

Suitable or non-suitable?:
An investigation of Eurozone SMEs access to market-based finance¹

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Abstract

The present paper provides an in–depth analysis of SMEs access to capital markets among Eurozone countries. First we detect the factors – at firm and country level – able to influence the likelihood of SMEs access to market-based finance. Second, we construct an index of what we call “market suitability”, i.e. a score that can be measured at dimensional, sectorial and national level, providing the percentage of firms potentially fit for market-based finance. Our results highlight that few Eurozone countries seem to have already deployed their “potential” for capital market financing while there exists a large percentage of un-exploited potential of firms fit for market-based finance. It should also be highlighted that overall business conditions -measured through GDP growth, the degree of development of domestic financial market, and the quality of the legal and judicial enforcement system - greatly influence a firm’s market suitability. In the period under consideration (2000-2014) macro factors tended to reduce the likely SMEs access to market-based finance in most countries in our sample.

JEL: G32; G10; L25; L26

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1. Introduction

The high degree of heterogeneity and disparity of SMEs' financing conditions across euro area markets are well documented (Ferrando and Mulier, 2014); additionally SMEs face more obstacles in access to finance compared to large firms. Their financial structure is more dependent on bank loans than larger firms, due to asymmetric information problems, shorter operating track record (ECB, 2014a) and to the limited use of alternative sources of financing (Berger and Udell, 2006; Jaffe and Russel, 1976; Stiglitz and Weiss 1981). Considering SMEs' particularly strong dependence on bank financing, the well-known fragmentation in financial markets has become a serious obstacle for SMEs' access to financing, with implications for their ability to pursue investment opportunities and, ultimately, for economic growth as well.

An assessment of the obstacles hindering SMEs' access to finance cannot avoid considering their limited participation to capital markets, both equity and bond markets. Some recent studies showed that, in times of economic downturns or financial crisis, bank lending decisions become more selective, on the grounds of both banks' own balance sheet constraints and the rising default probabilities of their borrowers (ECB, 2014b). SMEs are typically perceived, in comparison to larger firms, to have a higher probability of default and, additionally, to be more informationally opaque, to be more likely penalized in times of heightened bank risk aversion (Berger and Udell, 2006). Moreover larger firms can substitute bank lending with alternative sources of financing, in particular debt and equity issuance.

The evidence available shows that trade credit, leasing and factoring are the closer substitutes of bank loans (ECB, 2014c). As these latter alternative financing sources are, however, closely related to the SMEs' business activity, the potential for substitution may largely be constrained, during recession periods, by a decline in turnover levels; this applies primarily to SMEs located in distressed countries. In this context debt securities and new equity issuances could achieve a strong relevance in SMEs financing.

Corporate bond financing is an important substitute for bank financing, particularly in a financial crisis, when banks may be unwilling or unable to lend, but such substitution has not been operating uniformly across the EU. A more integrated European market for corporate bonds would help firms raising their funds. The fund

raising by issuing equity to investors across borders is also commonly considered to be a more stable source of financing. The close integration of European corporate bond and equity markets would therefore be beneficial.

Despite a range of policy initiatives at the national level, substantial fragmentation in SME market based financing persists across euro area countries and in particular for SMEs located in distressed countries (ECB, 2014c). As the wide dispersion in financing conditions are likely influenced both by borrower risk or other borrower characteristics and by domestic capital markets conditions and environments, a comprehensive research effort aiming to address the SMEs' capabilities in accessing market-based financing is still lacking and a higher understanding on this issue could help further policy measures trying to mitigate discrepancies and foster integration in these market segments, particularly in the context of the current Capital Markets Union (CMU) agenda. To the best of our understanding empirical research on this topic is substantially not available so that our paper intends to make a contribution in order to fill this void.

The present paper aims to provide an in-depth analysis of the factors that facilitate SMEs access to market-based financing solutions among European countries.

The paper tackles two main research questions:

- a) Which are the factors – at firm and country level – able to influence the likelihood of SMEs access to market-based finance?
- b) How many firms could be suitable to market-based finance, at dimensional, sectorial and national level?

Our contribution to the debate on SMEs capital structure and access to capital markets is twofold.

First, contrary to the existing literature on capital structure that focuses on firms' leverage, we are able to directly investigate the choice of raising new equity and/or issuing bond. In fact, our analysis is based on a novel dataset from the European Central Bank, which matches firms that participated in the Survey on Access to Finance of Enterprises (SAFE) from year 2009 up to 2015 with their financial statements. In particular we focused on survey participants' answers to questions relating to their access to capital markets funding: the dependent variable used in our empirical analyses is the firms' decision of raising new equity and/or issuing bonds.

The ECB's SAFE covers micro, small, medium-sized and large firms, and it provides evidence across branches of economic activity, euro area countries, firm age, and ownership of the firms. The database containing the survey replies is then matched (using the tax identification code) with the Bureau van Dijk Amadeus dataset, which includes information on balance sheet and profit and loss accounts

Second, through the estimation of a firm's probability of accessing market-based finance, we are able to construct an index of what we call "market suitability", i.e. a score that can be measured at dimensional, sectorial and national level, providing the percentage of firms potentially fit for market-based finance.

The paper is structured as follows. Section 2 reviews related literature; Section 3 sets the testable hypotheses; Section 4 describes data and methodology and Section 5 discusses results. Section 6 concludes.

2. Related literature

Academic literature on small business finance is vast and in acceleration after the recent financial crisis and recession. Among the core issues related to small business finance², two are particularly pertinent to our analysis and help frame the contribution of the present paper. First, the life cycle of small business finance, i.e. the fact that different forms of SMEs financing are connected and influenced by the life cycle of the firm itself. Second, the capital-structure choices of SMEs, taking into account their peculiarities with respect to larger firms.

The life cycle of small business finance

Our work is grounded to a set of studies that apply the life cycle paradigm to SMEs and large corporates financing decisions (Carey et al., 1993; Meyer, 1998; Berger and Udell, 1998). Exploring a number of facets of US small firm finance, Berger and Udell (1998) elaborated a growth cycle paradigm, in which different capital structures are optimal at different points in the life-cycle of a firm. In particular, different sources of debt and equity finance become important at different stages of the firm's growth, with a

²Core issues that we do not address include the role in the transmission of monetary policy, the bank market structure, the effect of M&A and potential impact of financial institution consolidation on the availability of credit to small business, and private ownership versus public ownership.

hierarchy that starts with insider (internal) finance, moves towards angels and venture capitalists first and then commercial banks, to finally land to public bonds and public equity.

