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SMEs' financing:
Divergence across Euro area countries?

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ABSTRACT

This paper studies the divergence/convergence process of European countries as regard the financing behavior of small and medium sized enterprises. Using a firm level and country representative survey, we construct country-time indicators of SMEs' use of three external financing sources: bank loans, credit line/overdraft and trade credit. These indicators account for composition effects and demand effects. We find substantial differences between countries in the SMEs' use of the three financing sources. In particular, the cross-country differences related to SMEs' use of bank loans have significantly increased over the period 2010-2014. This divergence is not related to a global increase in the volatility of this use between countries. Instead, it has been driven by a sharper increase (resp decrease) in the countries where SMEs' use was initially higher (resp. lower). Finally, we investigate whether SMEs' uses of financing sources are correlated at the country level with various macroeconomic and banking structure indicators. The results suggest that indicators about banking concentration are good candidates to explain the cross-country divergence of SMEs' use of bank loans.[3]

Keywords: credit constraints, bank financing, trade credit, institutional factors

JEL classification: G31, G01, D22, C35

NON-TECHNICAL SUMMARY

We address the following questions: How does the use of external financing sources, banking ones (bank loans, credit lines/overdraft) and trade credit, by SMEs vary across Euro area countries? Are there country specific factors that explain cross-country differences in addition to the demand for external finances and to firms' characteristics? How do these country specific factors vary over time? We propose an original empirical approach, taking advantage from the firm level and country representative Survey on Access to Finance by Enterprises (SAFE) conducted by the European Central Bank. We construct comparable country-time indicators of SMEs' propensities to use external financing sources and analyze the evolution of the variance of these indicators over time. We focus on bank loans, credit lines and bank overdraft and trade credit.
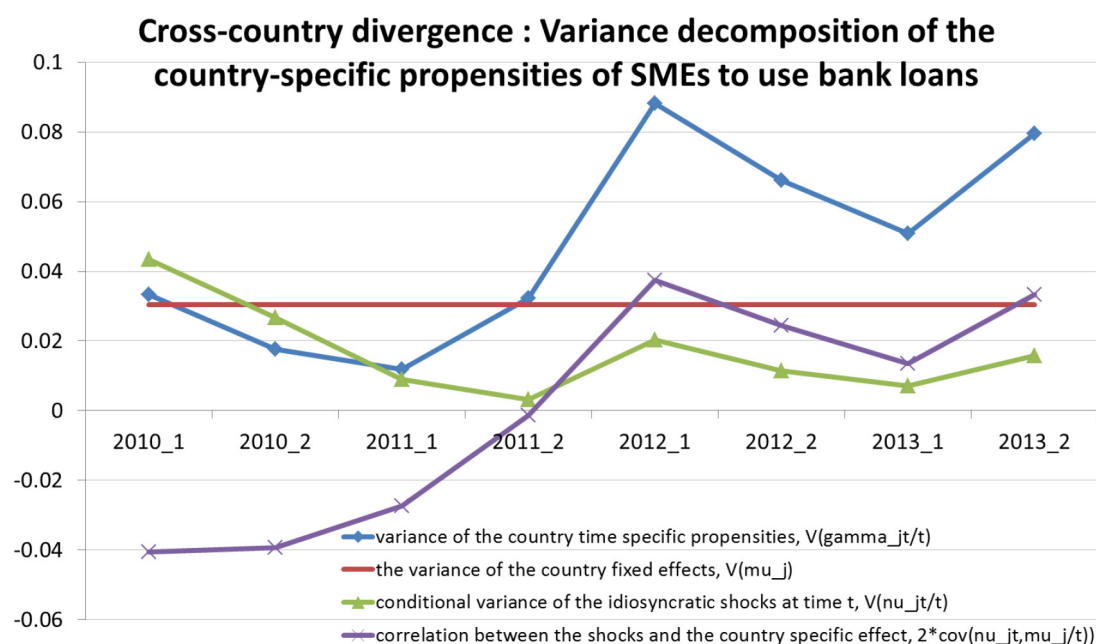
These figure displays the evolution of the variance of the country time specific propensities (V(gamma_jt/t) to use bank loans and of its three components: the variance of the country fixed effects (V(mu_j), the conditional variance of the idiosyncratic shocks at time t V(nu_jt/t), the correlation between the shocks and the country specific effect (2*cov(nu_jt,mu_j/t)). The country specific propensities are estimated from firm level regressions (probit models) using the SMEs country representative survey SAFE (countries included: Austria, Belgium, Germany, Spain, Finland, France, Greece, Ireland, Italy, Netherlands and Portugal). These estimates account for firm level characteristics (age, size, annual turnover, main activity, belongs to a group or not) and for firm financing demand (increased needs, reasons for increased needs).

First we build country-time specific propensities to use each source of external finances that control for firm-level characteristics and also for firms' financing needs. Second, we turn on the assessment of the divergence of SME's financing conditions across the Euro area countries. To do that, we decompose the estimated country-time propensity into a country fixed effect, a time cross-country effect and idiosyncratic shocks and examine the evolution over time of the variance of the country-time propensities. The conditional variance of the country-time propensity at time t is then the sum of three components: i) the variance of the differences between countries that are constant over time, assessed by the variance of the country fixed effects ii) a measure of the uncertainty faced by countries, assessed by the conditional variance of the idiosyncratic shocks at time t iii) the country-specific dynamics of the idiosyncratic shocks, measured by twice the covariance,

conditional on time, between the country fixed effects and the idiosyncratic shocks. Regarding the convergence/divergence across Euro area countries, we find cross-country divergence as regards the use of bank loans by SMEs. The increase in the variance over time is due to the increase in the covariance between idiosyncratic shocks and the time-invariant country specific effect. These results show that country specific factors play a crucial role in explaining the evolution of the euro area cross-country heterogeneity in firms' financing behaviors. Third, we investigate what could be the underlying economic factors explaining the country-specific propensities of using bank loans. Our results suggest that indicators about banking concentration are good candidates to explain the cross-country divergence of SMEs' use of bank loans. These results may then be related to the discussions in the literature about the effect of market structure, competition and regulation in the banking sector on SMEs' access to finance.

Le financement des PME : Divergence entre les pays de la zone Euro ?

Résumé

Cet article examine dans quelle mesure les conditions de financement des PME ont convergé ou divergé entre pays de la zone Euro. S'appuyant sur une enquête représentative auprès des entreprises conduite dans plusieurs pays de la zone Euro (enquête SAFE), nous construisons pour chaque pays et chaque semestre des indicateurs reflétant la capacité de leurs entreprises à utiliser trois sources de financement externe : les crédits bancaires de long terme (prêts bancaires), les crédits bancaires de court terme (lignes de crédit) et le crédit commercial. On montre ainsi que les différences entre pays de la zone euro d'accès de leurs PME aux prêts bancaires ont significativement augmenté entre 2010 et 2014. Cette divergence n'est pas liée à une volatilité globale des conditions de financement qui aurait crû après la crise mais plutôt au fait que les pays où les conditions de financement étaient initialement les meilleures (resp. les plus mauvaises) sont également ceux où elles se sont le plus améliorées (resp. empirées). Nous confrontons ces évolutions propres à chaque pays à certaines variables macroéconomiques ou reflétant leur structure bancaire. Les résultats suggèrent que les indicateurs relatifs à la concentration bancaire pourraient être à l'origine de la divergence observée entre pays du recours de leurs PME aux crédits bancaires de long terme.

Mots-clés : contraintes de crédit, financements bancaires, crédit commercial, facteurs institutionnels

1. Introduction

After the financial and sovereign debt crises, one concern in the euro area was about the ability of firms and, especially small and medium sized enterprises (SMEs), to rely on the necessary external financing sources for their growth and development. These firms play an important role in the functioning of the economy[1] and are more dependent on intermediated finance than larger ones. Due to asymmetric information and agency problem, these firms may face however a "premium" that increases the cost of their external finances and may induce financing constraints hampering their ability to invest and grow[2]. At the same time, the Eurosystem has been worrying about the divergence of financial conditions within the Euro area, especially as regards loan interest rates across countries. This heterogeneity in the bank lending supply may induce cross-country heterogeneity in firms financing behaviors through firms' financing structure (Basset et al., 2014, Becker and Ivashina, 2014) and through their use of alternative source of finances like trade credit (Love et al., 2007). Moreover, there are still many institutional differences across Euro area countries related to the functioning of credit market, the firms-banks relationships or the use of trade credit despite the European financial and banking integration. More generally, the literature finds cross-country heterogeneity in firms' financing behavior that is explained by institutional differences. In particular, cross-country differences in terms of capital structure and use of bank loan or trade credit are related to financial intermediary developments, bankruptcy law or fiscal policy (e.g. Rajan and Zingales, 1995; Demirgüç-kunt and Maksimovic, 1998; Fisman and Love, 2003, Beck et al. 2003) and persist over time (Lemmon et al., 2008). Most of the previous cross-country studies rely however on a set of countries covering very heterogeneous economic or policy environments. Little is known about the heterogeneity of firms financing behaviors within the Euro area, especially as regards SMEs. Such a financial fragmentation in terms of firms' financing behaviors could have important implications for designing relevant public policies.

In this paper, we address the following questions: How does the use of external financing sources, banking ones (bank loans, credit lines/overdraft) and trade credit, by SMEs vary across Euro area countries? Are there country specific factors that explain cross-country differences in addition to the demand for external finances and to firms' characteristics? How do these country specific factors vary over time? We propose an original empirical approach, taking advantage from the firm level and country representative Survey on Access to Finance by Enterprises (SAFE, see European Central

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[1] In the European Union, SMEs account for about 58% of the value added generated by the non-financial sector and for 67% of total employment in 2014. Source: European Commission.

[2] The empirical literature emphasizes the role of firms' size in explaining the existence of financing constraints and show that small firms are more likely to face such financing constraints when seeking for external financing sources (e.g. Beck et al., 2003; Leary, 2009; Beck, 2013). The growth of small firms may then be hampered by financial constraints (Carpenter and Petersen, 2002a).

Bank, 2016). This survey is, to our knowledge, the only micro level source focusing on SMEs and providing harmonized and country-representative information about SMEs external finances. We construct comparable country-time indicators of SMEs' propensities to use external financing sources and analyze the evolution of the variance of these indicators over time. We focus on the main external financing sources for Euro area SMEs: bank financing and trade credit[3]. Among bank sources, we distinguish between loans and credit lines/overdraft. We use 8 waves of the (biannual) SAFE survey covering the period 2010-2014[4].

Our analysis proceeds then into three steps.

First we build country-time specific propensities to use each source of external finances, which control for firm-level characteristics (activity, internal resources, size, age, etc.) and also for firms' financing needs. Since the seminal paper by Fazzari et al. (1988), a large body of the empirical literature aims at identifying the existence of financing constraints for firms. We overcome the difficulty in identifying supply and demand effects thanks to the qualitative and self-assessed information provided by SMEs about their need for external finances. The estimated propensities could then be viewed as an (inverse) country-time indicator of financing constraints faced by SMEs. Based on these propensities, we can compare the probabilities for SMEs with the same characteristics to use external financing sources in different countries and at different time periods.

Second, we turn on the assessment of the divergence of SME's financing conditions across the Euro area countries. To do that, we decompose the estimated country-time propensity into a country fixed effect, a time cross-country effect and idiosyncratic shocks and examine the evolution over time of the variance of the country-time propensities. The conditional variance of the country-time propensity at time t is then the sum of three components: i) the variance of the differences between countries that are constant over time, assessed by the variance of the country fixed effects ii) a measure of the uncertainty faced by countries, assessed by the conditional variance of the idiosyncratic shocks at time t iii) the country-specific dynamics of the idiosyncratic shocks, measured by twice the covariance, conditional on time, between the country fixed effects and the idiosyncratic shocks. We

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[3] According to our data, equity financing is used only by a limited proportion of SMEs (less than 7%, compared to more than 35% of them using bank sources and 30% trade credit). Such a fact is in line with previous findings in the literature (cf. Beck et al., 2008). Equity financing is a more common financing source for innovative and high tech firms (see Carpenter and Petersen 2002b; Hall and Lerner, 2010).

[4] The survey started in 2009 and is still regularly conducted by the ECB and the European Commission. Some changes in the sampling and in the questionnaire design occur however over time. In order to avoid any bias due to such changes, we restrict our analysis to a period where the questions about our main variables are stable over time. We also restrict our analysis to 11 countries that continuously participate in the survey over this period: Austria, Belgium, Germany, Spain, Finland, France, Greece, Ireland, Italy, Netherlands and Portugal.

are thus able to distinguish between two sources of divergence/convergence across countries: the evolution of the variance of the shocks on the one hand (ii), the evolution of the correlation between the shocks and the country specific effect on the other hand (iii). We recover estimates of the parameters through regressions and compute the variance decomposition for the three financing sources.

