
Manufacturing	456	49.56%
Construction	456	12.06%
Services	456	38.38%

### 3.2. How do we assess the probability of borrower discouragement?

To assess the discouragement determinants in our sample of SMEs we estimate logistic regressions in the following form:

$$DB_i = \alpha_0 + \beta_1 SV_i + \beta_2 BR_i + \beta_3 FSC_i + \varepsilon_i$$

Where  $i$  represents the  $i^{\text{th}}$  firm in the sample;  $DB_i$  proxies whether firm  $i$  is a discouraged borrower;  $SV_i$  is a vector of strategic variables;  $BR_i$

represents the banking relationship variables;  $FSC_i$  represents the set of firm-specific control variables and  $\varepsilon_i$  is the residual.

To create the dependent variable we use the Survey in which managers are asked whether the firm has applied for a loan during the last three months. The possible answers are categorized as follows: (1) Yes; (2) No, we have not because the firm does not need it; (3) No, we have not because even though we need the funds we did not expect to obtain the loan. Using these answers, we build a dummy variable, discouraged borrower, which is given a value of one when option 3 is chosen and zero when option 1 is chosen. We drop those firms which do not need financing, (option 2), from our analysis. Out of the 836 firms answering this question, 523 had a desire for additional credit, and 57 of these firms were discouraged from applying for a loan. This represents 6.82% of discouraged borrowers over the whole sample, which falls into the average of the statistics provided by existing empirical evidence. For example, Levenson and Willard (2000) report 4.22% of discouraged US SMEs, while this percentage rises to 7.23% for the cross country sample of small firms used by Brown *et al.* (2014), and reaches 8.13% for small firms in the UK.

### 3.3. Measuring those firm specific characteristics which may influence borrower discouragement

Below we describe the explanatory variables used in our analysis.

*Strategic Variables.* We use survey questions describing strategic decisions undertaken by the managers of the firm to build seven variables that proxy for the ability of firms to deal with loan application costs. We argue that financial contentment and borrower discouragement will be lower in those firms which are immersed in processes aimed at improving their business situation. There are several reasons for expecting an association between these dimensions and loan application costs. First, experience obtained while carrying out changes in their business activity will improve managers ability to deal with forms and paperwork during loan application procedures. Leon (2015) finds that firms in which managers have more experience are less likely to be discouraged. Second, financial contentment will decrease for those managers who aim at improving business performance (Vos *et al.*, 2007), increasing their willingness to overcome application costs. Third, firms that have made important changes in their business activity will probably have



a positive outlook, which reduces the importance of application costs and borrower discouragement (Mac an Bhaired *et al.*, 2016).

**Table 2. Loadings of factor analysis group of management decision variables**

PANEL A: PRODUCTS, SERVICES AND MANUFACTURING		
VARIABLE	ORGANIZATIONAL CHANGE	MANAGEMENT CHANGE
New equipment acquisition	0.5244	
Improvement or changes in products or services	0.5164	
Improvement or changes in production	0.4838	
Introduction of new products or services	0.4684	
Improvement or changes in supply management		0.5768
Improvement or changes in management		0.5969
Improvement or changes in sales management		0.5345
PANEL B: ENTREPRENEURSHIP ORIENTATION		
VARIABLE	ENTREPRENEURSHIP ORIENTATION	
Highly competent in identifying new investment opportunities	0.4845	
Top management favors R&D activities	0.4503	
Prone to take on risky projects with high potential	0.4464	
Actions carried out by the firm are soon imitated by the competition	0.4281	
Adopts a positive attitude towards risk	0.4241	
PANEL C: R&D ACTIVITIES		
VARIABLE	INTERNAL R&D	EXTERNAL R&D
Has cooperated in innovation with Universities	0.5823	
Has participated in some research programs from the European Union	0.4669	
Cooperates with technical innovation centers	0.3861	
Recruits university graduates	0.3700	
Has participated in some companies which develop technological innovations	0.3308	
Considers alternative technologies for the firm		0.5438
Has introduced new machinery and production equipment		0.5191
Has drawn up an innovation plan		0.4856
Undertakes technological cooperation with customers and/or suppliers		0.3757