Although the authors warned against the use of this paradigm in every small business situation, the life cycle has received considerable empirical support, although not always verified (Robb and Robinson, 2012 in the US). The paradigm emphasises the importance of age, size and informational opacity of the firm as these (intertwined) characteristics explain a firm's capital structure choice. The older the age, the larger the size and the lower the informational opacity of a firm, the broader the spectrum of financing sources available to the firm. On the contrary, small firms and new ventures that cannot credibly convey their quality or have difficulties in building reputations to signal their quality or overcome their initial informational opacity are the most dependent on internal finance.

Our study contributes to this debate estimating a firm's probability of accessing market-based finance controlling for these life-cycle characteristics – age, size and informational opacity (proxied by the listed status of the firm) and other firm and country characteristics.

The capital-structure determinants of SMEs

Although the issues surrounding capital structure for small businesses are generally different than those that are most important for large corporations, the choice between debt and equity has been studied with the same methodologies and theories applied to large, listed firms. Capital structures of firms are usually explained in the literature by certain firm characteristics – such as profitability, tangibility, size, business risk, growth opportunities, etc. – stemming from three different factors that may influence a firm's leverage: trade-off considerations between bankruptcy-related costs and tax advantages; agency conflicts between managers and shareholders and between debt and equity investors; asymmetric information between lenders and borrowers. These three factors are connected with three different theories of capital structure (static trade-off theory, agency theory and pecking order theory) that explain firm leverage considering the same firm-level determinants yet reading their influence through different lens. For instance, the trade-off theory predicts a positive relationship between profitability and

debt, thanks to debt tax-shields that will induce profitable firms to use more debt (Jensen and Meckling, 1976; Myers, 1977; Harris and Raviv, 1990). On the contrary, according to the pecking order theory (Myers, 1984; Myers and Majluf, 1984) the relationship will be negative, as more profitable firms will have more retained earnings to count on, which are viewed as a firm's preferred source of funding.

Another example refers to the predicted relationship between growth opportunities and leverage. According to the agency theory (Jensen and Meckling, 1976) growth opportunities and leverage are negatively related: the disciplinary role of debt over managers' opportunistic behaviour works at its best when firms face a low growth phase and investment opportunities with positive NPV are scarce. In this phase, debt can help shareholders to motivate managers to be more efficient (Jensen, 1986). On the contrary, according to the pecking order theory, leverage and growth opportunities are positively correlated. The sequencing of funding just described in the previous section can be explained in the context of the pecking order theory, which suggests that the financing decisions of firms are influenced by their informational opacity since the cost of financing increases with asymmetric information. As managers/owners know more about their business prospects and risks than outside investors, asymmetric information will affect the choice between internal and external financing and between the issue of debt or equity. Therefore firms will prioritise their sources of funding following a pecking order, first with a preference for internal funds – retained profits or funds from the entrepreneur and other insiders that have a superior information about the firm – over external funds and then preferring debt over new equity raising. Hence, companies with good growth opportunities but lacking internal funds will prefer to issue new debt (and increase leverage) instead of issuing new equity.

The pecking order theory can be easily applied in the context of SMEs since small and medium-sized enterprises are often opaque and their creditors bear high information costs and face important adverse selection problems (Ang, 1991; Holmes and Kent, 1991; Cosh and Hughes, 1994; Hall et al., 2004; Daskalakis and Psillaki, 2008; Psillaki and Daskalakis, 2009). Moreover, SMEs are often owner-managed, which, on one side, cancel agency conflicts between owners and managers and, on the other side, introduce other elements into capital structure decisions of small businesses, such as the owner's level of risk aversion or his willingness to minimize the risk of losing control and

decision-making power. For these reasons SMEs will prefer retained earnings, followed by trade credit and bank financing, over market-based sources of funding. Finally, tax considerations are of less relevance for SME because these firms are not as profitable as larger firms and therefore tax reasons for using debt are less likely to apply (Pettit and Singer, 1985).

Several studies documents that a firm's leverage is also affected by industry-specific factors (McKay and Phillips, 2005; Kayo and Himura, 2011) and country/institutional-specific factors (Rajan and Zingales, 1995; Demirguc-Kunt and Maksimovic, 1999; Booth et al., 2001; Claessens et al., 2001; Giannetti, 2003; Hall et al., 2004; de Jong et al., 2008; Daskalakis and Psillaki, 2008; Psillaki and Daskalakis, 2009).

Although firm-specific variables make the most in explaining cross-country or cross-industry variation in the determinants of capital structure, nonetheless a number of institutional variables, such as legal enforcement, creditor and shareholders protection rights, the development of the financial system (bond, stock and bank markets), are found to significantly influence firms' leverage.

It should be noted, as highlighted by de Jong et al. (2008), that most existing studies implicitly assume that the impact of firm-specific factors on capital structure is equal across countries. However, as demonstrated by their research, firm-specific factors can be different across different countries and this should be correctly taken into account in the research design.

Our paper is related to this vast literature though we add a different perspective, taking into consideration the choice between market-based finance versus non market-based finance (internal finance and other nonmarket-based financing). In this sense we expand and update our knowledge on SMEs' capital structure decisions as we do not limit to consider the choice between equity and debt. Indeed as highlighted by Berger and Udell (1998) the distinction between insider (internal) finance and external finance in small business is not always completely clear, since insiders often give personal guarantees or pledge personal collateral against external debt provided by financial institutions (mainly commercial banks). For this reason, we distinguish between non market-based finance (trade credit, bank lending, leasing, factoring and insider funds), on one side, and market-based finance (bonds and equity) on the other side.

The main contribution of our paper to the existing literature on SMEs' financing choices is twofold: a novel and proprietary database on euro area countries SMEs based on ECB's SAFE survey³; and the adoption of SMEs' decisions of raising new equity or issuing bonds as the dependent variable in our empirical analysis, contrary to the existing literature that focuses on leverage.