Regarding the convergence/divergence across Euro area countries, we find that the variances of the propensities related to the use of the three financing sources have increased over the period 2010-2014. We formerly test the cross-country divergence: we regress the variances of the propensities on a time trend and obtain a significant coefficient for bank loans which remains robust when excluding from the sample the countries that were severely affected by the crisis. A key result is provided by our variance decomposition analysis which shows that the increase in the variance over time is due to the increase in the covariance between idiosyncratic shocks and the time-invariant country specific effect. These results show that country specific factors play a crucial role in explaining the evolution of the euro area cross-country heterogeneity in firms' financing behaviors. They are related to the literature pointing out the persistence of firms' capital structure over time (Lemmon et al., 2008) and showing the influence of the institutional environment (legal and financial system) on firms' financing patterns (e.g. La Porta et al., 2000; Beck et al. 2008). Compared to this literature, we adopt another approach which allows us to analyze the convergence/divergence of countries as regard firms' financing behaviors.

Third, we investigate what could be the underlying economic factors explaining the country-specific propensities of using bank loans. We obtain a negative correlation with banking concentration (as measured by the share of the 5 largest credit institutions), a positive correlation with the number of local branches of the credit institutions and with the deposits to asset ratio. Accounting for these factors, the divergence between countries induced by the country-specific dynamics of the idiosyncratic shocks vanishes. These results may then be related to the discussions in the literature about the effect of market structure, competition and regulation in the banking sector on SMEs' access to finance (Beck, 2013). They suggest that indicators about banking concentration and capitalization are good candidates to explain the cross-country divergence of SMEs' use of bank loans.

This paper is organized as follows. Section 2 presents the data we use and Section 3 details our empirical strategy. The regression results from the firm level determinants of the SMEs' propensities to use the external financing sources are commented in Section 4. The empirical analysis of the cross-country divergence is conducted in Section 5. In Section 6, we investigate the correlation between SMEs country specific propensities to use external financing sources and various macroeconomic and banking structure indicators. Section 7 concludes.

2. Data

We use the Survey on the Access to finance of enterprises (SAFE) run every six months by the European Central Bank and the European Commission. The questionnaire covers the firms' financing needs, their use of financing sources, the firms' expectations about their future activity and financing conditions, and refers to the last six months' period. The survey provides then very useful information about firms' financing demand and financial constraints that could not be identified using balance-sheet data.[5]

The questions are asked to country-representative samples of small and median sized enterprises (with less than 250 employees) [6] in most euro area countries. Our analysis covers 11 countries which continuously participate in the 8 waves (2010H1 to 2013H2, see table1) over the period 2010-2014: Austria, Belgium, Germany, Spain, Finland, France, Greece, Ireland, Italy, Netherlands and Portugal. In order to avoid any bias due to changes in the questionnaire, we restrict our analysis to a period where the main questions we use for our analysis and their place in the questionnaire, are stable over time.

The sampling of the survey is based on firm size and sector and takes into account total employment according to these breakdowns. Four sectors are surveyed: industry, construction, trade and other services. The sampling also includes a panel component (rotating panel). We need however a country representative sample at each point of time as we want to assess the evolution of the cross-country heterogeneity over time. We then rely on the repeated cross-sections and use weighted statistics and regressions for our empirical analysis. Table 1 summarizes the composition of the sample. It includes more than 6,900 SMEs in each survey round (excepted for 2010H1 wave where the sample size was about 5,000 SMEs) and is made up of a total of 53,626 observations for 11 countries over the 8 survey rounds covering the period 2010-2014.

[INSERT TABLE 1]

Firms participating in the survey are asked about their financing behavior. In particular, the survey provides qualitative information on the financing sources that were used over the past 6 months. A detailed list of financing sources is provided, and the firm has to answer whether it has used

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[5] The available survey data are anonymized and they cannot be merged with extra information about balance sheets.

[6] The sample also includes some large firms (with more than 250 employees), but without being representative of this subpopulation in most of the countries. We restrict our empirical analysis to SMEs. Detailed methodological information on the SAFE survey is available on the ECB website: https://www.ecb.europa.eu/stats/pdf/surveys/sme/methodological_information_survey_and_user_guide.pdf?578a a5047cb67b72a50c6c5019e3283e

each of them over the past six months. Table 2 provides the percentage of SMEs answering they have used the financing sources by country over our sample period. Banking sources are the most widely used financing sources by SMEs. Considering the eleven countries, more than 40% of SMEs have used short term bank sources (bank overdraft, credit line) and about 35% have relied on bank loans. Trade credit is also one of the most often used sources of external finances: more than 30% of SMEs have used it. There is however a wide cross-country heterogeneity in the proportion of SMEs that have used these financing sources over the past six months. For instance, Ireland is the country where the use of short term financing sources reaches its maximum (60.7% for bank overdraft/credit lines, 71.6% for trade credit); for bank loans this maximum is reached in Belgium (39.4%). At the opposite, Greece is characterized by very low proportions of SMEs using bank financing sources (12.1% for bank overdraft, 25.4% for bank loans) and Germany by a limited proportion of SMEs relying on trade credit (16.8%).

The other sources of external finance are less used by SMEs[7], especially equity (6.62% of SMEs). About 25% of SMEs claim that they have used internal finances (retained earnings or sale of assets) and about 13% have relied on loans from a related company or from shareholders which could also be viewed as an internal financing source.

[INSERT TABLE 2]

Most of the information of the survey is qualitative and is based on self-assessed perceptions by firms. One may be concerned by the reliability of such information to assess actual financing behaviors. There are no other micro level sources focusing on SMEs and providing harmonized information about the financing sources we are interested in (bank financing and trade credit) across different countries. We can however rely on statistics about credit distributions to see how it correlates with the survey information. We examine the business volume of loans up to one million provided to non-financial corporations by credit institutions[8,9] in each country and for time periods corresponding to the reference periods of the SAFE survey and compare it with the share of SMEs answering in the SAFE survey that they have used bank loans. We obtain a correlation of 0.45 (significant at the 1% level), which indicates that the qualitative information about the extensive margin provided by the survey is in line with the available quantitative information on loans distribution to SMEs. Moreover, a significant negative correlation (-0.49) is also obtained with aggregate data on bank interest rate[10].

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[7] Excepted leasing or hire-purchase or factoring which are also widely used by the SMEs (one third of them).

[8] Source MFI statistics. Available on http://sdw.ecb.europa.eu/browse.do?node=2018773.

[9] Loans up to one million are usually viewed as loans mostly granted to SMEs.

[10] We use bank interest rate of loans to corporations of up to 1 million with an initial rate fixation period over one and up to five years (Source MFI statistics). See the Appendix A for more detailed information.

The comparability of answers across country is another concern with such a survey. While we cannot exclude country specific effects that could be due to various factors (culture, translation of questions in the national language, etc.), the setting of the survey, which is fully coordinated at the European level with a unique questionnaire aims at mitigating these issues.

3. Empirical strategy

In order to assess the cross-country heterogeneity in SMEs financing behavior, our empirical strategy is in three steps. The first step consists in explaining firms' financing by their observable characteristics, their demand for external finances and country and time specific effects. We estimate country and time specific propensities to use external financing sources which capture the financing use of observably similar SMEs across countries. The second step uses these country and time specific propensities to examine how their variance has evolved over time. We propose a decomposition of this variance for each period that allows us to assess the potential sources of divergence across countries with respect to the financing behavior of their SMEs. Finally, we examine the correlation between these country and time specific propensities and several macro-statistics first to ensure their interpretation, second to assess their potential determinants. To ensure the interpretation of our results, we sometimes need to specify more precisely the stochastic structure of the country-time specific effects, adding structural constraints and thus decreasing the degrees of freedom of the model. These specifications are added along the steps of our empirical strategy. Another way would have to use the most constrained specification from the 1st step, directly estimating the few structural parameters that define it. We prefer our step-by-step strategy that prevents the results from relying mainly on the structural constraints. It also allows us to present the raw estimates of the cross-country variance. The purpose of adding supplementary structure in the stochastic models is only here to help the interpretation.

3.1. Propensity to use a financing source

We estimate at the firm level the propensity to have used a given financing source over the past six months, controlling for observed characteristics of firms and for time-varying country specific effects. The aim of this section is to recover estimates of these country-time specific effects.

The empirical specification for the propensity to use an external financing source is as follows[11]:

$$U_{it}^{S*} = \beta^S \text{FirmCharacteristics}_{it} + \delta^S X_{it} + \sum_{S'} \theta^{S,S'} N_{it}^{S'} + \gamma_{jt}^S + \varepsilon_{it}^S \qquad (1)$$

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[11] Similar regressions on another question of the SAFE survey asking firms about their financing needs (N_{it}^S) have also been done and are available upon request.

S is the subscript for the source of external finances (bank loans, bank overdraft or trade credit). The dependent variable U_{it}^{S*} corresponds to the latent variable or the propensity that a firm i used the financing source S over the past 6 months at time t, which is described by the variable U_{it}^{S} in the survey:

$$U_{it}^{S} = \begin{cases} 1 \text{ if i answers it used the type of financing S over the past 6 months} \\ 0 \text{ otherwise} \end{cases}$$

U_{it}^{S} is related to its latent variable through the following relation $U_{it}^{S} = \left(U_{it}^{S*} > 0\right)$ as it is usual in limited dependent variable models.

We have thus three equations describing firms' external financing use: one for bank loans, one for credit line and overdraft and one for trade credit. $FirmCharacteristics_{it}$ are the observed firm characteristics (age, size, annual turnover, main activity, belongs to a group or not), X_{it} the variables reflecting why the firm needs increased external financing (fixed investment, inventories and working capital, lack of internal funds). We also control for the increased needs (or not) of firm i in the three financing sources over the past 6 months (N_{it}^{S}). These variables, together with the variables reflecting the reason why a firm faces increased needs for external finance (X_{it}), account for the demand side in explaining the use of an external financing source. The coefficients γ_{jt}^{S} correspond to the country-time (semester) specific propensities to use financing source S. $\theta^{S,S'}$ corresponds to the effect of having expressed the need for the financing type S' on the propensity to use the financing type S.

We estimate equations (1) as probit regressions. The regressions are weighted by the number of jobs that each firm represents in its country (e.g. firm sampling weight x firm size, variable WgtOldCommon in SAFE surveys, see European Central Bank, 2016).

The country-time-specific propensities (γ_{jt}^{S}) incorporate all remaining country-specific factors that are not taken into account by the other explanatory variables. As far as we account for the firm-specific needs in external financing source as well as for differences in firms' characteristics, the estimated coefficients γ_{jt}^{S} could be viewed as reflecting country-time-specific factors facilitating the use of external financing source S by SMEs.

The coefficients γ_{jt}^{S} are estimated from a probit regression that describes a qualitative behavior of firms (i.e. whether they have used or not a given financing source). Thanks to this method, we turn individual qualitative information into aggregate quantitative indicators. Standard statistical analysis can be used on these continuous indicators, such as variance decomposition, tests or linear regression.

3.2. Decomposition of the variance of the country-specific propensities

To assess whether the country-time propensities γ_{jt} have diverged, we are going to examine the evolution of its variance overtime, i.e. conditional on t, $V(\gamma_{jt}|t)$. To help interpreting its evolution, we decompose the country-time propensity γ_{jt}[12] into a country specific fixed effect μ_j, a time cross-country effect α_t and idiosyncratic shocks ν_{jt} affecting country j at time t, such that:

$$\gamma_{jt} = \mu_j + \alpha_t + \nu_{jt} \qquad (2)$$

The estimation of such decomposition is based on the following assumptions

$$\forall j, E(\nu_{jt}|j) = 0$$

$$\forall t, E(\nu_{jt}|t) = 0$$

From this, we derive the standard decomposition of variance: $V(\gamma_{jt}) = V(\mu_j + \alpha_t) + V(\nu_{jt})$.

Now, we are more interested in $V(\gamma_{jt}|t)$. From the decomposition (2), we derive this conditional variance:

$$V(\gamma_{jt}|t) = V(\mu_j + \alpha_t + \nu_{jt}|t) = V(\mu_j) + V(\nu_{jt}|t) + 2E(\mu_j \nu_{jt}|t) \qquad (3)$$

Since α_t is constant for t given, its conditional variance and covariances with μ_j and ν_{jt} are nil. The first term $V(\mu_j)$, in expression (3), measures the differences between countries that are constant over time. By construction, it does not depend on t and will not affect the convergence or divergence process. The second term $V(\nu_{jt}|t)$ is the conditional variance of the idiosyncratic shocks ν_{jt} at time t. An increase of this component would reflect that shocks are more and more dispersed across countries. Such a rise could be interpreted as an increase of uncertainty faced by countries. The last component, $E(\mu_j \nu_{jt}|t)$ corresponds to the covariance conditional on time between μ_j and ν_{jt}. It reflects the fact that ν_{jt} can have a country-specific dynamic that can be related to μ_j. This is the reason why $E(\mu_j \nu_{jt}|t)$ can be not equal to zero even though $E(\nu_{jt}|t)$ is by assumption.