PANEL D: BUSINESS MANAGEMENT			
VARIABLE	OPERATING MANGEMENT	FIRM PERFOR- MANCE	HUMAN RESOURCE MA- NAGEMENT
Staff organization	0.4221		
Internal process efficiency	0.4162		
Customer satisfaction	0.4148		
Image of the firm and its products	0.3762		
Easily adapts to market changes	0.3695		
Product/service quality	0.3590		
Increase in profitability		0.5925	
Increase in productivity		0.5561	
Increase in market share		0.5556	
Reduction of staff turnover			0.7037
Reduction in absenteeism			0.6740

**Table 2** shows that these strategic decisions are related with four dimensions of the business: 1) products, services and manufacturing; 2) entrepreneurship orientation; 3) research and development activities; and 4) business management. In **Table 2**, we also apply factor analysis to reduce the large number of items into seven variables without the loss of important information: organizational change, entrepreneurship orientation, internal R&D, external R&D, operating management, firm performance, and human resources management. The factors are extracted through a principal analysis and rotated by means of Varimax, with Kaiser Normalization, whenever possible. An eigenvalue greater than one is used as a condition for extract the factors. **Table 3** provides detailed definitions of all the variables, while **Table 4** shows the correlations.

Table 3. Variables description

VARIABLE NAME	DESCRIPTION AND SOURCE
<i>Dependent variables:</i>	
Discouraged <sup>a</sup>	An indicator of the firm's discouragement, which equals one when the firm does not apply for the loan because it fears rejection and zero if the firm applies for the loan.

<i>Strategic variables:</i>	
Organizational change <sup>a</sup>	Variable obtained after applying factor analysis on four items which describe if firms have made certain changes in their products and services or manufacturing processes, during the last year.
Management change <sup>a</sup>	Variable obtained after applying factor analysis on three items which describe if firms have made certain changes in their management systems, during the last year.
Entrepreneurship orientation <sup>a</sup>	Variable obtained after applying factor analysis on five items which express the opinion of firms regarding their entrepreneurship orientation.
Internal R&D <sup>a</sup>	Variable obtained after applying factor analysis on four items which indicate if firms have carried out internal research and development activities during the last two years.
External R&D <sup>a</sup>	Variable obtained after applying factor analysis on four items which indicate if firms have carried out internal research and development activities during the last two years.
Operating management <sup>a</sup>	Variable obtained after applying factor analysis on six items which indicate if firms have made improvements in their products and services, customers and markets in the last two years
Firm performance <sup>a</sup>	Variable obtained after applying factor analysis on three items which indicate if firms have increased the firms' profitability, market share and productivity in the last two years.
Human resources management <sup>a</sup>	Variable obtained after applying factor analysis on two items which indicate if firms have improved the management of human resources in the last two years.
<i>Firm- specific variables:</i>	
Size <sup>b</sup>	A measure of the size of the firm, which equals the natural logarithm of the number of employees working in the firm in 2008.
Age <sup>b</sup>	A measure of the age of the firm, which equals the natural logarithm of one plus the number of years that the firm has been in operation in 2008.
Growth <sup>b</sup>	A measure of growth opportunities, which equals the growth rate in net turn over between 2007 and 2008.
Family <sup>a</sup>	A measure of the family ownership of the firm, which equals one when more than 50% of the firm's equities are held by a family group.
Education <sup>a</sup>	A measure of the education of the general manager of the firm which equals one when the manager has at least a Bachelor Degree and zero otherwise.
International <sup>a</sup>	A measure of the international activity of the firm, which equals one when the firm buys and/or sells their products in foreign markets and zero otherwise.
Industry dummies <sup>a</sup>	Three industry dummies indicating the firm main activity. Each variable takes on the value one if the firm belongs to one of the following sectors: Manufacturing, Construction and Services; and zero otherwise.
Location dummies <sup>a</sup>	Six location dummies indicating the firm geographical location. Each variable takes on the value one if the firm belongs to one of the six administrative areas that integrate the Region of Murcia, and zero otherwise.