In particular the variable under analysis is the decision to use market-based instruments. Accordingly the dependent variable is obtained through the SAFE questionnaire. It is a dichotomous variable ("mark_fin") that takes value 1 for firms which issued new equity or debt securities in the past 6 months according to SAFE survey definition⁴ and 0 otherwise.⁵

3. Market suitable firms: our testable hypotheses.

In order to capture the features that can help explain a firm's propensity to issue market-based instruments we lever on those variables that traditionally have been used to explain a firm capital structure. However, in our framework it is also critical to address market-based versus non market-based funding choices. Pecking order theory, for example, postulates that firms rank internal finance above external finance: however the theory does not tackle the ranking between (external) bank lending and the other external market-based instruments (both debt and equity ones), a decision that can be quite relevant, especially in the SMEs perspective. Therefore, we need to consider those firms-specific factors that can capture this added dimension of a firm financial choices.

Below we discuss explanatory variables used in the empirical research starting with firm-specific financial and demographic characteristics.

³ Comprehensive database on actual market-based issuances are available from professional financial data providers (such as Reuter's Thomson One, Dealogic) but they have some drawbacks for our research purposes. Firstly they cover mainly market-based financing of listed firms, with a low coverage of SMEs financing. Secondly in many cases, particularly for SMEs, they do not permit a matching between the issuer and its financial statements data.

⁴ In equity case the survey definition is listed or unlisted new shares issuances or other forms of equity provided by the owners themselves or by external investors, including venture capital or business angels but excluding mezzanine finance in terms of preferred stocks. In case of debt securities we have short-term commercial paper and long-term corporate bonds.

⁵ The variable is based on question Q4 replies of the SAFE questionnaire.

Size, age and listed status

Size is a very common variable in empirical studies of firms' capital structure and is typically measured as the logarithm of sales. Size is usually expected to hold a positive relationship with leverage (i.e. debt): larger firms are more diversified, hence are less likely to face bankruptcy; are more profitable and therefore more likely to use debt for tax shields and finally are less informationally opaque so that they can issue larger amounts of debt, spreading the associated issuing costs.

In our context, in which we distinguish market-based versus non market-based finance, size is expected to have a positive relationship with long-term debt (bonds) for the reasons described above. Less clear is the relationship between size and the likelihood of new equity issues. Static trade-off theory will predict a lower use of equity; asymmetric information theory will predict larger companies to be more capable of issuing informationally sensitive securities like equity (Rajan and Zingales, 1995). Finally, according to the life cycle paradigm larger firm will tend to tap financial market more in order to fund their financial needs. Therefore we expect to have a positive effect on market-based funding choices.

Less clear is the relationship between age and market-based finance. According to the life cycle paradigm bigger companies – living their maturity phase – will tend to have higher leverage ratios as equity investors will be less interested in firms with lower growth opportunities, lower risk and lower profitability. On the other side, older firms will be more able to accumulate (internal) funds and hence the less will need to borrow long term or short term or equity-based finance.

Listed status of a firm is a dummy variable that takes value one for listed firms and zero for unlisted, private firms. We consider it as a proxy of a firm's informational opacity directly linked to a higher (lower) degree of financial disclosure in case of listed (private) firms. The listed status of a firm is expected to have a positive effect on market-based finance.

Asset structure

Asset ratios can be relevant for market-based finance as they capture the structure of a firm's assets and the way such a structure influences the composition of the firm's

liabilities. We include two structural features of firms' assets: tangibility and the ratio of fixed assets to equity.

Tangibility, measured as fixed asset over total assets, represents a standard variable in empirical studies on firms' financial choices. Asset tangibility is commonly expected to have a positive effect on leverage as it reduces the direct cost of bankruptcy. Differently from intangibles and current assets, tangible assets can be easily used as collateral, mitigating the lender's risk. Hence, a large fraction of tangible assets is expected to be associated with higher debt.

In our analysis asset tangibility is expected to have a positive effect on debt securities funding while we do not have *a priori* expectation about its effect on new equity raising.

The ratio of fixed asset to equity is a measure of a firm ability to manage the maturities of its assets and liabilities. It is not commonly employed in the standard corporate finance literature. We reckon that, in our context, it can be helpful to test whether the market-based funding choice of SMEs can be driven by their need to fix potential imbalances at balance sheet level, i.e. the long term fixed asset requirements which are not sufficiently matched with permanent equity financing. The ratio of fixed asset to equity is expected to hold a positive effect on market based finance (both bond and equity). The higher the ratio, the greater the need to tap long term market-based funding solutions.

Performance ratios: profitability, liquidity and growth.

Among the firm's performance variables, profitability and liquidity⁶ are the main variables employed to explain a firm capital structure.

There is no consensus in the literature regarding the role of profitability on capital structure. Levering on information asymmetry considerations, it is customary to deploy profitability variables (more profitable firms are associate with less leverage), and liquidity proxies (accumulated cash and other liquid assets –the so called cash equivalents- serve as internal source of fund and will be used first instead of debt). Both variables are commonly expected to have a negative effect on leverage. Static trade-off

⁶ We use as liquidity measure the current ratio, i.e. current assets divided by current liabilities. Profitability is the EBITDA over total asset

theory, on the contrary, predicts a positive relationship because high profitability decreases bankruptcy risks and also increases the tax shields of debt. However these benefits are less of an issue for SMEs as already explained: SMEs tend to be less profitable and tax reasons for using debt are less likely to apply.

In our framework the expected relationship is negative as, when internal funding is available through higher profitability, tapping capital markets – bonds and equity - turns out to be less of a necessity.

However in case of liquidity the expected sign could be quite unclear in the SMEs setting. Even if the pecking order theory might suggest that accumulated cash should be used before any other source of external finance, the higher informational opacity which smaller firms bear and the negligible (or lack of) reputational capital that they hold can require SMEs that desire to tap capital markets to offer good fundamentals to prospective investors. Otherwise they would incur in the risk of a weak demand in their market-based forays. In this sense we can expect a positive effect of liquidity on external market-based finance (lack of reputational capital effect).