To better understand the evolution of $E(\mu_j \nu_{jt}|t)$, it might be useful to consider the following specification:

$$\nu_{jt} = \eta_j(t - \bar{t}) + \xi_{jt}, \qquad (4)$$

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[12] For the simplicity of exposition, subscripts are removed. They are made explicit in the empirical section.

where η_j's are country-specific trends such that $E(\eta_j) = 0$, $\bar{t}$ the average time period and ξ_{jt} an idiosyncratic shock independent of t, μ_j and η_j[13]. With this specification we get:

$$E(\mu_j \nu_{jt}|t) = E(\mu_j \eta_j)(t - \bar{t}). \qquad (5)$$

Hence, a positive (resp. negative) correlation between the country-specific trends η_j and the country-specific effects μ_j will result in an increase (resp. decrease) of the variance of γ_{jt} conditional on t, see (3).

This specification provides also some testable predictions on the evolution of the variance of the residuals:

$$V(\nu_{jt}|t) = V(\eta_j)(t - \bar{t})^2 + V(\xi_{jt}|t) \qquad (6)$$

Hence, if the variance of ξ_{jt} is constant over time, the shape of the variance of ν_{jt} should be convex, first decreasing, then increasing. Testing whether $V(\nu_{jt}|t)$ exhibits a linear trend consists in testing whether $V(\xi_{jt}|t)$ has it since the linear trend of $(t - \bar{t})^2$ is 0. Such a linear trend on this component would mean that the volatility of shocks would have increased over the period.

In practice, we recover estimates of μ_j, α_t and ν_{jt} by regression. We directly compute the covariance conditional on t between μ_j and ν_{jt}. We get an estimate of $E(\mu_j \eta_j)$ by regressing this covariance on a time trend as suggested by equation (4). We provide also a test for the linear trend of $V(\nu_{jt}|t)$. We are not able to verify whether it has the convex profile as suggested by (6) because of the very low number of time periods.

With this setting, we are able to distinguish between two different sources of divergence or convergence. The first one is related to the evolution of the variance of the shocks, the second one to the correlation between the country-specific trends and country-specific fixed effects. A positive correlation (resp. negative) means that the countries with the average highest γ_{jt} are also the ones where they increase (resp. decrease) at most.

3.3 Correlations of estimated country specific propensies with macroeconomic indicators

In order to investigate the underlying country specific factors explaining the cross-country heterogeneity of SMEs financing behaviors, we examine the correlations between the estimated country-time propensities γ_{jt} and various country macroeconomic indicators reflecting the cost of

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[13] See for instance the Heterogenous Income Process examined by Baker (1997) or Guvenen (2009) in the literature on earnings.

bank loans, the macroeconomic environment and the banking industry structure. This analysis is then conducted at the country level. Due to our limited number of observations (11 countries observed during 8 semesters), we examine the correlations with one indicator Z_{jt}, controlling for time and country fixed effects (α_t^Z and μ_j^Z):

$$\gamma_{jt} = \pi_0 + \pi_1 Z_{jt} + \mu_j^Z + \alpha_t^Z + \nu_{jt}^Z \qquad (7)$$

The correlations between the country-time fixed effects (γ_{jt}) and the economic indicator (Z_{jt}) are then identified thanks to their evolutions over time and across countries. The estimation is done on sub-samples of countries to check for the robustness of the results.

We can apply the same kind of decomposition as in the paragraph 3.2 above to analyze the evolution of the conditional variance of γ_{jt} accounting for other explanatory factors.

4. Firm level determinants of financing choices

This section presents the main results obtained from the firm level estimates of the propensity to use bank loans, credit line/bank overdraft and trade credit (equation 1). The control variables FirmCharacteristics$_{it}$ are traditional firm level characteristics. The survey provides information on size (number of employees), age, annual turnover, and the main activity of the company. We also know whether the firm is part of another enterprise (subsidiary or branch) or whether it takes autonomous financial decisions. All these variables are available as categorical variables. They could be viewed as proxies for the ability to generate profits and to rely on internal finances. The main activity also accounts for investment opportunities and other features that are specific to an industry. Size and age are usual variables to account for informational problems with external fund providers. In addition, we know for which reasons (which are not mutually exclusive), a firm faces increased needs for external finances: because of fixed investment, inventories and working capital or/and because of the lack of internal funds (X_{it}). It is crucial information to control for investment opportunities and for the availability of internal funds at the firm level. Finally, the survey also provides qualitative information on the financing needs of firms. They are asked whether their needs for each financing source have increased over the past 6 months ($N_{it}^{S'}$). The regression results are reported in Table 3[14].

[INSERT TABLE 3]

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[14] We consider three specifications: first the standard firms' characteristics only, second, introducing the control for the nature of the financing needs and third, adding control for having expressed the need for the financing type S'. The various specifications provide coherent messages and we consider the more complete ones as our preferred ones. Detailed results available upon request.

We obtain significant estimated coefficients for the traditional firms' financing determinants that are in line with the empirical literature[15]. The financing behavior of SMEs differs across sectors, firm size and age. In particular, larger SMEs (in terms of number of employees) are more likely to use external financing source, everything else being equal. This size effect on the propensity to use bank loans could partly reflect the existence of informational problems as larger firms are deemed to be easier to be evaluated by external funds providers and to be more well-known than smaller firms.

The estimated coefficients associated with the age variable are also in line with such an interpretation. The propensity to use banking financing sources is lower for younger firms, even when controlling for their financing needs. As it is more difficult to evaluate these firms than well-established ones, they are more likely to face financing constraints. Another interesting result is the effect of the annual turnover (proxy for firms' profitability and ability to generate resources). It increases the probability that SMEs use bank loans (even when controlling for the financing needs), probably because it is good signal about the quality and the risk of the firm. The correlation with the propensity to use short term bank financing goes however the other way around. We also find a lower probability to use external financing sources over the past six months for SMEs which are subsidiary or branch of another firm, even when controlling for the needs in external finances.

One finds significant differences in the propensity of SMEs to use external financing sources depending on the underlying purpose (investment, inventories and working capital, or lack of internal resource). The propensity to have used bank loans is highly correlated with needs to finance investment. For credit line/overdraft and trade credit, the highest correlations are obtained with the needs to finance inventories and working capital.

As expected, the propensity of having expressed increased needs in a financing source and the propensity to have used this financing source are highly correlated. Moreover, firms with high propensity to have used bank loans are also firms that have expressed increased needs in terms of bank short term finance (bank overdraft, credit line) or firms that do not have increased needs in terms of trade credit. Concerning the use of overdraft/credit line, it is also positively correlated with increased needs in trade credit, while the propensity to have used trade credit is only significantly correlated with increased needs in trade credit. More generally, we find differentiated effects of several explanatory variables (see also age and annual turnover) on the propensity to use trade credit compared to the propensity to use short term bank finances. Such a result is in line with the literature which underlines the specific features of trade credit. As financing source, trade credit could be a substitute to credit lines when firms face financing constraints or tightening monetary policy (Ng et al., 1999, Biais and Gollier, 1997, Yang, 2011, Carbo-Valverde et al., 2016). Trade credit is however

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[15] It is an additional reason to acknowledge the information contents of the qualitative survey.

not only used for financing purposes, it is also a crucial element of buyer-supplier relationships that could be used to price discriminate or to reduce transaction costs (Petersen and Rajan, 1997).

5. Country-level analyses

5.1 Cross-country comparisons

From the probit specification (equation (1)), it is possible to compute for each country and time period the probability for a firm with a given set of characteristics to use a financing source. For the sake of simplicity, we consider an averaged firm over all countries and periods such that the resulting probability will only differ with respect to the period or country. For such a firm in a country j at period t, its propensity to use a financing source S would be:

$$V_{jt}^S = \beta^S FirmCharacteristics_{..} + \delta^S X_{..} + \sum_{S'} \theta^{S,S'} N_{..}^{S'} + \gamma_{jt}^S \tag{8}$$

Where the notation $A_{..}$ corresponds to the mean of the variable A_{it} over all firms and time periods. Based on this propensity, the net probability for an average firm to use the financing source S is simply $\Phi(V_{jt}^S)$ where Φ is the cdf of the normal distribution. The differences in the probabilities between countries and time periods will simply reflect the differences in the γ_{jt}^S.

Table 4 represents the raw and net probabilities of using different financing sources by country averaged over time. In most cases and for each financing source considered, raw and net probabilities are rather close in level and very much correlated. There are however some discrepancies between the two measures: for instance the raw probability for Greek firms to use bank loans is higher than the net probability for an average firm that would be located in Greece (0.29 vs 0.23). Moreover, the same average firm will have a higher probability in Austria or Belgium to use bank loans than the observed firms in these countries. This means that firms in Austria and Belgium have, on average, less favorable characteristics to use bank loans that firms in Greece. In particular, in Greece, firms express more often than in other countries increased needs for bank loans (see Table A.1). However, since the environment in Austria and Belgium is much more favorable for this financing source, the net probability for an average firm to use a bank loan is much higher, which overcomes the less favorable effect of the firm's observable characteristics in these countries.

[INSERT TABLE 4]

Countries differ not only with respect to the level of their probabilities to use bank loans, but also in their evolutions over time (Figure 1.a). For example, the net probability to use bank loans for

an averaged firm have sharply decreased in Greece (from 0.39 to 0.14 between 2010H1 and 2013H2) and Finland (from 0.35 to 0.20) but increased in Belgium (from 0.33 to 0.45).

[INSERT FIGURE 1]

For the other short-term external financing sources, credit lines and trade credit, probabilities to use them are much more stable (Figure 1.b and 1.c).

5.2 Cross-country divergence assessment

Using the firm level regression results, we compute the conditional variance $V(\gamma_{jt}^S|t)$ of the country specific propensities in order to test for the existence of a divergence process across country as regards SMEs financing behavior. We then compute the variance decomposition proposed in Section 3 to analyze what are the sources of this divergence process.

The conditional variances $V(\gamma_{jt}^S|t)$ have increased over the sample period (Figure 2). This divergence in SMEs financing behaviors across country is far much pronounced for banking sources. The variance of country-time specific propensity has been multiplied by 2.4 for bank loans, by 2.3 for overdraft/credit lines, and only by 1.2 for trade credit over the period 2010-2014. When excluding the countries that suffered severely from the financial and sovereign debt crisis (Greece, Ireland and Portugal), the average variances of the country specific propensities are lowered, pointing out that part of the divergence across country is driven by some countries. (Cf. Figure A.1 in the appendix).

[INSERT FIGURE 2]

We propose a formal test of the divergence process by regressing the variance of the estimated country-time specific propensities $V(\gamma_{jt}^S|t)$ on a time trend (Table 5). We obtain a significant estimated coefficient of the time trend on the overall conditional variance $V(\gamma_{jt}^S|t)$ for bank finances, confirming the cross-country divergence diagnosis. This result continues to hold for bank loans when excluding Greece, Ireland and Portugal.

The variance decomposition provides new insights on the sources of these cross-country divergences. According to the Figure 1, the increase in the variance of the country specific propensities over time ($V(\gamma_{jt}^S|t)$) is mostly due to the increase in the covariance $E(\mu_j^S \nu_{jt}^S|t)$ over time while the variance of the idiosyncratic shocks ($V(\nu_{jt}|t)$) exhibits a quite convex profile, as suggested in Section 3.2.

[INSERT TABLE 5]

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When regressing each component of the variance on a time trend (Table 5), the estimated coefficient of the time trend is positive and significant for the covariance term $E(\mu_j^S v_{jt}^S | t)$. It is non-significant for the variance term $V(v_{jt} | t)$. These empirical results are then in line with the specification of idiosyncratic shocks suggested by expression (4): a positive correlation between country specific trends and country specific effects increases the variance of the country specific propensities. This result continues to hold for bank loans when excluding Greece, Ireland and Portugal. The divergence across countries is then found to reflect the effect of country specific dynamics of the idiosyncratic shocks that are linked to the country specific effect (μ_j^S), and not to be due to an increase in the volatility of shocks between countries.

These results suggest that country specific factors play a crucial role in explaining the evolution of the Euro area cross-country heterogeneity in firms' financing behaviors over the period 2010-2014. They are related to the literature pointing out the persistence of firms' capital structure over time (Lemmon et al., 2008) and showing the influence of the institutional environment (legal and financial system) on firms' financing patterns (e.g. La Porta et al., 2000; Beck et al. 2008). Unlike this literature, we estimate country specific propensities as regard SMEs financing behaviour and analyze their convergence/divergence without, at this stage, considering the institutional features that may govern these evolutions. We find that cross-country heterogeneity as regard the use of bank loans by SMEs has increased. We show that this divergence is mainly related to the country specific dynamics of idiosyncratic shocks (related to their country specific effects) and not to an increase in the volatility of these shocks between countries. While identifying the sources of the development of the cross-country heterogeneity is beyond the scope of this paper, we take a step toward this direction and investigate whether various macroeconomic and banking structure indicators are correlated with the country specific propensities and with the components of their variance.

