



SMES' ACCESS TO FINANCE: AN EUROPEAN PERSPECTIVE

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Abstract

The paper presents a complex analysis regarding a top European priority: European SMEs and their access to finance. The first part of the paper reflects the macroeconomic situation and the challenges faced by the European SMEs in financing their activities. Relevant aspects from the related literature and research are included in the first part. The second part of the paper presents the research data and methodology, based on the Value at Risk analysis and two relevant surveys, developed by the European Commission and the European Central Bank (Bank Lending Survey and SAFE). The third part of the paper shows the analysis and empirical results of the quantitative study, based on two categories of factors (macroeconomic and business sector level), for a selection of six European countries (Austria, France, Germany, Italy, Portugal, Spain), during a period of eleven years (from 2003 to 2014). The paper also adds a qualitative analysis in the third part, by mixing quantitative and qualitative instruments. The last part reflects our concluding remarks, which may support future policy actions. SMEs represent a strategic sector, both for every individual European economy and for Europe. Improving the SMEs' access to finance represents a catalyst for growth.

Keywords: debt finance, financial crisis, banks, European Union policies, stock markets, SMEs access to finance

JEL Classification: G01, G21, G23, G24, G32, G38, H81, L2

1. Introduction on SMEs Financing - Current Status, Macroeconomic Trends and Business Climate

Our paper highlights the situation and challenges faced by the European SMEs related to funding access and financial inclusion. Although the topic is not new, as it has been the subject of relevant academic studies and business debates, SMEs access to finance represents a key aspect, according to surveys promoted by the European Central Bank and the European Commission. Our research includes both a quantitative and a qualitative

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analysis on a selected group of countries, focusing on answering a complex question: What are, for every analyzed country, the most important factors (internal macroeconomic and business sector factors), and the correlations between them, and how do they influence the access to finance for SMEs?

According to Kaia (2014), the SMEs sector's composition and its performance during the crisis varied considerably among individual countries. Capital market funding is seldom an option for SMEs, which largely rely on bank loans for funding. The securitisation of SMEs loans might bridge the gap between SMEs' funding needs and the availability of bank loans. According to statistics, 20.8 million SMEs provided more than 88.7 million jobs across EU28, representing more than two thirds of all European jobs by the end of 2012. They contributed with over 3.4 trillion Euro to value added at current prices, against a total value added produced by the private non-financial sector of approx. 5.9 trillion Euro⁴. During the most difficult period of the 2008-2010 crisis, most of the EU's SMEs faced sharp declines, which made them take costly decisions, with painful financial and social effects (scaling down business and laying off personnel). Cetorelli and Goldberg (2011) identify three main channels of contagion related to bank funding: direct cross-border lending, local lending by subsidiaries of large multinational banks and lower access of local banks to international financing sources.

The use of subsidies significantly improve access to finance for SMEs, but the SMEs are unaware of subsidies programs in their countries (see Öztürk & Mrkai, 2014).

Casey & O'Toole (2013) found that bank-lending constraints determined SMEs to explore alternative forms of external finance. The negative impact of alternative finance is mainly because of the higher costs and availability in lower volumes than the traditional credit.

Financial support is different within the European countries, for example in Germany as compared to Portugal or Greece, in direct relationship to the development of financial systems and capital markets. Klein (2014) found evidence that countries with high prevalence of SMEs tended to recover more slowly from the global financial crisis than their peers, reflecting that the structure of the economy and the access to bank financing play a critical role in episodes of economic recovery. Using a VAR estimation, the study demonstrates that a negative credit supply shock applied to SMEs has an adverse effect on the economic activity, and this impact is amplified in countries that have a high share of SMEs.

The SMAF Debt-Sub Index 2013⁵ confirms that some of the most vulnerable countries (Greece, Cyprus, Romania, Hungary, Bulgaria, Spain and Portugal) have not reached the initial level of access to finance of the EU28. This aspect highlights the essential role of governmental authorities and central banks in improving the business climate and the access to funds. Rossi (2014) emphasises that funding alternatives should be available according to every stage of the business development: pre-seed phase, seed startup phase, emerging growth, and development.

⁴European Commission – Annual Report on European SMEs 2012/2013 – “A Recovery on the Horizon?”.

⁵ The European Commission developed the SME Access to Finance (SMAF) Index to monitor developments in SMEs access to financial resources and to analyze differences between the EU countries. The base reference of 2007 deliberately provides a baseline before the onset of the financial downturn. The index comprises two main elements or sub-indices: access to debt finance (the debt finance sub-index representing 85% of the SMAF weighting) and access to equity finance.

Allen *et al.* (2011) state that Europe is a credit-related economy and will probably continue to be so for many years. Cross-border flows in Europe, unlike in the US, reflect the bank-based nature of finance in Europe.

Within the post-crisis context, both banks and alternative lenders need to focus on long-term financing solutions in order to restore confidence and customer loyalty, but also to become more resilient against short-term financial challenges.