As above, there is also no consensus in the literature regarding the role of growth opportunities and firm capital structure. Growth opportunities are normally linked to agency conflicts between stockholders and bond-holders: growth opportunities can produce moral hazard situations (asset-substitution) and push firms to take on risks at the expense of creditors. In order to minimize these conflicts firms with high growth opportunities choose lower leverage, thus preferring equity financing for their new projects instead of debt financing. Growth opportunities are thus expected to be negatively associated with firms' leverage and debt securities issuances and positively associated with new equity raising. On the other hand, high growth opportunities are likely to exhaust internal funding and compel firms to seek for external finance. According to the pecking order theory, when external finance becomes a necessity, firms issue non market-based debt, then they issue securities; lastly, when all else fails, the company issues equity.

Either the case, market-based finance (bonds or equity) is positively associated with growth opportunities.

In our analysis we employ two indicators of firms' growth performance related to sales (average turnover growth) and assets (fixed asset growth), respectively.

Risk and tax considerations

According to the trade-off theory financial risk is expected to reduce a firm capability to use debt to finance its new projects. We proxy financial risk with leverage and financial pressure. We define financial pressure as the ratio of interest paid over EBITDA while leverage is financial debt (both short and long-term) over firm's total assets.

Leverage and financial pressure are expected to have a positive effect on new equity raising: they compel firms to reduce the perceived bankruptcy-related costs associated with excessive levered positions. Meanwhile the effect on debt securities issuing remains less clear.

Finally, taxation is proxied by the effective tax rate and its impact on market-based finance is expected to be positive in case of debt securities (for debt tax advantages reasons) and negative in case of equity.

Country-specific variables

Coherently with a large body of literature discussed previously (see Section 2) we include in our empirical work a set of country-specific (or institutional) explanatory variables. They comprise features related to the economic growth and the degree of financial development of the countries under investigation, and the characteristics of the institutional environment in which firms operate.

Financial development and growth variables

The first group of country variables - equity market capitalization over GDP and bond issues by non-financial firms over GDP- aims to capture the degree of development of domestic capital markets segments. Greater width, depth and liquidity of capital markets (bond and equity) are expected to facilitate firms' access to market-based finance. The development of bond and stock markets should increase the supply of funding available to firms and lower their cost of capital.

The ratio of domestic credit to private sector over GDP represents a widely used measure of banking system development (King and Levine, 1993). The ratio can portray the degree of a country dependence on bank credit and as consequence it should be expected to crowd out equity and bond issues. Alternatively, an excessive dependence

on bank credit can promote, in the life cycle of a firm, the diversification of external funding sources, in particular in a period of bank distress and generalized credit crunch.

From a different perspective, bank credit can be seen as a signal of creditworthiness that is especially relevant for informationally opaque firms, which thanks to this credit can more easily access capital markets. This view of a positive link between bank credit and other funding sources is supported by empirical evidence on the relationship between financial development and economic growth. Indeed the development of both capital markets and the banking system are together important factors explaining a country economic development.

Finally we include the GDP growth of each sample country as measure of economic growth which drives firms' real investments and determines the need for external finance.

Legal and judicial enforcement systems

It is well documented that the certainty of the law and the legal rights enforcement in court has positive impact on firms' access to external finance (La Porta et al., 1997; Beck et al., 2005). Indeed if the laws better protect both shareholders and bondholders (and other creditors) agency problems among different financial stakeholders are reduced improving firms' access to market-based finance⁷.

We consider the following variables as proxy for the strength of the legal and judicial enforcement system: the rule of law index, the property rights index, the number of procedural steps involved in a commercial dispute and time needed to resolution.

The rule of law index is sourced from World Bank' WGI⁸ and captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights and the courts, as well as the likelihood of crime and violence. In our context higher indicator score is expected to promote easier firms access to capital markets.

⁷ Firms which operates in a country with weak creditor protection and low-quality judicial enforcement system may even face a competitive disadvantage with respect to a firm located in a country with strong protection and high-quality judicial enforcement system (Maresch et alia, 2015).

⁸ Detailed documentation of the Worldwide Governance Indicators (WGI) interactive tools for exploring the data, and full access to the underlying source data are available at www.govindicators.org.

The variable Property Rights is derived from the “Index of Economic Freedom” as computed by the Heritage Foundation. This variable measures the ability of individuals to accumulate private property, secured by clear laws that are fully enforced by the state. Hence, it measures the degree to which a country’s laws protect private property rights and the degree to which its government enforces those laws. It also assesses the likelihood that private property will be expropriated. The more certain the legal protection of property, the higher a country’s score (the score is between 0 and 100). We expect a positive relation with firms’ capital market access.

For the number of procedural steps involved in a commercial dispute variable we use the data provided by the World Bank in the “Doing Business” dataset. A procedural step is defined as any interaction, required by law or commonly used in practice, between the parties or between them and the judge or court officer. Other procedural steps, internal to the court or between the parties and their counsel, are counted as well. Procedural steps include steps to file and serve the case, steps to assign the case to a judge, steps for trial and judgment and steps necessary to enforce the judgment. A higher number of procedural steps involved in the judicial enforcement system should be linked with a reduced access to external capital markets funding.

Finally for the time needed to resolution variable we again rely on the “Doing Business” dataset by World Bank and use the variable that records the average time needed to resolve a dispute in calendar days. The time is counted from the moment the plaintiff decides to file the lawsuit in court until payment. It includes both the days when actions take place and the waiting periods between them. In our context the longer the time to resolve a dispute, the higher the probability that firms are denied credit, especially from the banking sector. In this sense diversifying external funding through capital markets can help avoiding credit constraints that might arise in the bank-firm relationship (hence, an assumption of positive relation in the regressions).

Table 1 summarizes our list of firm-specific and country-specific variables.

4. Data & Methodology

4.1 Data

The analysis is based on a novel database from the European Central Bank, which collapses in one dataset information from the Survey on Access to Finance of

Enterprises (SAFE) and from Bureau van Dijk Amadeus. The ECB's SAFE covers micro, small, medium-sized and large firms⁹ and provides evidence across branches of economic activity, euro area countries, firm age, and ownership of the firms. The database containing the surveyed firms has been matched (using the tax identification code) with the larger Amadeus database in order to attach the qualitative answers of the firms in the survey with their financial statements. Our sample includes information for the following euro zone countries: Belgium, France, Finland, Germany, Italy, Spain and Portugal.