6. Correlations between SME's financing and macroeconomic and banking structure indicators

In order to investigate what could be the underlying factors explaining the heterogeneity in the estimated propensities to use the three financing sources and the sources of divergence across country, we consider a large set of country-level indicators. They are related to the cost of bank loans (interest rates of loans distributed by credit institutions to non-financial corporations), the banking industry structure (herfindahl index and number of branches of the credit institutions within the country, share of the 5 largest credit institutions, ratios of capital and deposits to total assets), the macroeconomic environment (spread of government bonds, spreads of CDS, GDP growth rate, unemployment rate, synthetic indicator of systemic risk) and the corporate specific environment (investment rate and leverage ratio of non-financial corporations). All indicators vary substantially across the considered countries and over time (see Table 6).

[INSERT TABLE 6]

6.1. Correlations with country specific propensities

Given the limited number of observations (eight time periods and eleven countries), we regress the country specific propensity on one macro-indicator at a time while we control for time and country fixed effects (Table 7).

[INSERT TABLE 7]

Interesting results are obtained concerning bank financing sources while there is no significant correlation with the trade credit propensities. As expected, one finds a significant positive correlation between the propensities to have use bank finances (both short and long term ones) with the value of distributed loans up to 1 million in a country and a negative one with the interest rate (of loans up to one million with an initial rate fixation period up to one year), even when controlling for country and time effects. One also finds a negative correlation with unemployment rate and, with the spreads of government bonds or CDS which does not however remain significant when excluding the peripheral countries that have been severely affected by the crisis (Greece, Portugal and Ireland, see Table B1 in the appendix). The most striking results are the significant correlations obtained with banking structure indicators, which are robust when excluding Greece, Ireland, and Portugal. Countries with increasing banking concentration (as measured by the share of the 5 largest credit institutions[16]) are also countries where SMEs have a decreasing propensity to use bank financing sources. Given that the estimated propensities account for demand effects, such a result may be interpreted as reflecting a decrease in SMEs' access to bank finances in countries facing increasing banking concentration. Along the same lines, a robust negative correlation is also obtained between the Herfindalh index of the credit institutions and the propensity to use credit lines/overdraft. Moreover, this propensity is also positively correlated with the number of local branches of the credit institutions. Such results may then be related to the discussion in the literature about the effect of market structure and competition in the banking sector on access to finance (Beck, 2013). They are both in line with the views pointing out the importance of local bank-firms' relationships in explaining firms' access to finance ("Banks that are physically closer to the firm have lower costs of monitoring and transacting with the firm", Petersen and Rajan, 1995), and with the traditional market efficiency argument that more competition improves credit availability for firms.

Concerning bank balance sheet indicators, some interesting results could be related to the discussions about the link between SMEs lending and regulatory policies (such as capital requirement)

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[16] See the Table A.1 in the appendix for the sources and definitions of the macro variables.

or banking activities (Beck. 2013). One obtains a positive correlation between the propensity related to the use of bank loans and the deposits to asset ratio which seems to indicate that countries where the banking industry tends to rely more on traditional activity are countries where SMEs have a higher propensity to rely on bank loans. Moreover, there is a negative correlation between the country specific propensity of SMEs to use credit line/overdraft and the measure of the capitalization of the banking industry: countries where the capitalization of the credits institutions was reinforced are also countries where the SMEs' propensity to rely on short term bank finances decreases.

6.2. Correlations with the divergence across country

In section 5, we find that the cross country divergence related to SMEs' use of bank loans have increased and is driven by a positive correlation between country specific trends and country specific effects. We now examine if this divergence process can be accounted for by a macro indicator relying on the specifications of equation (7) and on the results presented in Table 7. For each specification that corresponds to the introduction of a variable Z in equation (7) we can test if there remains a divergence related to the country-specific dynamics by computing the time trend associated with the covariance $E\left(\mu_j^{S,Z} v_{jt}^{S,Z}|t\right)$, S being the financing source examined. The results are presented in Table 8[17].

[INSERT TABLE 8]

The positive correlation between the time trend and the covariance between country specific trends and country specific effects found in Table 5 becomes non-significant when some of the macro-variables are accounted for in equation (7). It is the case for three banking industry structure indicators: the number of branches, the share of the 5 largest credit institutions, and the deposit to asset ratio. Note that the unemployment rate that also appeared as significantly correlated with this indicator (Table 7), but was not robust to exclusion of some countries from the dataset (see table B.2 in the appendix), does not capture this divergence.

In other words, the banking industry indicators provide crucial information: they are not only correlated with country-specific propensity to use bank loans (Table 7), they are also able to capture the divergence across country. It suggests that these variables are good candidate to explain the divergence across country as regards SMEs' use of bank loans. More broadly, this suggests that the evolution of banking structure has lead SME's financing structure to evolve differently across countries.

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[17] Table 8 focuses on bank loans as we found the divergence diagnosis robust for bank loans, even when excluding Greece, Ireland and Portugal. Results about the other financing sources are in the appendix (Table B3).

7. Conclusion

In this paper, we use a survey to SMEs covering euro area countries to build some country-specific indicator of the financing environment that similar SMEs would face in each country. We show that the abilities of firms to use bank loans have diverged since 2010 across the main countries of the Euro zone. Considering other external financing sources (abilities to use short-term credit or trade credit), the evidence of such a divergence process is weaker (for credit lines/overdraft) or null (for trade credit).

To do so, we have proposed a methodology to recover quantitative country-specific indicators of firms' financing abilities from qualitative indicators based on firm-level representative surveys. This allows us to establish a diagnostic of convergence or divergence of firms' financing conditions that controls for differences in their composition between countries.

We consider two potential mechanisms of the divergence. In the first one, the divergence would be related to an increase in the variance of shocks that all countries face. In the second one, the divergence would be related to countries having heterogeneous deterministic paths, shocks having a limited effect. We find that the second mechanism is prominent. Moreover, we find that this prominence disappears when we control for the evolution of the country-specific banking structures. Even if such evidence remains weak because of the limited time span that we have in our data, the relationship that we exhibit here between the banking structure and the SMEs propensity to use bank loans is worth to be further investigated since up to now only evidence within countries of this relationship has been examined (Beck, 2013).

Our results may have policy implications. In a context of a monetary and banking union in the Eurozone, if the divergence of financing of SMEs is closely related to the one of the banking institutional features, this gives some room for the regulation authorities to limit it.

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Table 1. Sample: Number of observations by country and survey rounds

survey round	Reference period (last six months)	Number of observations by country											All
		Austria	Belgium	Germany	Spain	Finland	France	Greece	Ireland	Italy	Netherlands	Portugal	
2010H1	March-September 2010	180	180	928	933	90	914	180	90	957	230	224	**4,906**
2010H2	September 2010-February 2011	461	494	890	890	485	898	485	485	909	466	478	**6,941**
2011H1	April-September 2011	465	485	905	918	485	902	485	484	897	470	472	**6,968**
2011H2	October 2011-March 2012	470	488	900	912	485	901	485	485	900	470	473	**6,969**
2012H1	April-September 2012	476	485	905	901	485	900	485	485	900	466	471	**6,959**
2012H2	October 2012-March 2013	470	485	902	903	485	902	485	485	903	470	470	**6,960**
2013H1	April-September 2013	471	485	900	901	486	901	485	485	900	470	470	**6,954**
2013H2	October 2013-March 2014	470	491	900	900	487	905	485	485	901	474	471	**6,969**
Total		**3,463**	**3,593**	**7,230**	**7,258**	**3,488**	**7,223**	**3,575**	**3,484**	**7,267**	**3,516**	**3,529**	**53,626**

Note: The source of the data is the SAFE survey run by the European Central Bank and the European Commission every six months. Our sample is restricted to firms with 1 to 249 employees. It covers a time period where the main questions used for the analysis were stable and it includes the Euro area countries that continuously participated in the survey over this time period.

Table 2. Percentage of SMEs using the sources of financing over the past 6 months (2010-2014)

	Austria	Belgium	Germany	Spain	Finland	France	Greece	Ireland	Italy	Netherlands	Portugal	**All**
Bank overdraft, credit line or credit card overdrafts	38.83	39.16	37.62	37.78	22.89	41.24	12.11	60.66	53.41	49.35	38.42	**41.36**
Bank loan (new or renewal)	36.55	39.42	36.36	34.88	27.23	35.99	25.43	33.15	37.04	32.2	25.92	**35.01**
Trade credit	22.25	24.3	16.83	41.28	51.05	18.97	48.17	71.59	44.1	33.22	31.66	**31.15**
Grants or subsidised loans	15.53	16.04	14.1	20.25	11.57	10.46	12.23	13.35	17.82	6.2	18.13	**14.97**
Other loan (from a related company, shareholders, etc.)	12.19	17.68	17.59	16.44	15.78	8.33	7.43	18.29	7.9	21.92	9.55	**13.32**
Leasing or hire-purchase or factoring	43.23	22.96	49.48	24.9	42.52	36.27	14.14	32.18	22.69	36.67	22.38	**33.40**
Debt security issued	0.28	0.83	0.29	2.18	1.18	0.81	18.07	3.55	1.76	0.53	0.89	**1.79**
Subordinated loans, participating loans, etc.	2.07	4.58	2.37	2.67	3.05	0.68	1.21	1.89	1.00	10.88	1.11	**2.33**
Equity (quoted or unquoted shares)	10.05	6.91	12.27	2.89	7.19	6.97	7.87	8.38	3.6	2.71	1.55	**6.62**
Retained earnings or sale of assets	34.28	19.45	36.55	23.73	45.79	14.15	21.61	38.79	23.71	24.55	5.27	**25.35**

Note: Weighted percentages obtained from the SAFE survey (ECB) for firms with 1 to 249 employees. Number of observations: 53,626.

Table 3. Propensity to have used bank loans, credit line/bank overdraft and trade credit over the past 6 months

	S=bank loans			S=credit line or bank overdraft			S=trade credit		
Main activity	Coeff.	Std.	Marginal Eff.	Coeff.	Std.	Marginal Eff.	Coeff.	Std.	Marginal Eff.
Manufacturing	0.074 ***	0.019	0.024	0.067 ***	0.019	0.022	0.290 ***	0.020	0.091
Construction	0.146 ***	0.023	0.048	0.136 ***	0.023	0.044	0.205 ***	0.023	0.064
Wholesale or retail trade	0.118 ***	0.017	0.038	0.132 ***	0.017	0.043	0.319 ***	0.018	0.099
Services	ref.			ref.			ref.		
Number of employees									
1 to 9 employees	ref.			ref.			ref.		
10 to 49 employees	0.221 ***	0.018	0.072	0.156 ***	0.018	0.050	0.114 ***	0.019	0.035
50 to 249 employees	0.268 ***	0.026	0.089	0.139 ***	0.026	0.045	0.183 ***	0.028	0.057
Financial independence									
Independent financial decisions	ref.			ref.			ref.		
Subsidiary or branch of another firm	-0.313 ***	0.024	-0.097	-0.217 ***	0.024	-0.068	-0.148 ***	0.025	-0.044
Annual turnover									
Up to € 2 million	ref.			ref.			ref.		
More than € 2 million and up to € 10 million	0.128 ***	0.020	0.042	-0.049 **	0.020	-0.016	0.177 ***	0.021	0.055
More than € 10 million	0.196 ***	0.028	0.065	-0.069 **	0.028	-0.022	0.286 ***	0.029	0.090
Age									
10 years and more	ref.			ref.			ref.		
5 years to 9 years	-0.066 ***	0.020	-0.021	-0.008	0.020	-0.003	-0.005	0.021	-0.002
2 years to 4 years	-0.123 ***	0.028	-0.039	-0.098 ***	0.028	-0.031	0.020	0.029	0.006
less than 2 years	-0.113 *	0.058	-0.036	-0.291 ***	0.058	-0.089	-0.090	0.062	-0.027
Reasons for extra external financing needs									
Investment	0.367 ***	0.019	0.126	0.140 ***	0.020	0.046	0.054 ***	0.021	0.017
Inventories and working capital	0.154 ***	0.019	0.051	0.197 ***	0.019	0.065	0.190 ***	0.019	0.059
Lack of internal funds	-0.013	0.020	-0.004	0.039 *	0.021	0.013	0.010	0.021	0.003
Increased needs in the following financing source									
Bank loans	0.921 ***	0.020	0.335	0.024	0.021	0.008	0.003	0.021	0.001
Trade credit	-0.099 ***	0.024	-0.032	0.078 ***	0.025	0.025	1.103 ***	0.025	0.373
Bank overdraft, credit line	0.119 ***	0.019	0.039	1.175 ***	0.019	0.412	-0.002	0.019	-0.001
country fixed effects, time fixed effects, country-time fixed effects	yes			yes			yes		

Note: Probit estimates (weighted regressions). The dependent variable is a qualitative variable equals to one when a firm answer that it has used the financing source over the past 6 months. The marginal effects are computed at the sample mean. Number of observations: 53,626. Full set of 11 countries: Austria, Belgium, Germany, Spain, Finland, France, Greece, Ireland, Italy, Netherlands, Portugal. Significant at ***1%. **5% and *10%.