SMEs pay more attention to alternative funding sources, such as: their own funds mobilization (owner funds, family and friends, sale of assets, retained earnings); external sources (factoring solutions, leasing); raising equity, access to non-refundable funds or other risk capital sources (business angels, venture capital, dedicated platforms for SMEs, designed to attract investors from capital markets). Despite their dominating presence in terms of number, the small and medium-sized companies are almost inexistent in terms of share of capital raised in the primary capital market. Research by Goldberg (2009) and Cetorelli (2011) suggest that, complementary to the banking markets, capital markets provide funding while global banks can smooth liquidity shocks and attract funding from external sources. In all the relevant surveys for SMEs, the external sources are highly ranked within the preferences of the SMEs.

Capital markets, venture capital and business angels are essential as an alternative funding source to bank lending, especially for the early and middle-development stages of the small businesses.

Different online platforms are connecting business angels with the companies. According to the European Commission statistics⁶, almost 30.000 business angels in the EU provide official data on their activities. The investment per business angel varies significantly (starting from €18.000 to €150.000) in specific sectors, such as services, creative industries, clean technologies, IT, biotechnologies and healthcare.

Some countries have developed specific funding programs, dedicated to sustain SMEs, large local corporations and infrastructure projects. Kremp and Sevestre (2013) arrive to the conclusion that, despite the stronger standards used by banks when granting credit, the French SMEs do not appear to have been strongly affected by credit rationing since 2008. This result is in line with the results of other surveys about the access to finance of the SMEs conducted in France.

The SMEs sector, because of its importance for economic growth, has required support from the national and the European governmental actors. This support was mainly to manage the financing gap for the EU SMEs, via different instruments: interest rate subsidies, reduced social insurance contributions, tax breaks and exemption on reinvested profits or dividends, export stimulations, simplified administrative procedures for accessing public insurance schemes and credit guarantees, more predictable tax policies, aspects confirmed by Mason *et al.* (2012).

Beck and Demirgüç-Kunt (2006) found that public credit guarantees were some of the instruments widely accepted, due to the low levels of capital requirements for a public guaranteed credit line, depending on the extent and the characteristics of the guarantee. Because the SMEs are part of an economic ecosystem, at both the European and national level, it is relevant for each country to focus on improving the overall business climate for all firms, while also expanding access to finance for the SMEs. A research study (Farinha and Felix, 2015) suggest that the interest rate is a strong driver of SMEs' demand for bank

⁶ Centre for Strategy & Evaluation Services - Evaluation of EU Member States' Business Angel Markets and Policies Final Report - October 2012.

loans. The study reflects that a considerable fraction of Portuguese SMEs were affected by credit rationing in the post-crisis period.

2. Data and Research Methodology

The empirical study uses the Vector Autoregressive Methodology (VAR model) in order to reveal the factors that mostly influence the access of SMEs to finance.

The VAR model enabled us to understand the linear interdependencies among multiple time series, generalizing the scalar autoregressive (AR) models.

We tested the stationarity of the included series, using one or more of the following informational criteria: Final Prediction Error-FPE, Akaike Information Criterion-AIC, Schwarz Information Criterion-SC, Hannan-Quinn Information Criterion-HQ. We determined the number of lags, affirming that the model is stable and we continued to estimate the equations through the Ordinary Least Squares Method and interpret the relationships between the variables, based on the Impulse Response Functions.

Our analysis uses six specific variables, for six countries: Germany, France, Italy, Austria, Spain, and Portugal. These variables are: each country's most representative stock market indexes⁷, considered as external shocks; the evolution of total loans stock; the average interest level applied to loans; loan demand; the impact of expectations regarding overall economic activity; the impact of fixed investments financing needs, reflected within the ECB's Bank Lending Survey (Diffusion Index⁸).

The sample data chosen in our study covers the period between 2003 Q1 and 2014 Q4 (quarterly data). Due to the relative small number of data (4x12 quarterly data), we analyzed the period in one "bullet", ranging from Q1 of 2003 up to Q4 of 2014.

The selection of the variables and of the countries included within the quantitative study is related to the structure of the Diffusion Index and to the answers included within the ECB's Bank Lending Survey.

Other arguments relevant for the selection are: the need to ensure comparable data of the selected countries, the high relevance of debt financing in every country, each country accounts for significant added value and employment in their national economies from the part of the SMEs sector. The selection included Germany and France, as the most developed countries, Italy and Austria, countries with specific developments and strong European footprints, Spain and Portugal, some of the most vulnerable countries, as the SMAF Index reports; each country benefits of developed stock markets, every specific market index being considered as an external shock.

⁷ Known as: ATX, PSI20, CAC40, DAX30, FTSEMIB and IBEX35.

⁸ The diffusion index is defined as the net percentage weighted according to the intensity of the response, giving lenders who have answered "considerably" a weight twice as high (score of 1) as lenders having answered "somewhat" (score of 0.5). The mean is calculated by attributing the values 1 to 5 to the first possible answer and consequently for the other – Source: European Central Bank – Statistical Data Warehouse.

3. Quantitative Study - Analysis and Empirical Results

3.1. Analysis and Empirical Results

The results provide the confirmation of obtaining stationary gross series, according to a 5% confidence level. Based on the VAR Methodology, we aim to explain the existing correlations between the total loans evolution, loan demand, the impact of expectations regarding overall economic activity, the impact of fixed investments financing needs and, nevertheless, the level of interest rates applicable to the existing loans. The following steps represent the validation of the model.