Data refer to SAFE from wave 2 to wave 13 (from September 2009 up to September 2015)¹⁰, considering about 50,000 firms in the period under investigation. Our sample is composed of 29.2% micro-sized firms, 32.8% small firms, 28.8% medium firms and only 9.3% large firms (see Table 2).

Table 3 and Figures 1 and 2 present the proportion of firms who declared to have used market-based instruments (equity and debt) for each country in our sample. The reported figures are all weighted with sampling weights that restore the proportions of the economic weight of each size class, economic activity and country in order to make them representative of the underlying population of firms.

Figure 3 exhibits the details of capital market involvement over time of both SMEs and large firms' subsamples across SAFE waves.

From a first look at these tables and figures we can observe the following findings. Germany and Finland are the countries in which firms have used distinctly more often market-based instruments. All other countries are left behind. The difference between leading and lagging countries is mainly explained by new equity issuances, while on debt securities we spot a less pronounced gap (Table 3, Panel A and Figure 1). Firms from distressed Southern Europe countries (Italy, Spain and Portugal) present a lower involvement in market-based instruments both at the overall sample and at the SMEs subsample level (Table 3 and Figure 1 and 2).

These differences between core and periphery Eurozone countries are more pronounced at equity level funding, particularly for SMEs (Figure 2).

⁹ SAFE firms are only non-financial corporations (NFC). Size is based on number of employees. Micro firms are defined as firms with less than 10 employees, small are firms with 10-49 employees, medium are firms with 50-249 employees, and large are firms with 250 or more employees.

¹⁰Amadeus sourced firms' financial statement data bridge up to the 2014 financial reports.

Tables 4 and 5 report descriptive statistics and correlations coefficients of the explanatory variables.

4.2 Methodology

We use a weighted Probit Model to answer our first research question: Which are the factors influencing the likelihood of SMEs access to market-based finance? The dependent variable is a dichotomous variable that takes value 1 if firms report to have used market-based instruments (new equity or debt securities) in the previous six months and 0 otherwise.

As independent variables we consider the set of firms' financial and institutional characteristics discussed in Section 3 and reported in Table 1; we control for country, sector and time fixed effects. As in the descriptive statistics, we use the sampling weights in the econometric specifications.

$$\text{Prob}(\text{Mark_fin}_{i,k,t} = 1) = \sum_j \varphi_j(\text{FirmChar}_j)_{i,k,t-1} + \sum_t \omega_t \text{wave}_t + \sum_k \phi_k \text{Country}_k + \sum_j \beta_j \text{sector}_j + \varepsilon_{i,k,t} \quad (1)$$

where *Mark_fin* are the responses by firm *i* in country *k* at time *t* that indicates the use of market-based instruments in the previous six months as described previously. Firm characteristics are financial and demographic information for each firm *i*, in country *k*. All variables are lagged in order to avoid endogeneity.

In the next stage of our analysis we create a Market Suitable Indicator (MSI indicator) to answer to our second research question: How many firms in a country could be suitable to market-based finance? The Index aims to capture firms that can be considered suitable for market-based financing using information derived on their financial situation, countries characteristics and SAFE replies analysed in the first phase of the analysis.

The construction of the index is based on two steps.

In the first step the coefficients of the estimated probit (β s) can be used to compute a predicted SAFE score for the larger pool of firms in the Amadeus dataset using the following equation.

$$\text{SAFE}_{i,k,t} \text{ score} = \text{const} + \sum_j \hat{\varphi}_j(\text{FirmChar}_j)_{i,k,t-1} + \sum_t \hat{\omega}_t \text{wave}_t + \sum_k \hat{\phi}_k \text{Country}_k + \sum_j \hat{\beta}_j \text{sector}_j \quad (2)$$

where the estimated coefficients are those reported in Table 6, panel A. This is a score defined at the firm level, which varies across time.

As the values of the score cannot be directly interpreted, we use it only to rank firms. The second step is to select those firms that are market suitable by introducing a threshold. Following the approach used in Ferrando et al. (2015) we obtain a threshold over the SAFE score distribution using the information from the survey data. Namely, we select the top x% of the distribution of the SAFE score by country, where x is the percentage of firms which declared in the survey to use market-based instruments over 2009-2015. Finally, for each year and country firms suitable for market-based financing are identified as those with a value of the SAFE score greater than the threshold. As a result the Market Suitable Indicator (MSI) will be a dichotomous variable equal to 1 for firms with a SAFE score greater than the threshold and zero otherwise. We calculate this index for the entire sample of firms in the Amadeus database for the seven countries considered in the SAFE matched database. In this way we are able to verify at country level which is the potential for market-based financing. We identify countries, sectors and firms more suitable for capital market financing.

The usefulness of this procedure is that it can also be used to calculate the index also before the beginning of the survey. When we analyse the evolution of the MSI index before 2009 we should therefore be fully aware of two underlying assumptions: i) the estimated coefficients are time-invariant, as it is often the case for widely used indicators proposed in the literature¹¹ and ii) the threshold is fixed over time. Nevertheless as the period under investigation of SAFE survey (2009-2015) covers a timespan in which capital markets in the Eurozone were severely hit by the sovereign debt crisis we reckon that applying backward (starting from year 2000) those coefficients should generate reasonably conservative estimates of our indicator¹².

¹¹ For instance, examples of derived weighted combinations of time-varying coefficients are the Whited-Wu index (Whited-Wu, 2006) and the Kaplan-Zingales index (Kaplan and-Zingales, 1997).

¹² We have checked the actual volume of bond and equity issuances of the European NFC firms during the 2000-2015 timespan and from 2009 onwards the proceeds amount of issuances has been lower than previously. This has happened particularly for IPOs, and secondary equity issuances, less for corporate bonds. See RELTIF Green Paper, Restarting European Long-Term Investment Finance A Green Paper Discussion Document, (2015), CEPR Press, Chap.4, pp. 33-37.

5. Results

We present our results grouping them in three parts: in the first section (5.1) we comment findings related to only firm-specific variables; in the following section (5.2) we discuss our results when including also country-specific variables, in the third part (section 5.3) we present evidence based on our novel survey-based MSI index.