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EMPIRICAL EVIDENCE FOR SPANISH SMES  
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Banking relationship variables:	
Dispersion <sup>a</sup>	A measure of the strength of the relationship between the bank and the firm, which equals the natural logarithm of one plus the number of banks the firm works with.
Length <sup>a</sup>	A measure of the strength of the relationship between the bank and the firm, which equals the natural logarithm of one plus the number of years the firm has been working with its main bank.

Data sources:

<sup>a</sup> Survey on Small and Medium-Sized Enterprises provided by the Economic Observatory for Firms of the Region of Murcia.

<sup>b</sup> SABI.

Firstly, in **Table 2**, Panel A, we have seven items describing if firms have made certain changes in their products and services, manufacturing processes, or management systems during the last year and zero otherwise. These seven variables are reduced into one factor which we call organizational change. Secondly, Panel B contains five items expressing the opinion of firms regarding their entrepreneurship orientation. These five entrepreneurship components are reduced to one factor which we named entrepreneurship orientation. Thirdly, in Panel C there are eight items indicating if firms have carried out each one of the research and development activities during the last two years. These variables are reduced to two factors which we call internal R&D and external R&D. Finally, Panel D contains eleven items explaining the improvement during the last two years in different dimensions related to products and services, customers, markets, and human resource management. Panel D shows how these eleven variables comprising this dimension are reduced to three factors.

*Firm Specific Variables.* We define the variables Size and Age as the natural logarithm of the number of employees and the natural logarithm of one plus the number of years that the firm has been in operation, respectively. The logarithmic transformation of these variables is a monotonic transformation which does not alter the characteristics of the initial variable, and at the same time allows us to test whether the effect of the variable declines. For example, we expect variations in size or age to be more important factors in the discouragement of small and young firms than in the discouragement of large and old firms (Cole, 2013). Based on previous empirical evidence (Vos *et al.*, 2007; Freel *et al.*, 2012; Brown *et al.*, 2014; Mac an Bhaird *et al.*, 2016), we also include several firm specific characteristics to control

Table 4. Correlations

	DISCOURAGED	DISPERSION	LENGTH	SIZE	AGE	GROWTH	FAMILY	EDUCATION
Dispersion	-0.1467***							
Length	-0.0255	0.0968**						
Size	-0.1944***	0.3801***	0.1370***					
Age	-0.0309	0.1156**	0.7610***	0.1717***				
Growth	-0.0838*	0.0057	-0.0534	0.0964**	-0.0721			
Family	0.0349	0.0492	0.1769***	-0.0744	0.1930***	0.0748		
Education	-0.0172	0.0241	0.0951**	0.1352***	0.1265***	0.0437	-0.0323	
International	-0.1059**	0.1548***	0.0928*	0.1717***	0.1588***	0.0941**	0.0897*	-0.0031
Organizational change	-0.1543***	0.1203**	0.1021**	0.2680***	0.0995**	0.0394	0.0060	0.0638
Management change	-0.0433	-0.0045	0.1215**	-0.0014	0.1130**	0.0303	0.0551	0.0534
Entrepreneurship orientation	-0.1129**	0.0380	0.0445	0.1710***	0.0584	0.0239	-0.0545	0.1064**
Internal R&D	-0.1849***	0.1434***	0.1288***	0.2782***	0.1232***	0.0512	-0.0804*	0.2332*
External R&D	-0.0714	-0.1034**	0.0139	-0.0658	-0.0468	0.0605	-0.0174	-0.0700
Operating management	-0.1692***	0.0418	-0.0157	0.2075***	0.0009	0.0932*	-0.0490	0.1103**
Firm performance	-0.0581	-0.0109	-0.0410	0.1032**	-0.0220	0.1873***	-0.0914*	0.1041**
Human resources management	-0.0735	-0.0291	-0.0058	-0.0503	0.0639	-0.0562	-0.0397	-0.0399
	INTERNATIONAL	ORGANIZATIONAL CHANGE	MANAGEMENT CHANGE	ENTREPRENEURSHIP ORIENTATION	INTERNAL R&D	EXTERNAL R&D	OPERATING MANAGEMENT	FIRM PERFORMANCE
Organizational change	0.2110***							
Management change	0.0730	0.0031						
Entrepreneurship orientation	0.0848*	0.3240***	0.0496					
Internal R&D	0.1623***	0.5140***	0.1101**	0.4311***				
External R&D	0.0634	0.2265***	0.2245***	0.1095**	0.0067			
Operating management	0.0471	0.3113***	0.0676	0.4654***	0.2865***	0.1215**		
Firm performance	0.1081**	-0.0287	-0.0629	0.0551	0.0710	0.0073	0.0264	
Human resources management	0.0986**	-0.0481	0.0864*	0.0246	0.0433	0.0781	0.0026	-0.0076