Table 4. Average Probabilities to use a financing source

Country	S = Bank Loans		S = Credit Lines or Overdraft		S = Trade Credit	
	Raw	Net	Raw	Net	Raw	Net
AT	0.37	0.40	0.37	0.43	0.20	0.25
BE	0.38	0.41	0.35	0.42	0.23	0.25
DE	0.36	0.38	0.37	0.42	0.16	0.19
ES	0.35	0.35	0.35	0.36	0.38	0.43
FI	0.26	0.27	0.23	0.26	0.45	0.55
FR	0.36	0.34	0.40	0.39	0.18	0.19
GR	0.29	0.23	0.12	0.08	0.46	0.44
IE	0.33	0.34	0.61	0.61	0.71	0.72
IT	0.37	0.37	0.51	0.51	0.40	0.47
NL	0.31	0.33	0.46	0.52	0.30	0.35
PT	0.26	0.26	0.38	0.38	0.29	0.34

The raw probabilities are the weighted average over the whole period for each country of the dummies indicating the use of each financing source. Estimated probabilities to use the financing sources are computed for each period and country for a firm that would have the average characteristics of all firms in the sample based on the probit specification. The column (net) in the table present these estimated probabilities averaged over the period.

Table 5. Tests of divergence between countries of $V(\gamma_{jt}^S | t)$ and of its components

Dependent variable	S=bank loans			S=credit line or bank overdraft			S=trade credit		
	Time Trend			Time Trend			Time Trend		
	Linear Coefficient	Test of nullity P-value		Linear Coefficient	Test of nullity P-value		Linear Coefficient	Test of nullity P-value	
Full sample of 11 countries									
$V(\gamma_{jt}^S | t)$	0.008	0.040		0.025	0.003		0.005	0.278	
$V(v_{jt}^S | t)$	-0.003	0.118		-0.002	0.217		-0.002	0.205	
$E(\mu_j^S v_{jt}^S | t)$	0.005	0.004		0.012	0.003		0.003	0.084	
Excluding Greece, Ireland and Portugal									
$V(\gamma_{jt}^S | t)$	0.004	0.038		-0.002	0.561		0.008	0.350	
$V(v_{jt}^S | t)$	-0.001	0.689		-0.0002	0.495		0.001	0.615	
$E(\mu_j^S v_{jt}^S | t)$	0.002	0.016		-0.001	0.579		0.003	0.351	

μ_j^S is the country fixed effect and v_{jt}^S is the residual in the decomposition $\gamma_{jt}^S = \alpha_t^S + \mu_j^S + v_{jt}^S$ (see section 3.2). The full sample of 11 countries includes: Austria, Belgium, Germany, Spain, Finland, France, Greece, Ireland, Italy, Netherlands and Portugal.

Table 6. Macroeconomic and structural indicators of Euro area countries- 2010-2014

			Quantitative information on new loans	Cost of bank loans		Banking industry structure					Macroeconomic environment					Non financial corporations specific environnement	
			Loans up to 1 M.	Interest rate up 1 to 5 Years	Interest rate up to 1 year	Herfindahl index	Number of branches	Share of the 5 largest Credit Institutions	Capital to assets ratio	Deposits to assets ratio	Spread Government bonds	Spread CDS	Systemic risk	GDP growth rate	Unemployment rate	Investment rate	Leverage ratio
			(Millions of	(%)	(%)			(%)	(%)	(%)				(%)	(%)	(%)	(%)
AT	Austria	mean	1140	3.43	2.46	0.040	4355	36.9	9.6	32.3	62	28	0.190	3.2	4.5	25.3	45.0
		min	1074	3.02	2.19	0.038	4171	35.9	8.9	30.1	39	7	0.049	1.7	4.2	14.2	43.3
		max	1189	3.92	2.94	0.042	4460	38.4	10.7	35.6	120	64	0.396	5.0	5.0	28.4	46.3
BE	Belgium	mean	6578	3.04	2.43	0.117	3831	68.5	5.1	43.2	118	73	0.294	3.0	7.9	21.5	33.7
		min	6338	2.62	2.04	0.098	3673	64.0	4.8	39.1	67	25	0.078	1.5	7.2	20.7	32.3
		max	6932	3.38	2.95	0.144	3973	74.9	5.8	48.4	224	153	0.637	5.2	8.5	22.0	34.9
DE	Germany	mean	9602	4.09	3.30	0.030	37193	32.4	5.0	38.2	0	0	0.114	3.5	5.7	15.9	37.1
		min	8890	3.60	2.88	0.027	35720	30.6	4.7	36.3	0	0	0.028	1.0	5.1	8.5	35.2
		max	10435	4.65	3.85	0.032	39494	33.5	5.8	41.0	0	0	0.210	6.0	7.0	17.7	38.5
ES	Spain	mean	13462	5.63	4.67	0.064	38121	50.4	10.4	46.1	297	192	0.615	-0.7	23.3	23.7	41.5
		min	11006	4.90	3.56	0.053	32856	44.3	8.1	42.1	146	120	0.262	-2.1	19.9	22.9	37.5
		max	17672	6.19	5.22	0.078	43164	56.4	13.6	49.3	491	310	0.908	0.4	26.1	24.5	43.4
FI	Finland	mean	636	4.03	2.86	0.332	1389	81.7	4.7	23.5	34	-2	0.139	3.0	8.1	18.2	40.6
		min	570	3.60	2.62	0.301	1244	79.0	4.0	19.8	27	-17	0.029	-0.5	7.7	17.4	37.9
		max	699	4.57	3.27	0.370	1475	84.1	5.3	27.0	53	22	0.226	6.8	8.5	19.0	42.1
FR	France	mean	6300	4.02	2.54	0.058	38291	46.8	6.0	22.5	71	44	0.184	2.2	9.7	19.3	28.3
		min	5828	3.45	2.13	0.055	37743	44.6	5.7	20.2	38	29	0.064	1.0	9.2	18.8	26.0
		max	7001	4.63	3.12	0.061	38784	48.3	6.3	24.5	124	73	0.348	3.9	10.3	19.8	29.9

			Quantitative information on new loans	Cost of bank loans		Banking industry structure					Macroeconomic environment					Non financial corporations specific environnement	
			Loans up to 1 M.	Interest rate up 1 to 5 Years	Interest rate up to 1 year	Herfindahl index	Number of branches	Share of the 5 largest Credit Institutions	Capital to assets ratio	Deposits to assets ratio	Spread Government bonds	Spread CDS	Systemic risk	GDP growth rate	Unemployment rate	Investment rate	Leverage ratio
			(Millions of euro)	(%)	(%)			(%)	(%)	(%)				(%)	(%)	(%)	(%)
GR	Greece	mean	449	7.14	6.49	0.159	3567	80.5	10.5	39.8	1235	6574	0.809	-6.7	21.5	17.0	57.6
		min	320	5.94	5.53	0.121	2899	70.6	7.7	36.9	640	568	0.541	-9.7	12.7	8.3	43.5
		max	658	7.86	7.16	0.217	4005	94.0	14.8	42.9	2316	536	0.959	-5.1	27.5	20.8	65.0
IE	Ireland	mean	369	n.a.	4.35	0.066	1078	47.6	9.6	16.0	415	285	0.573	2.0	13.9	9.6	37.4
		min	270	n.a.	3.80	0.063	1009	46.4	5.3	13.1	171	97	0.135	-0.7	12.1	8.5	18.1
		max	626	n.a.	4.89	0.070	1162	49.9	12.4	19.8	772	10731	0.935	4.8	14.7	11.2	44.5
IT	Italy	mean	13907	5.34	4.05	0.041	32775	39.7	9.2	35.6	278	190	0.577	0.6	10.2	20.7	40.3
		min	12978	4.38	2.99	0.041	31241	39.5	8.6	33.8	129	104	0.221	-1.9	8.4	19.5	38.3
		max	14379	6.05	4.76	0.042	33631	40.1	9.8	37.3	435	308	0.868	2.7	12.5	21.6	40.9
NL	Netherlands	mean	1548	4.15	3.32	0.207	2477	83.5	4.6	36.3	37	12	0.154	1.4	5.4	14.6	33.9
		min	1277	3.77	2.96	0.203	2010	82.1	4.1	34.8	23	0	0.037	0.1	4.4	13.8	17.7
		max	1726	4.72	3.80	0.212	2864	84.4	5.0	38.9	53	28	0.333	3.5	6.8	15.1	36.8
PT	Portugal	mean	1699	6.96	6.49	0.120	6294	70.4	8.4	39.5	610	443	0.732	-0.9	14.4	21.1	40.0
		min	1532	6.32	5.30	0.118	5963	69.7	7.3	37.9	255	179	0.465	-5.0	12.0	18.8	37.8
		max	1902	7.66	7.52	0.121	6587	70.9	10.2	41.1	1084	817	0.950	2.3	16.4	24.7	41.8

Note: All figures are related to six months periods corresponding to the survey rounds. For data originally available as monthly statistics, the figures have been aggregated over the reference period (loans up to one million) or averaged (for the other variables). For annual frequency indicator, the figures are weighted average of n and n+1 indictors (by the number of covered months) when the survey round run over two calendar years. The detailed information on the source of each indicator is provided in the appendix A.

Table 7. Regressions of the country specific propensities (γ_{jt}^S) on macro indicators (one by one) - Full sample

Macro and banking structure indicators	S=bank loans			S=credit line or bank overdraft			S=trade credit		
	Parameter	P-value	R-square	Parameter	P-value	R-square	Parameter	P-value	R-square
Loans up to 1 M.	0.470	0.001	0.690	0.329	0.008	0.934	-0.027	0.872	0.901
Interest rate 1 to 5 Years	-0.003	0.940	0.671	-0.061	0.122	0.934	0.094	0.069	0.868
Interest rate up to 1 year	-0.103	0.029	0.674	-0.124	0.004	0.942	-0.037	0.514	0.898
Herfindahl index	-3.501	0.000	0.708	-4.199	0.000	0.953	1.649	0.172	0.900
Number of branches	0.905	0.015	0.679	1.148	0.001	0.944	-0.128	0.774	0.898
Share of the 5 largest Credit Institutions	-0.284	0.000	0.746	-0.274	0.000	0.954	0.068	0.374	0.899
Capital to assets ratio	-3.066	0.052	0.669	-3.235	0.025	0.939	0.876	0.640	0.898
Deposits to assets ratio	3.650	0.000	0.717	2.344	0.010	0.940	-1.656	0.160	0.900
Spread government bonds	-0.021	0.014	0.680	-0.029	0.001	0.947	0.006	0.476	0.886
Spread CDS	-0.006	0.000	0.795	-0.005	0.001	0.963	0.001	0.430	0.886
Systemic risk	-0.025	0.880	0.650	-0.146	0.337	0.935	-0.248	0.202	0.900
GDP growth rate	-0.017	0.135	0.661	-0.008	0.450	0.935	0.020	0.134	0.901
Unemployment rate	-0.045	0.000	0.774	-0.049	0.000	0.967	0.004	0.704	0.898
Investment rate	0.008	0.345	0.613	0.020	0.007	0.938	0.018	0.062	0.909
Leverage ratio	0.004	0.455	0.653	0.005	0.274	0.935	-0.008	0.141	0.901

OLS estimates. The dependent variable is the country time specific propensity of using the financing source S $(\gamma_{jt}^{S,U})$. The regressions are done considering one by one macro indicator as explanatory variable, and controlling for country and time effects. See Table A2 in the appendix for the definitions of the macro and banking structure indicators. Loans up to one million and the number of branches are in log, and we apply a logistic transformation on the share of the 5 largest credit institutions (log (x)/(100-x)). 88 observations. The full sample of 11 countries includes: Austria, Belgium, Germany, Spain, Finland, France, Greece, Ireland, Italy, Netherlands and Portugal.