5.1 Main findings when considering only firm-specific variables

Table 6 shows the results of the probit regressions¹³. Panel A reports the estimated coefficients while Panel B shows the marginal effects. Columns 1 and 2 identify which firm-specific variables affect the use of market-based instruments for our sample of Eurozone firms. With respect to the first column, the second specification includes as controls the country fixed effects on top of sector and time dummies. Hereafter we use this one in the proceeding steps of our analysis¹⁴.

Amongst the variables considered in the regressions, size, profitability, current ratio, average turnover growth, financial leverage, and listed status are statistically significant.

Firm size has a positive effect on the use of market-based instruments in line with the life cycle theory. The negative sign of profitability is consistent with the pecking order theory applied to SMEs: less profitable firms have less internal cash flow to use for funding their activity; therefore they need more external financing.

The interpretation of the sign of the current ratio is less straightforward. We detect a positive relation between firm's solvency and the use of market-based instruments. Considering the fact that our database is focused mainly on SMEs we can explain this positive relationship with a lack of reputational capital. SMEs that desire to tap capital markets are therefore required to offer good fundamentals to prospective investors otherwise they would incur the risk of a weak demand in their securities offerings. This

¹³Table 6 exhibits only variables that are statistically significant, omitting to present all other variables that we have tested in alternative specifications.

¹⁴ We have tested with a chi-squared test the presence of country differences. Firstly we considered a restricted model in which we included only firm-specific variables without considering the presence of potential differences across countries, subsequently we analyzed an unrestricted model in which countries dummy have been inserted in order to take into account conceivable differences between countries. Through a chi-squared test we have verified the null hypothesis that all countries' coefficients were equal. The result of the chi squared test allow us to refute the null hypothesis: Chi-squared (6) =112 Prob>chi²= 0.0000. Under these circumstances we reckon to adopt the unrestricted model with country dummies which takes into consideration countries differences.

feature coupled with the negative relation observed in the profitability variable can explain that a good current ratio performance must be achieved by SMEs via less short term financial debt rather than surplus cash and cash equivalents (that, indeed, would negate the pecking order theory assumptions). It is a well-known fact that SMEs, particularly in Southern European countries, have been mostly dependent on an excessive and increasing short term debt financing¹⁵ from the banking system.

Financial leverage, listed status and turnover growth coefficients present signs in line with our assumptions.

In sum we can expect an higher probability to access market-based finance for large, listed firms with future growth opportunities and more leveraged that are able to compensate lower profitability with a proper level of safety/solvency (via a reassuring current ratio due to less short-term financial debt)¹⁶.

5.2 Main findings including country-specific variables

Columns 3 and 4 of Table 6 display the probit regression statistics including the country-specific variables that may influence the likelihood of SMEs' use of market-based funding. Results on firm-specific variables hold in sign and dimension while a number of country-specific variables turned out to be statistically significant. Column 3 summarizes the specification model with sampling weights, whereas results in column 4 are not weighted¹⁷. Moreover we have employed a series of test in order to check the predictive power and the goodness of fit of our model specifications; the results have been assuring¹⁸.

The country-specific variables related to the degree of development of domestic capital markets proxied by equity market capitalization over GDP was found to be

¹⁵ The excessive dependence on short term bank financing for distressed countries SMEs has been increased particularly in the aftermath of the Eurozone sovereign debt crisis since 2011.

¹⁶ We must remember that our analysis combines as market-based funding both new equity and bond financing. In this sense it should be not too surprising that creditworthiness indicators such as a current ratio can be relevant for prospective bond investors.

¹⁷ We use the specification with sample weights in order to compute our novel MSI index according to the methodology already discussed for the restricted model with only firm specific variables.

¹⁸ These tests have been performed on the model specification with country-specific variables and without sample weights (column 4 of Table 6). The percentage of case correctly classified has been up to 93.83%; the predictive power measured through the area under the ROC curve has reached a value of 0.6742, indicating that the model does have good predictive power. Goodness of fit has been conducted using the Pearson's chi-squared and the Hosmer-Lemeshow tests. Both tests have confirmed that the model can fit the data reasonably well with a $\text{Prob} > \chi^2 = 0.3139$ and a $\text{Prob} > \chi^2 = 0.6082$, respectively.

statistically significant and positively related to the likely use of market-based finance together with economic (GDP) growth and domestic credit to private sector over GDP.

We observe that three variables of the strength of legal and judicial enforcement system have a statistically significant positive sign (rule of law, time needed to dispute resolution, and property rights) and a fourth, the number of procedural steps, has a negative sign. The signs of regression coefficients are in line with our assumptions summarized in Table 1. In this sense the quality of legal and judicial system matters for improving the likelihood of firms' use of market-based funding.

5.3 MSI Index results

In order to compute the predicted SAFE score, we first consider the coefficients of the estimated probit that come out from the specification in column 2 of Table 6 as this regression considers also the country fixed effects.

For each firm in each year the SAFE score is obtained by multiplying each estimated coefficient with the corresponding value of the independent variable plus the constant. The index loads also the sectoral dummies and the country dummies to consider in an explicit way country and sector heterogeneity.

We also construct a standardised version for the SAFE score¹⁹ and in Annex 1 we present the SAFE score distribution for the specification with only firm-specific variables the firm (column 1 of Table 6), with country dummies (column 2) and with country-variables (column 3).

The SAFE score for all firms in the Amadeus database from 2000 to 2014 is depicted in Figure 4 (Chart a). We can notice a sharp drop of the SAFE score in 2008 (in coincidence with the subprime financial crisis) while the decline in 2011 is less pronounced. After applying the thresholds as explained in the previous section, we obtain the MSI indicator (see Figure 4, Chart b), whose key results are presented below. Figure 5 displays the index mean value for SMEs and large firms across time. The number of SMEs that are suitable to access market-based finance remains quite limited, even though we witness a strong, promising increase in the last two years. We notice also similar time dynamics by firms' size with a large drop in 2008-2009 and in 2011-2012 in the aftermath of the two severe financial crises (subprime mortgages collapse

¹⁹ The standardization is as follows: $(x - \min) / (\max - \min)$.

and Eurozone sovereign debt crisis, respectively). These trends show that the index is very sensitive to wide-economy factors and financial markets conditions. In case of SMEs we observe that the scale of fluctuations across time is larger to such an extent that SMEs capital market access suitability is much more sensitive to the economy wide conditions. This piece of evidence must be carefully considered by any policy measure directed to facilitating SMEs access to diversifying funding options.