This table reports pairwise correlations. Definitions and sources of the variables are provided in Table 3. \*\*\*, \*\* and \* indicate significance at the levels of 1%, 5% and 10%, respectively.

for sample heterogeneity which may distort the estimation of our study variables. These characteristics are firm growth, family ownership, manager education and international activity. Finally, we include three industry dummies to control for differences in transparency, tangibility of assets, and loan discouragement across activity sectors, and location dummies to control for differences in financial, economic and institutional development.

*Banking Relationship Variables.* We proxy for the characteristics of the relationship established between firms and banks, which may influence discouragement in small firms (Han *et al.*, 2009). Firms that maintain multiple bank relationships may increase the competition in the credit market and improve success when seeking for financing. In addition, if there are more banks generating private information about the firm through the provision of financial services, this increases the likelihood of obtaining financing from at least one of them. We proxy for this dimension of the banking relationship with the variable Dispersion, which equals the natural logarithm of one plus the number of banks the firm works with. A second dimension of the banking relationship takes into account its duration. Multiple contacts through the years of relationship enable banks to obtain more information about the firm, which strengthen the relationship. The variable Length proxies for this dimension and equals the natural logarithm of one plus the number of years the firm has been working with its main bank.

#### 4. ANSWERING THE RESEARCH QUESTIONS: WHAT DRIVES BORROWER DISCOURAGEMENT?

##### 4.1. Assessing the risk and quality of discouraged borrowers

One could argue that discouragement is not always harmful if discouraged borrowers take greater risks or have lower quality than other firms applying for loans. In these situations, discouragement would arise as a good self-rationing mechanism which would exclude firms with a lower likelihood of success in their loan application from capital markets. If this were so, we would not have incentives to analyze the reasons behind borrower discouragement. To rule out this possibility, and assure that reduced quality and increased risk are not the reasons underlying borrower discouragement, we perform



a test of the equality of means for several variables between both groups of firms.

In this analysis we include the variables borrower risk, return on equity, cost of debt, working capital, cash flow generation, and financial expense coverage. Borrower risk is a measure of the financial risk of the firm developed by De Lema *et al.* (1995) for Spanish SMEs using a multivariate model with the following ratios: quick assets over current liabilities, total assets to total debt, total interest payments to sales, annual amortization to amortizable assets, and earnings before taxes over total debt. It ranges from 0 to 100, with higher values indicating lower bankruptcy probability. Return on equity equals the ratio of net profit over the book value of equity. Cost of debt equals the ratio of financial expenses over total debt. Working capital equals the difference between current assets and current liabilities. Cash flow generation equals the ratio of net profit plus depreciation over total debt. The coverage of financial expenses is the ratio of financial expenses over net profit plus depreciation.

**Table 5** shows that firms applying for a loan and those which are discouraged do not significantly differ in terms of risk, return on equity, cost of debt, working capital, cash flow generation over debt, and financial expenses over cash flow generation. Therefore, we can conclude that borrower discouragement is not motivated by reduced quality or increased risk, and that it is worthwhile to analyze the reasons why some firms decide not to apply for financing when they are in need of additional bank loans.