According to our findings, all the roots are within the unit bound, VAR satisfies the stability condition for all six countries taken into consideration: Austria, Germany, Italy, France, Portugal and Spain.

The number of chosen lags for estimation was computed on the basis of the informational criteria. In order to estimate the VAR model, we chose the following Lag Order Selection Criteria: FPE, AIC, SC and HQ, as shown in Table 1. We included one lag, due to the better result for R-Squared and for the better statistical significance of the estimated parameters.

Table 1

Summary of Informational Criteria Results

Country	Lag	LogL	LR	FPE		AIC	SC	HQ
Austria	0	251.27	NA	4.47e-13		-11.41	-11.16*	-11.32
	1	313.78	104.65*	1.33e-13*		-12.64*	-10.92	-12.00*
France	0	323.62	NA	1.55e-14		-14.77	-14.53	-14.68
	1	407.59	140.60	1.69e-15		-18.72*	-15.28*	-16.37
Germany	0	379.22	NA	1.16e-15		-17.36	-17.11	-17.27
	1	486.87	180.25	3.90e-17*		-20.69	-18.97*	-20.06*
Italy	0	295.62	NA	5.69e-14		-13.47	-13.23	-13.38
	1	368.62	122.23	1.04e-14		-16.17*	-13.47*	-14.56*
Portugal	0	241.19	NA	7.15e-13		-10.94	-10.69	-10.85
	1	335.28	157.55*	4.88e-14*		-13.64*	-11.92*	-13.01*
Spain	0	296.66	NA	5.42e-14		-13.52	-13.27	-13.43
	1	412.66	194.22*	1.34e-15*		-17.52*	-15.52*	-16.61*

Note: * indicates lag order selected by the criterion.

LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion.

The significance level of the stock market indices for each country is lower as compared to the rest of the variables. Our findings related to indices are normal, since the stock markets tend to anticipate rather than to confirm the current situation of the economy, the real economies lagging more than 6-9 months than the stock market indexes. A significant impact of the stock market index could be found only in Germany and Austria, as reflected in Table 2.

Table 2

The Relevance of Stock Market Indices

	LOG_AT_INDICEATX	LOG_FR_INDICECAC40	LOG_DE_INDICEDAX	LOG_IT_INDICEMIB	LOG_PT_IN_DICEPSI	LOG_SP_INDICEIBEX
R squared	0.268	0.171	0.404	0.141	0.125	0.118

In the following paragraphs, we analyze the results for each country, focusing on the VAR estimates, the impulse response functions and the variance decompositions.

France

The study indicates that the evolution of economic expectations is the most accurate variable explained by the model, followed by the impact of financing needs related to fixed investments and by loans demand. The equations obtained with the VAR methodology reveal that:

- The actual financing need for fixed investments is explained by the previous need for this kind of investments (autoregressive influence of more than 80%);
- The actual level of total loans is explained through the contribution of the previous evolution of the loans stock (autoregressive influence of more than 53%);
- The expectations regarding overall economic activity of the previous period, together with the previous level of interest rates accounts for more than 51%. The inverse relationship between the actual economic expectations and previous evolution of total loans (-185%) and loan demand (-42%) is explained through the process of deleveraging done by the banks (write downs of assets);
- According to Cholesky One S.D. Innovations (± 2 s.e.), our analysis shows that:
 - A current shock to the actual financing need for fixed investments will have a decreasing effect over long term, while a shock to total loans, interest rates and demand for loans will have a moderate impact over medium term on the evolution of the need for fixed investments. An external shock of the CAC40 index will have a negative impact over medium term on the actual financing need of fixed investments.
 - A current shock to the level of total loans may influence, over long term, the demand for loans.
 - A current shock to the current expectations, related to the overall economic activity, will have a prolonged decreasing influence, while a shock to total loans will fade over two periods. In addition, a shock to the level of interest rates will have a positive and moderate influence during the first two periods and a negative influence over the next two periods, until it disappears.
- The variance decomposition for the fixed investments demand is primarily due to its variance, while the contribution of the other mentioned factors is negligible.

Table 3

Summary of VAR Estimates for France

	P_EXPEC_ECON	P_FIXED_INV	P_LOAN_DEMAND	LOG_FR_INTEREST_LOAN	LOG_FR_TOTAL_LOANS	LOG_FR_IN_DICECAC40
P_EXPEC_ECON(-1)	0.513	0.0930	-0.058	-0.004	-0.015	-0.136
	[4.439]	[0.537]	[-0.348]	[-0.110]	[-0.882]	[-1.115]
P_FIXEDINV(-1)	-0.021	0.806	0.554	-0.048	-0.0237	0.085
	[-0.156]	[3.953]	[2.803]	[-1.181]	[-1.204]	[0.591]
P_LOANDEMAND(-1)	-0.421	0.240	0.354	-0.059	0.002	-0.117
	[-2.682]	[1.023]	[1.554]	[-1.263]	[0.076]	[-0.711]
LOG_FR_INTERESTLOAN(-1)	0.364	0.257	0.113	0.306	-0.0487	0.313