Table 8. Tests of divergence between countries of $V(\gamma_{jt}^S)$ and of its components when accounting for macro or banking indicators

Dependent variable	S=bank loans		
	Explanatory variables		
	macro variable included in equation 7	Time Trend	
		Linear Coefficient	P value
$E\left(\mu_j^S v_{jt}^S \mid t\right)$	-	0.005	0.004
	Loans up to 1 M.	-0.003	0.263
	Interest rate up 1 to 5 Years	0.005	0.012
	Interest rate up to 1 year	0.003	0.006
	Herfindahl index	-0.002	0.005
	Number of branches	0.000	0.632
	Share of the 5 largest Credit Institutions	-0.001	0.754
$E\left(\mu_j^{S,Z} v_{jt}^{S,Z} \mid t\right)$	Capital to assets ratio	0.004	0.007
	Deposits to assets ratio	0.001	0.616
	Spread government bonds	0.003	0.002
	Spread CDS	0.002	0.046
	Systemic risk	0.005	0.004
	GDP growth rate	0.006	0.006
	Unemployment rate	0.002	0.017
	Investment rate	0.003	0.057
	Leverage ratio	0.006	0.005

μ_j^S is the country fixed effect and v_{jt}^S is the residual in the decomposition $\gamma_{jt}^S = \alpha_t^S + \mu_j^S + v_{jt}^S$ (see section 3.2). The same decomposition applies for $\gamma_{jt}^{S,Z}$.

The full sample of 11 countries includes: Austria, Belgium, Germany, Spain, Finland, France, Greece, Ireland, Italy, Netherlands and Portugal.

Figure 1: Evolution of net probabilities of using financing sources between 2010-1 and 2013-2

Figure 1.a: Bank Loans
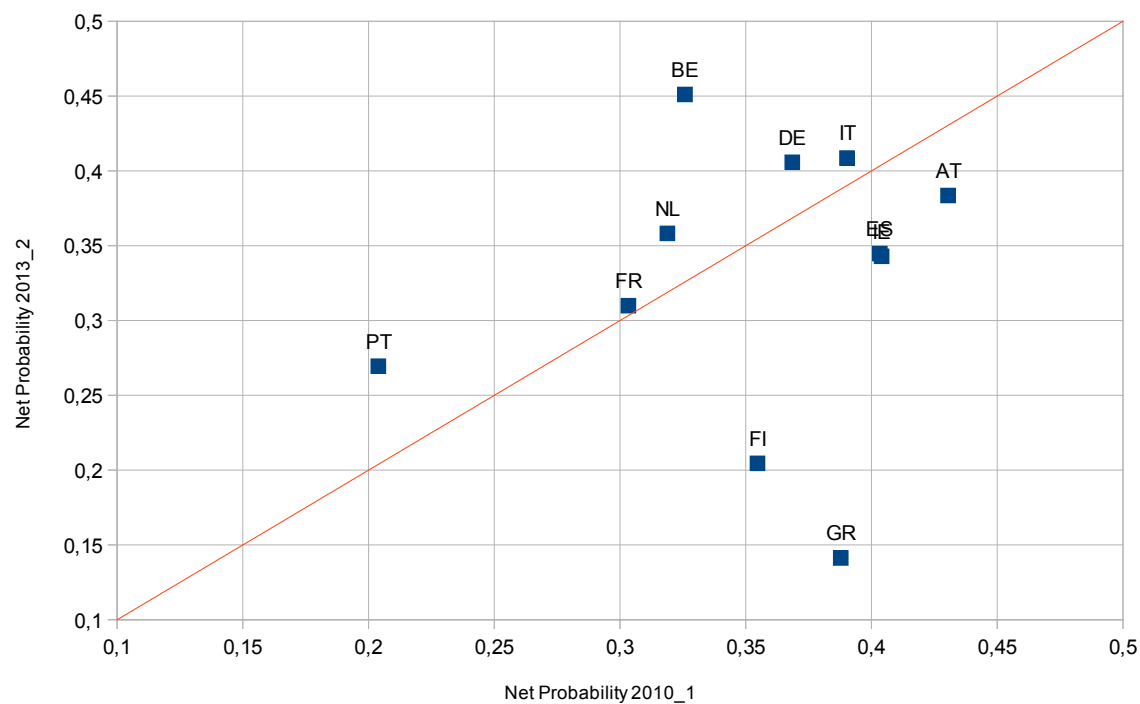
Figure 1.b: Credit Lines
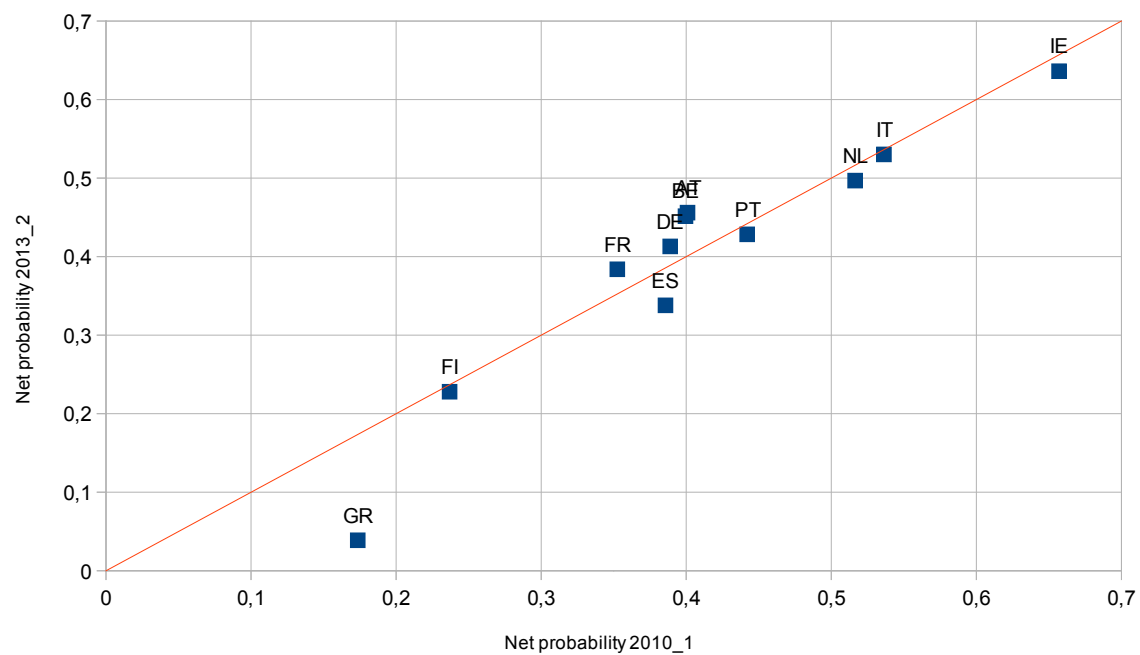
Figure 1.c: Trade Credit
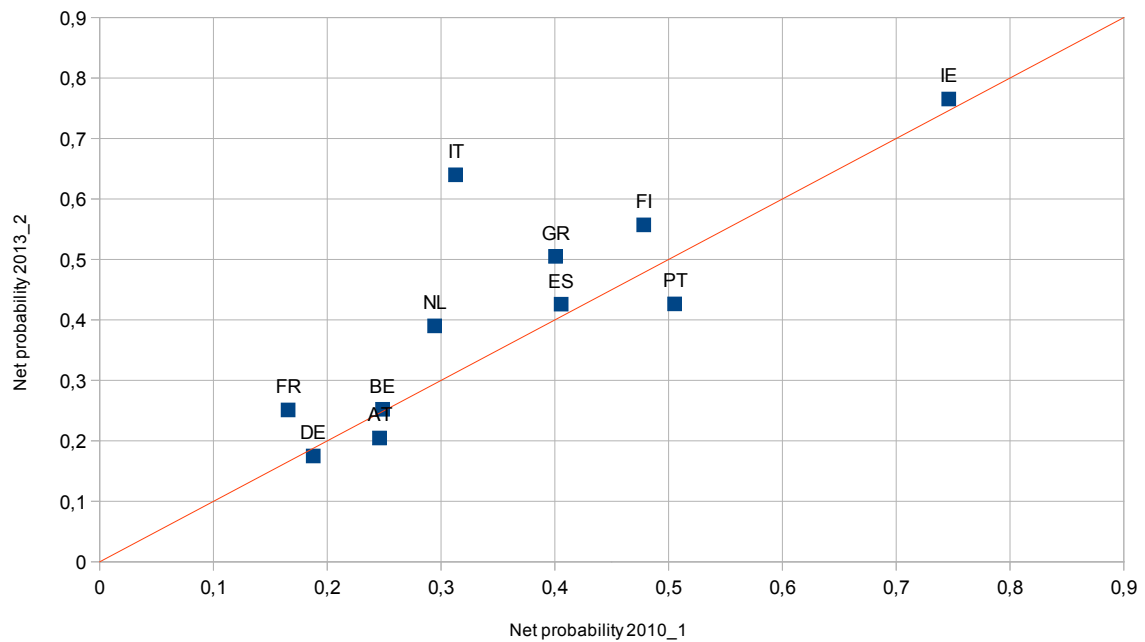
These figures display the net probability to use bank loans, credit line or bank overdraft and trade credit for two survey periods 2010-1 and 2013-2. These probabilities are computed for an averaged firm. The net probabilities are computed from firm level regressions (probit models) using the SMEs country representative survey SAFE. They account for firm level characteristics (age, size, annual turnover, main activity, belongs to a group or not) and for firm financing demand (increased needs, reasons for increased needs).

Figure 2. Variance decomposition of the country-specific propensities $V(\gamma_{jt}^{S}|t)$

S=Bank loans

S=Credit lines/overdraft
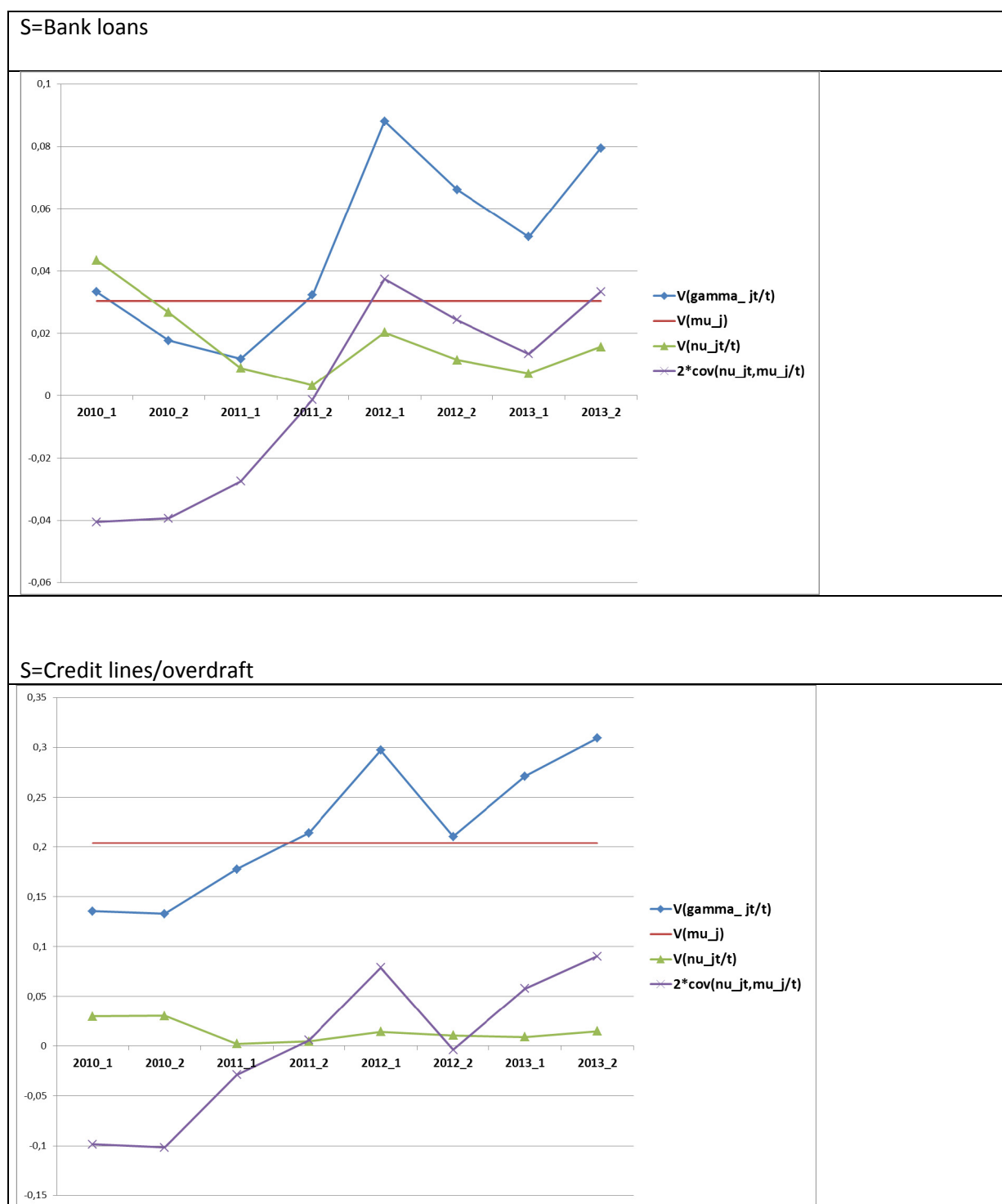
Figure 2 (continued) Variance decomposition of the country-specific propensities $V(\gamma_{jt}^S|t)$

S=Trade credit

These figure displays the evolution of the variance of the country time specific propensities (V(gamma_jt/t) to use bank loans and of its three components: the variance of the country fixed effects (V(mu_j), the conditional variance of the idiosyncratic shocks at time t V(nu_jt/t), the correlation between the shocks and the country specific effect (2*cov(nu_jt,mu_j/t)). The country specific propensities are estimated from firm level regressions (probit models) using the SMEs country representative survey SAFE. They account for firm level characteristics (age, size, annual turnover, main activity, belongs to a group or not) and for firm financing demand (increased needs, reasons for increased needs).