**Table 5. Firm financial characteristics**

	MEAN (APPLICANTS)	MEAN (DISCOURAGED)	MEAN DIFFE- RENCE	SIGNIFICANCE
Risk	60.5025	56.1331	4.3694	Not significant
Return on equity	-0.0749	0.0020	-0.0769	Not significant
Cost of debt	0.0424	0.0382	0.0042	Not significant
Working capital	1.5882	1.6586	-0.0704	Not significant
Cash flow generation	0.1106	0.1056	0.0050	Not significant
Financial expense coverage	-0.0639	0.2602	-0.3241	Not significant

Not significant indicates that the mean difference is not statistically significant at the 10% level.

**4.2. The determining factors of borrower discouragement**

Results in **Table 6**, Model 1, indicate that the likelihood of being discouraged decreases with the size of the firm and with the number of banking relationships, answering research questions 2 and 4. Discouragement decreases with size because informational asymmetries and loan application costs are less important. Larger firms are less opaque and they have more assets to pledge as collateral, which reduces the problems associated with informational asymmetries. Application costs are proportionally less important for firms of a larger size. As for the number of number of bank relationships, it seems that maintaining dispersed banking relationships encouraged firms to approach informed banks willing to offer loans in competitive terms.<sup>4</sup>

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**Table 6. Regressions**

VARIABLE	LOGIT(1)	LOGIT(2)	LOGIT(3)	LOGIT(4)	LOGIT(5)	LOGIT(6)
Constant	0.3420 (1.1927)	0.0785 (1.2004)	0.2438 (1.1983)	-0.0862 (1.2220)	-0.1199 (1.2382)	-0.7187 (1.2602)
Dispersion	-0.9685** (0.4490)	-0.9548** (0.4490)	-0.9711** (0.4528)	-0.9256** (0.4549)	-0.7965* (0.4724)	-0.7805 (0.4753)
Length	-0.1090 (0.4387)	-0.0332 (0.4463)	-0.0872 (0.4404)	0.0316 (0.4486)	-0.2224 (0.4668)	-0.0482 (0.4801)
Size	-0.4773** (0.2074)	-0.4010* (0.2092)	-0.4387** (0.2096)	-0.3832* (0.2092)	-0.4481** (0.2118)	-0.3683* (0.2173)
Age	-0.0019 (0.4284)	-0.0606 (0.4323)	-0.0238 (0.4294)	-0.1115 (0.4355)	0.0635 (0.4551)	-0.0211 (0.4646)
Growth	-0.5936 (0.5645)	-0.5157 (0.5397)	-0.5712 (0.5501)	-0.5053 (0.5585)	-0.4613 (0.5466)	-0.3456 (0.5270)
Family	0.5123 (0.4109)	0.5173 (0.4145)	0.4804 (0.4116)	0.3732 (0.4241)	0.2928 (0.4235)	0.2419 (0.4350)
Education	0.1168 (0.3764)	0.1815 (0.3827)	0.1838 (0.3824)	0.3963 (0.3969)	0.3853 (0.3957)	0.6618 (0.4196)
International	-0.5960 (0.3862)	-0.5246 (0.3886)	-0.5588 (0.3881)	-0.5028 (0.3885)	-0.4295 (0.4041)	-0.3574 (0.4126)
Organizational change		-0.1857* (0.1107)				-0.1092 (0.1296)
Management change		-0.0792 (0.1829)				-0.1633 (0.2012)
Entrepreneurship orientation			-0.1446 (0.1093)			0.0384 (0.1361)
Internal R&D				-0.3854*** (0.1474)		-0.3379** (0.1625)
External R&D				-0.1682 (0.2103)		-0.0710 (0.2315)

Operating management					-0.2025** (0.0881)	-0.1692* (0.0996)
Firm performance					-0.1161 (0.1306)	-0.1540 (0.1370)
Human resources management					-0.2396* (0.1407)	-0.2473* (0.1483)
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
Location effects	Yes	Yes	Yes	Yes	Yes*	Yes*
Observations	456	455	456	451	448	442
Pseudo R2	0.1217	0.1321	0.1275	0.1555	0.1567	0.1885

Standard errors are in brackets. All regressions include industry and location effects.