	P_EXPEC_ECON	P_FIXED_INV	P_LOAN DEMAND	LOG_FR_INTEREST LOAN	LOG_FR_TOTAL_LOANS	LOG_FR_INDICECAC40
	[0.864]	[0.406]	[0.184]	[2.414]	[-0.798]	[0.706]
LOG_FR_TOTAL_LOANS(-1)	-1.852	0.373	-0.322	0.251	0.535	-2.331
	[-1.930]	[0.259]	[-0.231]	[0.871]	[3.859]	[-2.308]
LOG_FR_INDICECAC40(-1)	-0.203	-0.240	-0.168	-0.062	0.030	0.096
	[-1.316]	[-1.041]	[-0.749]	[-1.339]	[1.365]	[0.592]
C	0.0519	-0.050	0.040	-0.007	0.003	0.048
	[2.121]	[-1.361]	[1.129]	[-0.986]	[0.849]	[1.878]
R-squared	0.763	0.622	0.606	0.572	0.384	0.171

Note: *t*-statistics in []. *P_EXPEC_ECON* = the level of expectations regarding the overall economic activity; *P_FIXEDINV* = the financing need for fixed capital investments; *P_LOANDEMAND* = the level of loan demand; *LOG_FR_INTERESTLOAN* = the level of interest rates; *LOG_FR_TOTAL_LOANS* = the level of total loans; *LOG_FR_INDICECAC40* = the level of the main stock market index – CAC40.

According to the EC reports, the French SMEs account for 59% of the added value and 63% of employment in the national economy, although the result was negatively influenced by the global recession and macroeconomic post-crisis imbalances. The French public initiatives coordinated by the public investment bank (Bpifrance) have offered “one-stop shop” financing services (subsidization of bank loans, guarantees and advisory support) to enhance SMEs growth. France is the leading EU country with regard to the total number of financed SMEs, as according to a research of Deutsche Bank (2014).

Portugal

The study indicates that the evolution of at least three variables (the actual level of expectations regarding overall economic activity, the actual financing need for fixed investments and the actual level of interest rates) are well explained by the model. The Portuguese SMEs access to financing was difficult, due also to the fact that the Portuguese banking sector was one of the most vulnerable of the Euro Area. The equations obtained from the VAR Estimates reveal the following aspects:

- The actual expectations regarding overall economic activity are influenced by the contribution of previous period expectations (in terms of 60%). The actual financing need for fixed investments is explained by the previous level of financing need for fixed capital (in terms of 85%).
- The actual level of interest rates is explained by the contribution of the level of interest rates from the previous period (in terms of 72%), loans demand (9%) and a minor negative contribution (-15%) of financing of stock market evolution in the previous period. Taking into consideration the low significance level (R-squared) of the PSI20 index, we do not find any relevant relationship between the evolution of the stock market index and the general level of interest rates. For both Spain and Portugal, the level of the constant “c” is lower than 0.05, meaning that the variables included in the model explain fairly well our objectives (the autonomous level of every variable of the current period being almost null).
- According to Cholesky One S.D. Innovations (± 2 s.e.), our analysis reveals that:
 - A current shock to the level of expectations regarding overall economic activity will be propagated over long term on its variance.
 - A current shock to the level of interest rates will be propagated over medium term on its variance; a shock to the demand for loans will be higher during the first two periods.

- As expected, the variance decomposition for the level of expectations regarding overall economic activity is explained by its variance and to a lower extent by the variance of total loans and the evolution of the interest rates.

Table 4

Summary of VAR Estimates for Portugal

	P_EXPEC_ECON	P_FIXEDINV	P_LOANDEMAND	LOG_PT_INDICEPSI	LOG_PT_TOTAL_LOANS	LOG_PT_INTERESTLOA
P_EXPEC_ECON(-1)	0.606 [4.254]	-0.013 [-0.093]	-0.029 [-0.294]	0.057 [0.58]	0.003 [0.155]	0.003 [0.085]
P_FIXEDINV(-1)	-0.314 [-2.061]	0.849 [5.777]	0.126 [1.189]	0.109 [1.038]	-0.015 [-0.887]	-0.025 [-0.749]
P_LOANDEMAND(-1)	-0.117 [-0.546]	-0.108 [-0.524]	0.362 [2.430]	0.022 [0.149]	0.025 [1.006]	0.086 [1.840]
LOG_PT_INDICEPSI(-1)	0.099 [0.427]	-0.1301 [-0.584]	-0.158 [-0.983]	0.287 [1.791]	0.053 [2.011]	-0.150 [-2.962]
LOG_PT_TOTAL_LOANS(-1)	0.219 [0.170]	0.041 [0.033]	-0.295 [-0.328]	-0.001 [-0.001]	0.678 [4.600]	0.206 [0.727]
LOG_PT_INTERESTLOA(-1)	0.242 [0.575]	0.257 [0.631]	-0.406 [-1.382]	0.148 [0.510]	0.014 [0.299]	0.720 [7.787]
C	0.057 [1.466]	-0.049 [-1.303]	0.032 [1.183]	0.006 [0.219]	-0.005 [-1.207]	-0.006 [-0.656]
R-squared	0.766	0.698	0.411	0.125	0.4700	0.726

Note: *t*-statistics in []. LOG_PT_INDICEPSI = the level of the main stock market index – PSI.

SMEs account for 79% of Portugal's employment and for 66% of the value added, representing 99.8% of the total number of enterprises.