Appendix A: Data

Dependent variables

The question in the SAFE survey about the use of external financing sources is as follows:

Q4. Turning to the financing structure of your firm, to finance normal day-to-day business operations or more specific projects or investments, you can use internal funds and external financing.
For each of the following sources of financing, could you please say whether you used them during the past 6 months, did not use them but have experience with them, or did not use them because this source of financing has never been relevant to your firm?
[READ OUT – ONE ANSWER PER LINE]
- Used in the past 6 months.. 1
- Did not use in the past 6 months, but have experience with this source of financing 2
- Did not use as this source of financing has never been relevant to my firm [INSTRUMENT IS NOT APPLICABLE TO MY FIRM] 7
- [DK] 9

In order to define our dependent variables U_{it}^S, we focus on the answers for the three following financing sources and define our dependent variables as equal to one when the variable takes the value 1 and equal to zero otherwise:

c) Bank overdraft, credit line or credit cards overdraft [BANK OVERDRAFT = NEGATIVE BALANCE ON A BANK ACCOUNT WITH OR WITHOUT SPECIFIC PENALTIES; CREDIT LINE = PRE ARRANGED LOAN THAT CAN BE USED, IN FULL OR IN PART, AT DISCRETION AND WITH LIMITED ADVANCE WARNING; CREDIT CARD OVERDRAFT = NEGATIVE BALANCE ON THE CREDIT CARD] 1 2 7 9
d) Bank loan (new or renewal; excluding overdraft and credit lines) 1 2 7 9
e) Trade credit [= PURCHASE OF GOODS OR SERVICES FROM ANOTHER BUSINESS WITHOUT MAKING IMMEDIATE CASH PAYMENT] 1 2 7 9

Explanatory variables

In addition to the traditional variables about firm size, age, annual turnover, etc (define as $FirmCharacteristics_{it}$ in equation (1)) that are available as categorical variables, we control for increases in external financing needs thanks to the following question ($N_{it}^{S\prime}$):

Q5. For each of the following types of external financing, please tell me if your needs increased, remained unchanged or decreased over the past 6 months?
[READ OUT – ONE ANSWER PER LINE]
- Increased..1
- Remained unchanged 2
- Decreased 3
- [INSTRUMENT NOT APPLICABLE TO MY FIRM] 7
- [DK] 9
f) Bank overdraft, credit line or credit cards overdraft.. 1 2 3 7 9
a) Bank loans (new or renewal; excluding overdraft and credit lines)........................ 1 2 3 7 9

b) Trade credit *1 2 3 7 9*

We also control for the reason why a firm faces increased needs for external financing (X_{it} in equation (1)) thanks to the following question:

Q6. For each of the following items, would you say that they have increased, decreased, or had no impact on your firm's needs for external financing over the past 6 months?
[READ OUT – ONE ANSWER PER LINE]
- Increased needs for external financing.......................................1
- No impact on needs for external financing................................2
- Decreased needs for external financing....................................3
- [NOT RELEVANT, DID NOT OCCUR] 7
- [DK] 9

a) Fixed Investment.. 1 2 3 7 9
b) Inventories and working capital... 1 2 3 7 9
c) Availability of internal funds 1 2 3 7 9

The sample statistics for the firm level variables are in table A.1.

Table A.1 Sample statistics: means of firm level variables

Country	Number of observations	Use of the external financing source			Main activity				Number of employees		
		Bank Loans	Trade Credit	Bank Overdraft	Manufacturing	Construction	Wholesale or retail trade	Services	1 to 9	10 to 49 employees	50 to 250 employees
AT	3463	0.365	0.395	0.224	0.216	0.088	0.258	0.438	0.373	0.379	0.248
BE	3593	0.413	0.395	0.252	0.191	0.126	0.306	0.377	0.404	0.412	0.184
DE	7230	0.363	0.375	0.167	0.283	0.102	0.190	0.425	0.334	0.342	0.324
ES	7258	0.375	0.382	0.460	0.228	0.128	0.244	0.400	0.335	0.341	0.325
FI	3488	0.259	0.227	0.519	0.212	0.154	0.160	0.474	0.411	0.410	0.179
FR	7223	0.371	0.420	0.200	0.251	0.094	0.325	0.330	0.331	0.338	0.330
GR	3575	0.293	0.112	0.519	0.168	0.092	0.579	0.161	0.408	0.408	0.184
IE	3484	0.313	0.603	0.727	0.208	0.097	0.375	0.321	0.410	0.410	0.179
IT	7267	0.404	0.551	0.504	0.466	0.070	0.217	0.247	0.329	0.335	0.336
NL	3516	0.325	0.497	0.338	0.151	0.104	0.256	0.489	0.381	0.377	0.242
PT	3529	0.284	0.408	0.326	0.243	0.128	0.292	0.338	0.379	0.380	0.241
All	53626	0.352	0.406	0.371	0.257	0.105	0.278	0.360	0.361	0.366	0.273

Table A.1 (continued): Sample statistics

Country	Financial independence	Annual turnover				Age				
	Subsidiary or Branch of another firm	Up to € 2 million	More than € 2 million and up to € 10 million	More than € 10 million	Don't know	10 years and more	5 years to 9 years	2 years to 4 years	less than 2 years	Don't know
AT	0.158	0.263	0.200	0.511	0.025	0.801	0.125	0.058	0.015	0.072
BE	0.179	0.289	0.195	0.480	0.036	0.773	0.134	0.078	0.014	0.020
DE	0.119	0.273	0.194	0.512	0.021	0.814	0.112	0.057	0.017	0.088
ES	0.093	0.297	0.181	0.488	0.034	0.817	0.131	0.044	0.008	0.037
FI	0.118	0.283	0.146	0.563	0.008	0.830	0.116	0.040	0.013	0.015
FR	0.114	0.285	0.240	0.467	0.008	0.733	0.152	0.097	0.018	0.020
GR	0.051	0.299	0.119	0.549	0.034	0.787	0.142	0.061	0.010	0.021
IE	0.137	0.273	0.150	0.560	0.018	0.856	0.100	0.035	0.008	0.029
IT	0.069	0.281	0.259	0.447	0.013	0.811	0.121	0.059	0.009	0.036
NL	0.170	0.256	0.213	0.504	0.027	0.740	0.154	0.080	0.027	0.018
PT	0.105	0.244	0.074	0.629	0.053	0.801	0.129	0.061	0.010	0.018
All	0.114	0.279	0.190	0.508	0.023	0.796	0.129	0.062	0.013	0.037

Table A.1 (continued): Sample statistics

Country	Reasons for extra external financing needs			Increased needs in the following financing source		
	Investment	Inventories and Working Capital	Lack of Internal Funds	Bank Loans	Trade Credit	Bank Overdraft
AT	0.133	0.153	0.073	0.114	0.047	0.143
BE	0.183	0.196	0.168	0.162	0.091	0.158
DE	0.143	0.137	0.070	0.122	0.035	0.131
ES	0.169	0.260	0.234	0.198	0.164	0.212
FI	0.151	0.157	0.066	0.144	0.069	0.104
FR	0.214	0.269	0.197	0.214	0.088	0.246
GR	0.187	0.305	0.247	0.311	0.278	0.211
IE	0.077	0.236	0.233	0.160	0.222	0.251
IT	0.156	0.205	0.177	0.217	0.164	0.286
NL	0.166	0.230	0.073	0.147	0.119	0.201
PT	0.167	0.184	0.190	0.173	0.122	0.209
All	0.162	0.214	0.161	0.181	0.124	0.202

Table A.2. Definitions and sources of the macroeconomic and structural indicators

Macroeconomic indicator	Description	Original source	Original frequency
Loans up to 1 million	Bank business volumes - loans to corporations of up to EUR 1M (new business)	MFI Interest Rate Statistics - ECB	monthly
Interest rate up 1 to 5 Yea	Bank interest rates - loans to corporations of up to EUR 1M with an initial rate fixation period of over one & up to five years (new business)	MFI Interest Rate Statistics - ECB	monthly
Interest rate up to 1 year	Bank interest rates - loans to corporations of up to EUR 1M with a floating rate and an initial rate fixation period of up to one year (new business)	MFI Interest Rate Statistics - ECB	monthly
Spread of government bonds	Long-term interest rate for convergence purposes - Debt security issued (maturity=10 years)	Interest rate statistics- ECB	monthly
Spread CDS	Sovereign credit default swaps (10 years)	Thomson Reuters	monthly
Systemic risk	Sovereign Systemic Stress Composite Indicator	ECB	monthly
GDP growth rate	Gross domestic product at market prices	Eurostat	quarterly
Unemployment rate	Unemployment rate (Eurostat definition)	Eurostat	annual
Investment rate	Ratio of gross fixed capital formation to gross value added	Euro Area Accounts - ECB	annual
Leverage ratio	Ratio of debt to total assets/liabilities	Euro Area Accounts - ECB	annual
Herfindahl index	Herfindahl index for credit institutions based on total assets	Banking structural financial indicators-ECB	annual
Number of branches	Number of branches of credit institutions	Banking structural financial indicators-ECB	annual
Share of the 5 largest Credit Institutions	Shares of the 5 largest credit institutions in total assets	Banking structural financial indicators-ECB	annual
Capital to assets ratio	Ratio of capital (outstanding amounts) to total assets (outstanding amounts)	Monetary Statistics - ECB	monthly
Deposits to assets ratio	Ratio of deposits (outstanding amounts) to total assets (outstanding amounts)	Monetary Statistics - ECB	monthly

Most of the macroeconomic and structural indicators are available from the ECB statistical data warehouse: https://sdw.ecb.europa.eu/. Other sources are from Eurostat or Thomson Reuters. For data originally available as monthly statistics, the figures have been aggregated over the reference period (loans up to one million) or averaged (for the other variables). For annual frequency indicator, the figures are weighted average of n and n+1 indictors (by the number of covered months) when the survey round run over two calendar years.

Appendix B: additional results

Table B1. Regressions of the country specific propensities $(\gamma_{jt}^{S,U})$ on macro indicators (one by one)- Subsample of country excluding Greece, Ireland and Portugal

Macro and banking structure indicators	S=bank loans			S=credit line or bank overdraft			S=trade credit		
	Parameter	P-value	R-square	Parameter	P-value	R-square	Parameter	P-value	R-square
Loans up to 1 M.	0.444	0.010	0.691	0.197	0.086	0.939	0.033	0.900	0.896
Interest rate 1 to 5 Years	0.039	0.321	0.652	-0.019	0.450	0.936	0.070	0.222	0.899
Interest rate up to 1 year	-0.069	0.078	0.667	-0.033	0.191	0.937	0.089	0.117	0.901
Herfindahl index	0.122	0.920	0.645	-2.078	0.006	0.945	1.837	0.291	0.899
Number of branches	0.203	0.512	0.648	0.501	0.010	0.943	0.094	0.835	0.896
Share of the 5 largest Credit Institutions	-0.289	0.024	0.681	-0.198	0.017	0.942	-0.140	0.464	0.897
Capital to assets ratio	-0.729	0.724	0.646	-3.847	0.003	0.946	-3.462	0.245	0.899
Deposits to assets ratio	2.047	0.015	0.686	-0.090	0.873	0.935	-2.161	0.082	0.903
Spread government bonds	-0.033	0.250	0.654	-0.039	0.099	0.939	0.023	0.594	0.897
Spread CDS	-0.055	0.207	0.656	-0.040	0.156	0.938	0.050	0.440	0.897
Systemic risk	-0.246	0.118	0.663	-0.167	0.103	0.939	-0.033	0.888	0.896
GDP growth rate	0.009	0.653	0.646	-0.022	0.084	0.939	0.041	0.144	0.901
Unemployment rate	-0.015	0.292	0.653	-0.015	0.092	0.939	0.041	0.041	0.905
Investment rate	-0.008	0.308	0.644	0.008	0.107	0.941	0.007	0.494	0.901
Leverage ratio	-0.009	0.143	0.660	0.008	0.054	0.940	-0.004	0.635	0.897

OLS estimates. The dependent variable is the country time specific propensity of using the financing source S $(\gamma_{jt}^{S,U})$. The regressions are done considering one by one macro indicator as explanatory variable, and controlling for country and time effects. See Table A2 in the appendix for the definitions of the macro and banking structure indicators. Loans up to one million and the number of branches are in log, and we apply a logistic transformation on the share of the 5 largest credit institutions (log (x)/(100-x)). 64 observations. Subsample of 8 countries excluding Greece, Ireland, and Portugal.