\*\*\*, \*\* and \* indicate significance at the levels of 1%, 5% and 10%, respectively. Otherwise the coefficient is not statistically significant.

In Models 2-5, **Table 6**, we add each group of variables we have extracted through our factor analysis in the four panels (A-D) of **Table 2**. In Model 2, we find a negative and statistically significant coefficient for the variable organizational change, which answers research question 1. This indicates that firms involved in changes aimed at improving the manufacturing processes of their companies are less likely to be discouraged.

In Model 3, we do not find a significant coefficient for the variable entrepreneurship orientation. This variable summarizes whether the company has adopted a leading role in their sector. Next, in Model 4 we include the variables external R&D and internal R&D. We obtain a significantly negative sign on the coefficient of the variable internal R&D, which answers research question 1. This indicates that SMEs which have committed themselves to carrying out their own research and development activities or in cooperation with customers and suppliers are less likely to be discouraged from applying for a loan.

In Model 5, we show a negative and statistically significant coefficient for the variables operating management and human resource management. Borrower discouragement is lower for SMEs which achieved improvements in their business management which resulted in more efficient processes, higher product and service quality, a better reputation, quicker adaptability, and more stable employment.

In Model 6, **Table 6**, we include all the variables to check the robustness of our results. We observe that the variable organizational change becomes insignificant, while the estimation of the remaining variables remains qualitatively unchanged. All these results answer



our first research question and indicate that SMEs seeking growth or improvement in their business performance are less likely to be discouraged from applying for a loan.

## 5. SUMMARY AND CONCLUSION

We analyze the determining factors of borrower discouragement using a survey data-set of 837 Spanish SMEs. Our results indicate that management attitude towards growth and improvement of their business performance is important in explaining the participation of the firm in the banking market. Increased manager experience and confidence in a positive outlook, together with reduced financial contentment seem to explain why managers who are making important changes in their firms are less discouraged from applying for a loan.

Who needs credit and who applies for credit is important for firms, prospective lenders and policymakers interested in the financial health of these firms. Financially discouraged firms, which do not apply for the financing that they need, are less likely to invest and grow, destroying jobs and possibly harming long-term economic growth. Knowing the importance and the causes of borrower discouragement in Europe is important in order to set priorities which should be included in government policies aimed at reducing its effects. The progressive concentration of the banking system in Europe will reduce the number banks that SMEs will be able to work with. Our results show that this process may increase borrower discouragement and, therefore, SMEs financing restrictions. In addition, we show that government policies could reduce SMEs financial restrictions by stimulating the demand for credit. This could be done by helping SMEs to modernize their organizational culture, developing their own R&D activities and professionalizing operating and human resource management. Our results can help banks to ameliorate borrower discouragement by helping them to reduce informational asymmetries and loan application costs. Firm owners can use the results of this study to understand how the lack of ambitions of their managers limits the participation of the company in the banking market. In addition, the owners of the company can advise their managers against maintaining few banking relationships if they want to overcome financial restrictions.



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Vos, E., Yeh, A., Tagg, S. (2007). "The happy story of small business financing". *Journal of Banking & Finance*, 31(9) 2648-2672. Available at: <http://www.sciencedirect.com/science/article/pii/S0378426607000556>

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## NOTES

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2. Corresponding author: Universidad de Almería; Ctra. Sacramento, s/n; 04120 La Cañada; Almería; SPAIN
3. Elaborated by Bureau Van Dijk, SABI contains comprehensive information on companies in Spain and Portugal.
4. Due to the high correlation between the variables Length and Age reported in Table 4, we check the robustness of our results by estimating all the models after dropping alternatively the variable Age and the variable Length. Results remain qualitatively the same, confirming that collinearity does not affect our results.