Austria

Due to the values obtained for R-squared and Adjusted R-squared for the VAR Estimates, we propose to reject the validation of the model for Austria. Austria's banking system is quite atypical from the rest of the analyzed countries, Austria's overall score of the access to finance being above the EU average for the past four years. Some of the most important banks from Austria have suffered mostly from the macroeconomic and banking sector circumstances of the countries from the Central and Eastern Europe, rather than from the national situation. The Austrian banks' vulnerabilities are caused by regional factors (groups' subsidiary banks) rather than by internal macroeconomic and business sector factors; the "Banking Assets on GDP" ratio of Austria was 310% by the end of January 2013⁹.

Germany

The study indicates that the evolution of at least three variables are well explained by the model: the level of actual expectations regarding overall economic activity, the actual financing need for fixed investments and the actual level of interest rates for loans. The equations obtained from the VAR Estimates reveal the following:

⁹ Source: Associazione Bancaria Italiana – "The Italian Banking Industry: Key Figures, Trends, State of Health", June 2013.

- The actual expectations regarding overall economic activity is explained by the contribution of previous period expectations (autoregressive influence of more than 51%) and the level of loan demand in the previous period (69%), being negatively related to the contribution of the evolution of previous financing need for fixed investments (-65%);
- The actual financing need for fixed investments are explained by the previous level of financing need for fixed capital (127%), being negatively related to the contribution of evolution of previous level of loan demand (-52%) and evolution of the stock market index DAX (-37%);
- The actual level of interest rates is explained by the contribution of the level of interest rates in the previous period (autoregressive influence of 50%).

Table 5

Summary of VAR Estimates for Germany

	P_EXPEC ECON	P_FIXED INV	P_LOAN DEMAND	LOG_DE_I NDICEDAX	LOG_DE_TOTAL LOANS	LOG_DE_INTERE STLOA
P_EXPEC_ECON(-1)	0.513	0.143	0.128	-0.621	-0.002	0.060
	[3.144]	[0.734]	[0.694]	[-2.865]	[-0.071]	[1.288]
P_FIXEDINV(-1)	-0.647	1.277	0.464	-0.191	-0.005	-0.037
	[-5.266]	[8.720]	[3.337]	[-1.169]	[-0.268]	[-1.064]
P_LOANDEMAND(-1)	0.691	-0.519	0.056	0.102	0.017	0.022
	[3.978]	[-2.505]	[0.285]	[0.443]	[0.680]	[0.456]
LOG_DE_INDICEDAX(-1)	0.134	-0.371	-0.089	-0.178	0.021	-0.064
	[1.350]	[-3.140]	[-0.793]	[-1.352]	[1.485]	[-2.275]
LOG_DE_TOTAL_LOANS(-1)	-1.617	-0.737	1.935	-4.661	0.725	-0.021
	[-1.529]	[-0.585]	[1.619]	[-3.322]	[4.775]	[-0.071]
LOG_DE_INTERESTLOA(-1)	0.051	0.747	-0.071	1.216	-0.055	0.496
	[0.124]	[1.545]	[-0.156]	[2.258]	[-0.935]	[4.318]
C	-0.013	0.008	0.027	0.030	-0.001	0.005
	[-0.960]	[0.481]	[1.820]	[1.762]	[-0.125]	[1.368]
R-squared	0.795	0.857	0.505	0.404	0.496	0.687

Note: *t*-statistics in []. LOG_DE_INDICEDAX= the level of the main stock market index – DAX.

Table 6

Qualitative Analysis for Impulse Response and Variance Decompositions in the Case of Germany

Impulse response	P_EXP_ECON	P_FIXEDINV	LOG_DE_INTERESTLOA
P_EXPEC_ECON	Yes, LT, Negative	Yes, LT, Positive	Yes, LT, Mixed (+ST/-)
P_FIXEDINV	Yes, LT, Mixed (-MT/+)	Yes, LT, Negative	Yes, LT, Mixed (-MT/+)
P_LOANDEMAND	Yes, LT, Mixed(+ST/-)	Yes, LT, Mixed (-ST/+)	Yes, LT, Mixed (+LT/-)
LOG_DE_TOTAL_LOANS	Yes, LT, Mixed (-ST/+)	Yes, LT, Mixed (-MT/+)	Yes, ST, Negative
LOG_DE_INTERESTLOAN	Yes, LT, Mixed (-LT/+)	Yes, LT, Mixed(+MT/-)	Yes, MT, Negative
Variance decomposition	P_EXP_ECON	P_FIXEDINV	LOG_DE_INTERESTLOA
P_EXPEC_ECON	Yes, MT, Negative	Yes, LT, Mixed (-MT/+)	Yes, ST, Positive
P_FIXEDINV	Yes, MT, Positive	Yes, LT, Negative	Yes, LT, Positive
P_LOANDEMAND	Yes, ST, Positive	Yes, ST, Positive	Yes, MT, Positive
LOG_DE_TOTAL_LOANS	No	No	No
LOG_DE_INTERESTLOAN	No	No	Yes, MT, Negative

Note: LT = Long term, MT = Medium Term, ST = Short Term.