Table B2. Robustness: Sub-sample of country excluding Greece, Ireland, and Portugal- Regressions of the variance of the country-time specific propensities and its components on a time trend and on macro variables (one by one)

Dependent variable	macro variable included in equation 7	S=bank loans		S=credit line or bank overdraft		S=trade credit	
		Trend		Trend		Trend	
		Parameter	P-value	Parameter	P-value	Parameter	P-value
$V(\gamma_{jt}|t)$	-	0.0044	0.038	-0.0016	0.561	0.0083	0.350
$V(v_{jt}|t)$	-	-0.0004	0.689	-0.0002	0.495	0.0008	0.615
$E(\mu_j v_{jt}|t)$	-	0.0021	0.016	-0.0006	0.579	0.0033	0.351
	Loans up to 1 M.	-0.0049	0.032	-0.0014	0.098	0.0027	0.464
	Interest rate 1 to 5 Years	0.0023	0.013	-0.0005	0.614	0.0012	0.726
	Interest rate up to 1 year	0.0021	0.026	-0.0006	0.564	0.0004	0.905
	Herfindahl index	0.0022	0.016	-0.0007	0.104	0.0040	0.138
	Number of branches	0.0001	0.763	-0.0012	0.167	0.0036	0.347
	Share of the 5 largest Credit Institutions	0.0012	0.074	0.0013	0.291	0.0015	0.725
	Capital to assets ratio	0.0021	0.014	-0.0005	0.674	0.0042	0.270
$E(\mu_j^{S,Z} v_{jt}^{S,Z}|t)$	Deposits to assets ratio	-0.0004	0.528	-0.0006	0.577	0.0001	0.973
	Spread government bonds	0.0021	0.022	-0.0060	0.592	0.0030	0.456
	Spread CDS	0.0021	0.026	-0.0005	0.631	0.0020	0.545
	Systemic risk	0.0020	0.032	-0.0006	0.530	0.0034	0.336
	GDP growth rate	0.0020	0.020	-0.0003	0.781	0.0043	0.187
	Unemployment rate	0.0018	0.026	-0.0004	0.705	0.0014	0.709
	Investment rate	0.0021	0.022	-0.0004	0.735	0.0006	0.868
	Leverage ratio	0.0017	0.031	0.0001	0.956	0.0031	0.410

Table B3. Tests of divergence between countries of $V(\gamma_{jt}^S)$ and of its components: Detailed results (full sample)

		S=bank loans		S=credit line or bank overdraft		S=trade credit	
		Explanatory variables					
Dependent variable	macro variable included in equation 7	time trend		time trend		time trend	
		Linear Coefficient	P-value	Linear Coefficient r	P-value	Linear Coefficient	P-value
$E(\mu_j v_{jt}\mid t)$	-	0.005	0.004	0.012	0.003	0.003	0.084
$E(\mu_j^{S,Z} v_{jt}^{S,Z}\mid t)$	Loans up to 1 M.	-0.003	0.263	0.006	0.031	0.003	0.106
	Interest rate 1 to 5 Years	0.005	0.012	0.007	0.051	0.000	0.895
	Interest rate up to 1 year	0.003	0.006	0.009	0.004	0.004	0.017
	Herfindahl index	-0.002	0.005	0.002	0.474	0.003	0.026
	Number of branches	0.000	0.632	0.001	0.556	0.003	0.132
	Share of the 5 largest Credit Institutions	-0.001	0.754	0.012	0.036	0.005	0.006
	Capital to assets ratio	0.004	0.007	0.011	0.009	0.002	0.185
	Deposits to assets ratio	0.001	0.616	0.011	0.005	0.002	0.428
	Spread government bonds	0.003	0.002	0.009	0.025	0.003	0.218
	Spread CDS	0.002	0.046	0.001	0.593	0.031	0.080
	Systemic risk	0.005	0.004	0.011	0.004	0.002	0.173
	GDP growth rate	0.006	0.006	0.013	0.004	0.002	0.120
	Unemployment rate	0.002	0.017	0.002	0.267	0.003	0.126
	Investment rate	0.003	0.057	0.005	0.217	-0.001	0.659
	Leverage ratio	0.006	0.005	0.013	0.005	0.001	0.651

Estimated parameters of the time trend in regressions of the dependent variable $E(\mu_j^S v_{jt}^S\mid t)$ or $E(\mu_j^{S,Z} v_{jt}^{S,Z}\mid t)$ on a time trend. The full sample of 11 countries includes: Austria, Belgium, Germany, Spain, Finland, France, Greece, Ireland, Italy, Netherlands, and Portugal.

Figure A.1. Decomposition of the variance of the country-specific propensities $V(\gamma_{jt}^S|t)$**-
Subsample of country excluding Greece, Ireland and Portugal**
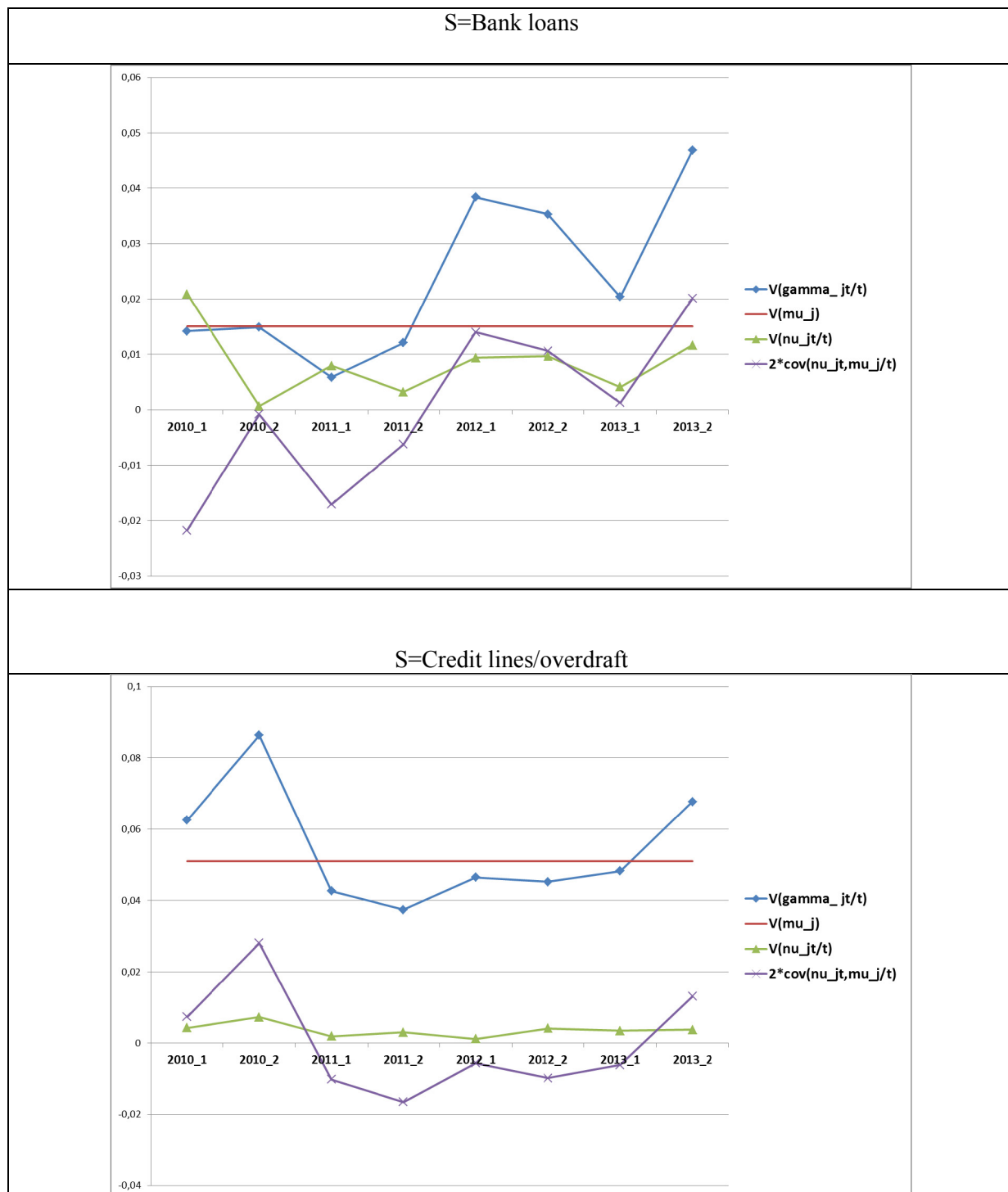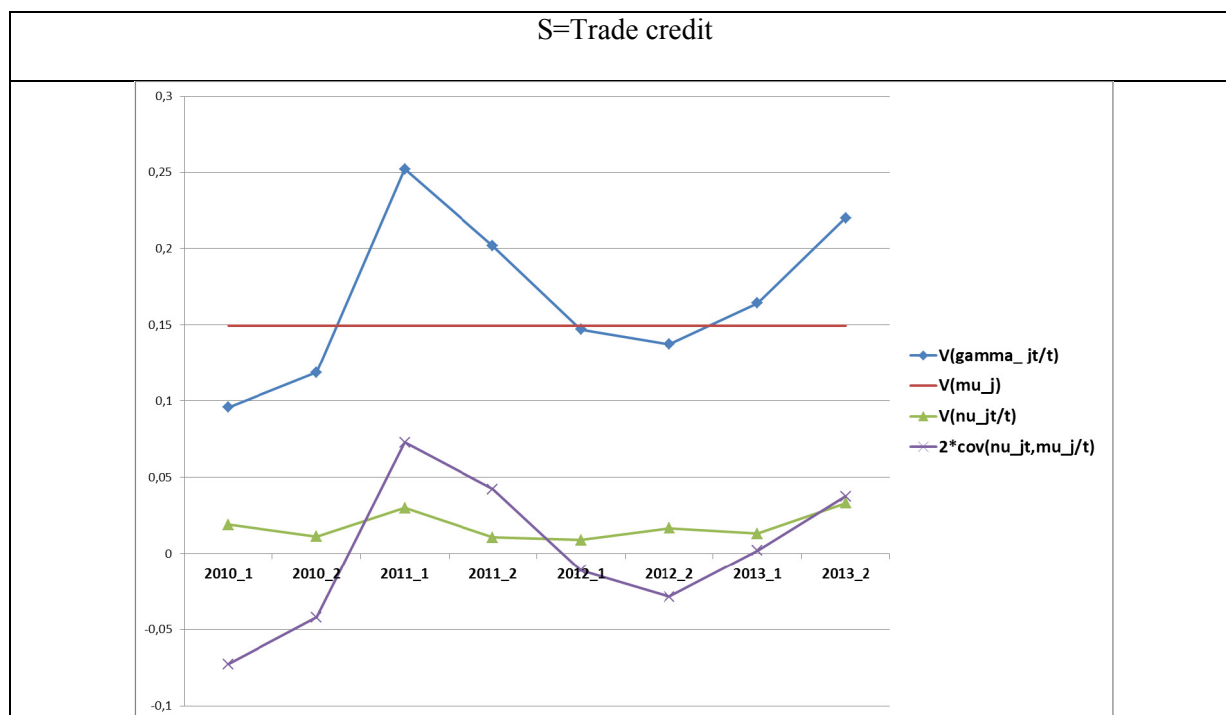

S=Bank loans

S=Credit lines/overdraft

Figure A.1 (continued). Decomposition of the variance of the country-specific propensities $V(\gamma_{jt}^S|t)$- Subsample of country excluding Greece, Ireland and Portugal

S=Trade credit

These figure displays the evolution of the variance of the country time specific propensities (V(gamma_jt/t) to use bank loans and of its three components: the variance of the country fixed effects (V(mu_j), the conditional variance of the idiosyncratic shocks at time t V(nu_jt/t), the correlation between the shocks and the country specific effect (2*cov(nu_jt,mu_j/t)). The country specific propensities are estimated from firm level regressions (probit models) using the SMEs country representative survey SAFE. They account for firm level characteristics (age, size, annual turnover, main activity, belongs to a group or not) and for firm financing demand (increased needs, reasons for increased needs). Results on the subsample excluding, Greece, Ireland and Portugal.