Figure 6 presents the mean values of the MS index considering the size of firms according to number of employees. We define micro, small, medium and large firms on the basis of the number of employees (lower than 10, between 10 and 49, between 50 and 249 and greater than 250 employees, respectively). Our evidence shows that, if we do not consider micro firms which are hardly eligible for capital market funding, the fraction of small firms suitable for the capital market is no longer negligible (with a country average of 6.5% see Table 7, Panel A), whereas the value appears even more significant for medium-sized firms (with a 22.4% on average). The latter evidence is relevant as the medium-sized firms class is clearly the more equipped within the SMEs universe to enter capital markets.

Nevertheless our MS index displays large differences across countries. In the medium size class France tops the ranking in terms of firms suitable for market-based finance followed by Finland; Southern Europe countries are no longer at the bottom of the rankings whereas Germany and Belgium are now positioned in the other end of the spectrum. Looking at the small size class, we still have heterogeneity but the differences are smaller: behind Finland and France other countries have more similar index values. Overall high country heterogeneity within firm size is therefore confirmed.

As Germany and Belgium were top of the ranking in the SAFE replies by SMEs class size (see Table 3, Panel B) their lower MSI values could now indicate that SMEs in those countries have been largely capable to enter capital market financing in such an extent that the MSI index signals a relatively low level of “residual” market suitable firms. Similar logic can be applied to firms located in the periphery Eurozone countries, where the firms’ suitability to access of market-based finance is much higher than what emerges from actual SAFE replies.

Focusing on the common period 2009-2014 from the onset of the survey, Table 8 (Panel A) summarizes such evidence- i.e. the gap between suitability and effective access to market-based finance- measuring the differences between MSI index and SAFE replies by size class²⁰.

Figure 7 shows the index mean value by sector. The greater value of firms suitable to use market-based instruments is concentrated in IT & Communications and Utilities sectors. The lower number of firms is in Retail sector. Here we have a positive correlation with average size of firms in each sector: for example, retail trade firms have an average size of 18 employees whereas IT & Communications and Utilities have an average of 56 and 117, respectively.

Following the procedures used before we replicate the SAFE score and MSI index computations for the probit model which includes country-specific variables. Figures 8 to 10 present the distribution of the index over time, by firm size and firm sector. After controlling for specific country variables the MSI does not change dramatically when focusing on firm size and firm sector while, across time, it becomes strongly dependent on the business environment. For instance the drop in the index experienced in 2008 is heightened when including country-specific variables. Such result is clearly supported by figures displayed in Table 8 (Panel B). Figure 11, finally, summarizes the comparison between three versions of our MSI index: with only firm-specific variables and without country fixed effects, with firm-specific variables and country fixed effects, and including country-specific variables (see model specifications in column 1, 2 and 3 of Table 6). Again, with the markedly exception of Germany and partially Belgium, we witness a generalised decline in market suitability, especially for medium-sized firms. In abstract, as if it were an experiment in a laboratory, the percentage of our sample firms suitable for market-based finance is substantial and all the countries under investigation, but Germany, have not yet deployed their potential. When we consider the real context in which these firms operate, adding both the institutional characteristics of the business environment (the efficiency of the law, the functioning of the financial system) and the economic cycle, such potential is somehow reduced. In few countries, the reduction is negligible, for other countries it is a relevant one. In other words, the suitability of firms to market-based finance is not only sensitive to the

²⁰ In Table 8, Panel A, the MSI Index is computed employing the model specification of column 1 in Table 6 with only firm-specific variables and without country fixed effects.

business cycle and the conditions of the financial markets (as expected), but also to the efficiency of the legal system and the depth of the financial markets (both stock markets and banking markets).

5.4 Further tests on MSI Index

In the last part of our analysis we look at our MSI indicator trying to test whether additional information can arise from a comparison of the two samples of firms grouped according to the value of the indicator obtained: sample of “market suitable” firms (with MSI value of one) and “non-suitable” firms (with zero MSI value). We implement a two samples t-test for differences in the samples means for a set of firms financial indicators widely used as determinants of external financing such as investment ratios, cash holding²¹ and cash flow over total asset²² and other indicators. The idea is to test more deeply if our MSI index is able to discriminate, for example, between higher and lower growth firms or more liquid (with high excess cash) versus less liquid firms²³.

Table 9 shows that SMEs firms “market suitable” according to our indicator are not only firms with higher investment ratios and lower excess liquidity but also those with relative differences that are statistically significant. Moreover the cash holding and the cash flow over total asset results (not reported here in our tables) further support the interpretation of the current ratio in our probit estimation as a proxy of the creditworthiness/soundness of firms, due to a less dependence on short-term financial debt, rather than excess liquidity.

6. Conclusions

The key contribution of our paper to the existing literature on SMEs’ financing choices is twofold: 1) assembling a novel database on Eurozone SMEs based on firms own statements over external capital markets funding through survey replies; 2) the creation of a novel survey-based index that aims to uncover the potential suitability of firms to access market-based finance.

²¹ Investment ratios are measured as change in the stock of fixed capital over total asset and cash holding as cash and cash equivalents over total asset.

²² T-test for cash flow over total asset results are not reported in Table 8, but the differences in the means have been statistically significant too. Higher cash flow over total asset are concentrated on non-suitable firms group.

²³ In our t-tests we have employed the MSI index version that considers only firm-specific variables.