The review of impulse response results shows that the loans' interests are significantly influenced by the economic expectations (yes), over long term (LT), with a mixed influence

ranging from positive impact over short term, towards a negative influence over the rest of the periods. The variance of the need for fixed investments financing is significantly explained by the variance of economic expectations (yes) over long term (LT), with a mixed contribution, ranging from negative influence over medium term, towards a positive influence over the rest of the periods.

The German SMEs performances have been exceptional during the crisis and post-crisis periods as compared to most of the other EU countries, the number of jobs created and the value added increasing due to a favorable overall business environment, access to finance, state aid and public support. According to the European Commission's 2013 estimates¹⁰, the German SMEs account for 99.5% of the total number of enterprises, hire more than 62.7% of the total employees and contribute by more than 54.4% to the value added.

Spain

The study indicates that the evolutions of four variables are well explained by the model, the level of stock market index (IBEX35) being the least explained. The equations obtained from the VAR Estimates reveal the following:

- The actual financing need for fixed investments is explained by the previous level of financing need for fixed capital (60%);
- The actual expectations regarding overall economic activity are explained by the contribution of expectations in the previous period (48%); the actual evolution of demand for loans is described through the contribution of previous period demand for loans (in a proportion of 68%);
- The actual level of total loans is mostly explained (83%) through the contribution of the previous loan demand;
- The model explains the proposed objectives, since the R-squared indicators are well above 70%, except for the IBEX35 stock index.

Table 7

Summary of VAR Estimates for Spain	P_EXPEC_ECON	P_FIXEDINV	P_LOANDEMAND	LOG_SP_TOTAL_LOANS	LOG_SP_INTERESTLOA	LOG_SP_INDICEIBEX
P_EXPEC_ECON(-1)	0.475	0.123	0.1650	-0.0437	-0.101	0.141
	[3.904]	[1.082]	[1.588]	[-1.610]	[-2.230]	[0.984]
P_FIXEDINV(-1)	-0.373	0.600	0.3655	-0.0459	-0.020	0.352
	[-1.784]	[3.059]	[2.047]	[-0.984]	[-0.253]	[1.431]
P_LOANDEMAND(-1)	-0.202	0.375	0.6771	-0.031	-0.182	0.000
	[-1.021]	[2.018]	[4.001]	[-0.693]	[-2.466]	[0.001]
LOG_SP_TOTAL_LOANS(-1)	-0.412	-0.400	0.0917	0.829	-0.070	0.520
	[-1.133]	[-1.174]	[0.295]	[10.210]	[-0.51]	[1.215]
LOG_SP_INTERESTLOA(-1)	-0.051	-0.125	-0.0671	-0.1059	0.467	0.529
	[-0.164]	[-0.428]	[-0.252]	[-1.521]	[4.017]	[1.44]
LOG_SP_INDICEIBEX(-1)	-0.138	0.077	0.0044	-0.014	-0.138	0.124
	[-1.028]	[0.608]	[0.039]	[-0.462]	[-2.763]	[0.784]
C	0.031	-0.039	0.0074	0.001	0.010	0.014
	[1.561]	[-2.089]	[0.434]	[0.289]	[1.410]	[0.582]
R-squared	0.810	0.785	0.804	0.781	0.686	0.118

Note: *t*-statistics in []. LOG_SP_INDICEIBEX = the level of the main stock market index IBEX.

¹⁰ European Commission – 2014 SBA Fact Sheet – Enterprise and Industry.

According to the European Commission's 2013 estimates¹¹, the Spanish SMEs account for 99.8% of the total number of enterprises, hire more than 67% of the total employees and contribute by more than 58% to the value added. In order to mitigate the crisis consequences, the Spanish authorities have implemented several policy interventions related to public guarantee schemes, liquidity injections for banks and indebted regional administrations, financial sector reform and other incentives to promote non-bank financial intermediation.

Italy

The study indicates that the autoregressive influence of the variables is not so significant as compared to Portugal and Spain. The model explains the evolution of four variables: the actual level of interest rates, the actual level of total loans demand, and the actual level of expectations regarding overall economic activity, while the actual level of FTSEMIB is the least accurately estimated. In Italy, the SMEs account for 79.6% of country's employment and 69.5% of value added, representing 99.9% of the total number of enterprises.

The equations obtained from the VAR estimates reveal that:

- The actual level of interest rates is explained by the contribution of the level of interest rates in the previous period (34%);
- The actual expectations regarding overall economic activity are explained by the contribution of expectations of previous period (34%) and negative contributions of total loans (-181%);
- The actual financing need for fixed investments is explained by the previous level of financing need for fixed capital (47%);
- The actual evolution of demand for loans is described through the contribution of previous period demand for loans (72%).

Table 8

Summary of VAR Estimates for Italy

	P_FIXED INV	P_EXPEC ECON	P_LOAN DEMAND	LOG_IT_ INDICEMIB	LOG_IT_ OTAL_LO ANS	LOG_IT_ INT EREST LOA
P_FIXEDINV(-1)	0.472	-0.418	0.009	-0.003	-0.025	-0.094
	[2.596]	[-2.736]	[0.057]	[-0.021]	[-1.120]	[-1.823]
P_EXPEC_ECON(-1)	-0.112	0.337	0.107	-0.155	-0.052	0.104
	[-0.589]	[2.113]	[0.654]	[-0.920]	[-2.28]	[1.947]
P_LOANDEMAND(-1)	0.352	0.156	0.728	0.0780	0.019	-0.016
	[1.998]	[1.056]	[4.788]	[0.496]	[0.874]	[-0.308]
LOG_IT_INDICEMIB(-1)	-0.048	0.035	0.0157	0.242	0.005	-0.123
	[-0.270]	[0.237]	[0.103]	[1.528]	[0.221]	[-2.450]
LOG_IT_TOTAL_LOANS(-1)	-1.302	-1.818	-1.236	-1.701	0.351	0.034
	[-1.048]	[-1.740]	[-1.153]	[-1.536]	[2.328]	[0.096]
LOG_IT_INTERESTLOA(-1)	0.318	0.363	0.001	0.321	0.027	0.349
	[0.721]	[0.977]	[0.002]	[0.816]	[0.513]	[2.791]
C	-0.045	0.083	0.011	0.028	0.011	-0.020
	[-1.222]	[2.710]	[0.348]	[0.865]	[2.217]	[-1.968]
R-squared	0.555	0.575	0.586	0.141	0.326	0.699

Note: t-statistics in []. LOG_IT_INDICEMIB = the level of the main stock market index – MIB.

¹¹ European Commission – 2014 SBA Fact Sheet – Enterprise and Industry.

3.2. Empirical Results of the SAFE Assessment (2011-2014)

Our research adds to the quantitative instruments a qualitative analysis of the answers to twelve selected questions posted in the SAFE Survey on the Access to Finance of Small and Medium sized Enterprises. The sample data chosen in our study reflects the period between 2011 and 2014, and has a cross-country coverage for the same six European countries selected for the quantitative study.

Our findings reveal the following aspects:

- The most difficult access to finance was encountered by the Spanish and Portuguese SMEs,
- External financing capital was used by the European SMEs in 2011, and especially used in 2013 by the Italian, Portuguese and Spanish SMEs,
- The Spanish and Italian SMEs have least benefited from public financial support, including guarantees,
- External financing used for fixed investments has peaked in 2013, especially in countries such as France and Germany,
- The willingness of banks to provide credit for SMEs decreased dramatically in 2011, especially in Italy and Spain,
- The Spanish and French SMEs have suffered mostly from credit history decline in bank loans availability for companies (excluding overdraft and credit lines),
- Unfortunately, the perception of most respondent SMEs was that, in three years (2011, 2013 and 2014) significant increases in costs of financing (including other costs, besides the level of interest rates) and in collateral requirements occurred.
- Although the pressure on financing costs increased during the post-crisis period, more than 60% of the respondents prefer bank loans as the main solution for external financing.

4. Conclusions

Our research emphasizes relevant conclusions, concerning both the quantitative study and the qualitative analysis, that impact on further policy actions.

The evolution of economic expectations and the impact of financing needs related to fixed investments are the most accurate variables explained by the quantitative model. The significance level of the stock market indexes, for each country, is considered reduced as compared to the rest of the analyzed variables. A higher contribution of the stock market could be found only in Germany and Austria. The study reflects specific correlations between the variables, for every country.

Other conclusions based on the qualitative part of the research concern policy implications. There is a clear need to insure proportionality in the European regulations, to understand and try to find the right balance to accommodate the specificities of different countries and communities, but also to provide European solutions. The success or failure of the SMEs sector within the internal national markets directly influences the European SMEs sector and the European economy.

Capital markets may accommodate complementary sources of financing, also for the SMEs. Banks will remain the predominant source of funding for the SMEs, but supporting bank funding through securitisation and developing alternative financing solutions in the capital markets are essential to secure their financing. Considering the regulatory perspectives, the tighter prudential regulations, there is an appropriate need to develop a sustainable

architecture, including alternative sources of funding. Other proposals may include fiscal incentives for investing in SMEs shares and the need to approach appropriate channels for distributing SMEs securities to retail investors. Due to the small size of SMEs and specific barriers in issuing securities, there should be also further improvements in the bank's commitment towards advising, co-financing and financing businesses that create real social values and have a relevant impact on the communities.

Long-term relationships and cooperation between authorities, banks, alternative capital providers and SMEs in order to sustain and provide SMEs access to finance represent the base for the European SMEs sector sustainability and continuity, even in prolonged periods of uncertainty, and the support for sustainable growth.

References

- Allen, F., Beck T., Carletti, E., Lane P., Schoenmaker D. and Wagner W., 2011. Cross-Border Banking in Europe: Implications for Financial Stability. *Centre for Economic Policy Research (CEPR)*.
- Beck, T. and Demirguc Kunt, A., 2006. Small and medium size enterprises: Access to finance as a growth constraint. *Journal of Banking and finance*, 30, Elsevier, pp. 2.931 - 2.943.
- Belanov, K., 2011. Financial gap in small and medium size enterprise finance. *Economic Review Rocknik* 40, 3.
- Casey, E. and O'Toole, C., 2013. Bank-lending constraints and alternative financing during the financial crisis: Evidence from European SMEs. *Working Paper - The Economic and Social Research Institute (ESRI)*, Dublin, No. 450.
- Carangiu, I. and Oltean, L., 2011. Financing sources for small and medium sized enterprises. *Revista Economica*, no. 2 (55), pp. 121-124.
- Carbo Valverde, S., Rodriguez Fernandez, F. and Udell, G., 2012. Trade Credit, The Financial Crisis and Firm Access to Finance. *SSRN*.
- Centre for Strategy & Evaluation Services, 2012. Evaluation of EU Member States' Business Angel Markets and Policies Final Report. Available at: <<http://www.eban.org/evaluation-of-eu-member-states-business-angel-markets-and-policies-final-report>>.
- Cetorelli, N. and Goldberg, S., 2011. Global Banks and International Shock Transmission: Evidence from the Crisis. *NBER Working Papers* No. 15974.
- Comeig, I., Fernandez Blanco, M. and Ramirez, F., 2015. Information acquisition in SMEs relationship lending and the cost of loans. *Elsevier Journal of Business Research*, 68, pp. 1650-1652.
- Dedu, V. and Nitescu, D.C., 2014. Banking relationship management – A new paradigm?. *Theoretical and Applied Economics*, Volume XXI, No. 4/593, pp. 7-22.
- ECB Bank Lending Survey 2003-2014. Available at: <https://www.ecb.europa.eu/stats/ecb_surveys/bank_lending_survey/html/index.en.html>.
- ECB's and EC's Survey on the access to finance of enterprises (SAFE). Available at: <https://www.ecb.europa.eu/stats/ecb_surveys/safe/html/index.en.html>.
- Ernst & Young, 2012. Entrepreneurs Speak Out. Available at: <[http://www.ey.com/Publication/vwLUAssets/EY_Entrepreneurs_Speak_Out_survey_13_Feb_2014_\(EN\)/\\$FILE/EY%20Entrepreneurship%20Barometer%20Romania%202013.pdf](http://www.ey.com/Publication/vwLUAssets/EY_Entrepreneurs_Speak_Out_survey_13_Feb_2014_(EN)/$FILE/EY%20Entrepreneurship%20Barometer%20Romania%202013.pdf)>

- European Commission, 2012. Entrepreneurship, Flash Eurobarometer 354, Country Report Romania. Available at:
http://ec.europa.eu/commfrontoffice/publicopinion/flash/fl_354_en.pdf
- European Commission. Enterprise and Industry Portal – Access to finance. Available at:
<https://ec.europa.eu/growth/access-to-finance_en>.
- European Commission, – 2014. SBA Fact Sheets for the six countries analyzed. Available at: <https://ec.europa.eu/growth/smes/business-friendly-environment/performance-review_en#sba-fact-sheets>.
- European Commission, 2013. A Recovery on the Horizon? *Annual Report on European SMEs 2012 / 2013*. Available at:
<https://www.researchgate.net/profile/Deborah_Cox/publication/259174567_A_RECOVERY_ON_THE_HORIZON_Annual_Report_on_European_SMEs_201213/links/0046352a1c259e4936000000/A-RECOVERY-ON-THE-HORIZON-Annual-Report-on-European-SMEs-2012-13.pdf>.
- European Savings and Retail Banking Group, 2014. Economic Demonstration of the economic impact of liquidity ratios in particular for SME lending. Available at: <https://www.wsbi-esbg.org/SiteCollectionDocuments/ESBG_BRO_SMELENDING.pdf>
- Farinha, L. and Felix, S., 2015. Credit rationing for Portuguese SMEs, *Elsevier Finance Research Letters*, 14, pp. 167-177.
- Kaya, O., 2014. SME financing in the euro area. New solutions to an old problem. *Deutsche Bank Research Management – EU Monitor*, October 14.
- Klein, N., 2014. Small and Medium Size Enterprises, Credit Supply Shocks, and Economic Recovery in Europe. *IMF Working Paper*, WP/14/98.
- Kremp, E. and Sevestre, P., 2013. Did the crisis induce credit rationing for French SMEs? *Elsevier Journal of Banking & Finance*, 37, pp. 3.757-3.772.
- IMD, 2014. World Competitiveness Yearbook Scoreboard. Available at: <http://www.colombiacompetitiva.gov.co/prensa/informes/IMD_WCY-2014.pdf>
- Lee, N., Sameen, H. and Cowling, M., 2015. Access to finance for innovative SMEs since the financial crisis. *Research Policy Journal*, Volume 44, Issue 2, pp 370-380.
- Mason, C., Michie, R. and Wislade, F., 2012. Access to finance in Europe's disadvantaged regions, Can "new" financial instruments fill the gap?" *European Regional Policy Research Consortium*, Paper 12/6.
- Öztürk B. and Mrkai M., 2014. SMEs' Access to Finance in the Euro Area: What Helps or Hampers? *IMF Working Paper*, WP/14/78.
- Popescu, C.A., 2008. Considerations regarding SMEs access to finance. *UPB Sci. Bull. Series D.*, Vol. 70, No, 1, pp. 97-106.
- Rossi, M., 2014. SMEs Access to finance: An Overview from Southern Italy. *Journal of Business and Social Sciences*, Vol 2, No 11, pp. 155-164.
- Ryan, R., Toole C. and McCann F., 2014. Does bank market power affect SME financing constraints?, *Journal of Banking & Finance*, Elsevier.