The first aspect is achieved by using a dataset that matches firms that participate in the ECB's Survey on Access to Finance of Enterprises (SAFE) with their financial statements sourced by BvD Amadeus database. Comprehensive database on actual market-based issuances of professional financial data providers (like Reuter's Thomson One, Dealogic) are affected by many limits: firstly they cover mainly market-based financing of listed firms, with a low coverage of unlisted SMEs financing; secondly in many cases, particularly for SMEs, they do not permit a matching between the issuer and its financial statements data. Achieving this matching allowed us to implement the SMEs' decisions of raising new equity or issuing bonds as the dependent variable in our empirical analysis, contrary to the existing literature that focuses mainly on leverage and other financial statements items. Our probit regression results uncover a number of firm-specific and country-specific factors capable to influence the likelihood of Eurozone SMEs access to market-based finance

The novel survey-based index, on the other hand, provides useful insights on "market suitability" of prospective issuers across size (micro, small, medium and large firms), country and sectors. Through our empirical analysis, we detected firms' specific factors able to influence their likely use of market-based instruments. We observe a positive relation of size, listed status of the company, growth opportunity and leverage with the use of equity and debt issuances; moreover, a higher probability to access market-based finance for firms that are able to combine lower profitability with a proper level of safety/solvency (via a higher current ratio due to less short term financial debt). Regarding the country-specific variables the development of domestic equity market, the economic (GDP) growth, the relative volume of the domestic credit supplied to the private sector and the quality of legal and judicial system matter for improving the likelihood of firms' use of market-based funding.

Our survey-based index (MSI) spots how many SMEs are suitable to access market-based finance. The Index enables us to identify firms at dimensional, sectorial and national level more suitable for capital market financing.

Through the SAFE replies, it is possible to document the capital market involvement of Eurozone firms and highlight that Southern European countries (Italy, Spain and Portugal) present a lower use of market-based instruments both at overall sample and at SMEs subsample level. Major discrepancies across countries are reported

at equity level funding, notably for SMEs. This evidence records a low capacity of SMEs located in the Eurozone periphery to diversify their funding options in times of economic downturns or financial crisis, where bank lending decisions become more selective due to banks' own financial constraints and the rising default probabilities of SMEs.

The findings of our MSI are in line with this evidence. Countries like Germany, France and Finland have more firms able to use market-based instruments, whereas distressed countries in the Eurozone periphery such as Italy, Spain and Portugal have the lower percentage of market-suitable firms. However, if we do not consider micro firms, which are less likely to tap capital markets, our results change dramatically and interestingly. Limiting our analysis to medium size range, i.e. in the class of firms with employees in the 50-249 range or with sales between €10-€50 million, Southern European SMEs suitable to access market finance now become relatively better positioned, in comparison to other EU countries in our sample. Significant differences appear also among sectors: IT & communications along with utilities firms are the more suitable for market financing even if these are sectors in which firms have a higher average size.

Moreover, our index is sensitive to institutional factors and wide-economy conditions, and this seems particularly more acute in the case of SMEs. Our MSI indicator including country-specific variables highlights that business conditions - measured through GDP growth, the degree of development of domestic stock and credit market- and the quality of the legal and judicial enforcement system influence a firm's market suitability reducing for the majority of countries the likely SMEs access to market-based finance. This evidence must be carefully considered by any policy measure directed to facilitating SMEs capital markets access.

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Tables and Figures

Table 1 Explanatory variables and Hypotheses

Explanatory variables	Short description	Expected Effect	Rationale
<i>Panel A. Firm-specific variables</i>			
Size	Logarithm of sales	Firm size has a positive effect on market-based finance	Life cycle theory and Asymmetric information theory
Age	Number of years	Age has a positive effect on market-based debt Age has a negative effect on market-based finance	Life cycle theory Pecking order theory
Listed firm/ Informational opacity	Dummy variable equal 1 for listed firm and zero otherwise	Listed status has a positive effect on market-based finance	Life cycle theory and Pecking order theory
Tangibility	Fixed Assets/Total Assets	Tangibility has a positive effect on debt market-based finance Tangibility has a an unclear effect on equity-based finance.	Mitigation of lender's risk
Fixed asset to equity ratio	Fixed assets/ equity	Fixed asset to equity has a positive effect on market-based finance	Fixing imbalances at balance sheet level
Profitability	EBITDA / Total Assets	Profitability has a negative effect on market-based finance Profitability has a positive effect on market-based finance	Pecking order theory Static trade-off theory
Liquidity/ current ratio	Current assets/ current liabilities	Liquidity has a negative effect on market-based finance Liquidity has a positive effect on market-based finance	Pecking order theory Lack of reputational capital
Average turnover growth	Difference between the average value of turnover in periods t+1 and t+2 and the value of variable turnover in period t, and scaled by the value of turnover in period t.	Growth has a positive effect on equity-based finance but a negative effect on market-based debt Growth has a positive effect on market-based debt	Agency theory Pecking order theory
Fixed asset growth (lagged)	Difference between the value of fixed assets in period t and the average value of variable fixed assets in periods t-1 and t-2, scaled by the average value in periods t-1 and t-2.	Growth has a positive effect on equity-based finance but a negative effect on market-based debt Growth has a positive effect on market-based debt	Agency theory Pecking order theory
Leverage	Financial debt/total assets	Leverage has a positive effect on equity-based finance	Static trade-off theory
Financial Pressure	Interest paid /EBITDA	Financial pressure has a positive effect on equity-based finance	Static trade-off theory
Tax	Taxation/Profit before	Taxation has a negative effect on equity-based	Static trade off theory

	tax	finance Taxation has a positive effect on market-based debt	Static trade-off theory
<i>Panel B. Country-specific variables</i>			
Economic Growth	Annual growth rate of GDP	Economic growth has a positive effect on market-based finance	Higher firms' investments that need to be funded through external sources.
Stock market development	Equity market capitalization over GDP	Stock market development has a positive effect on market-based finance	Capital markets width, depth and liquidity facilitate firms' access
Bond market development	Bond issued by NFC over GDP	Bond market development has a positive effect on debt market-based finance.	Capital markets width, depth and liquidity facilitate firms' access
Development of banking system	Domestic credit to private sector over GDP Source: World Bank	High dependence on bank credit has a negative effect on market-based finance High dependence on bank credit has a positive effect on market-based finance	Crowding out effects on equity and bonds issues Excessive dependence on bank credit can promote diversification of firms' external funding options
Rule of law	Confidence in the rules of society score. Source: World Bank' WGI Indicator	Higher score is expected to promote easier firms access to capital markets (a positive relation).	Confidence in the rules of society and the likelihood of "white-collar "crime and corruption may impact on firms' access to external finance
Property rights	Degree to which a country's laws protect private property rights and its government enforces those laws. Source: "Index of Economic Freedom" by the Heritage Foundation.	Higher score is expected to have a positive relation on firms access to capital markets	Level of protection of property rights are quite sensitive for prospective capital markets investors. See, for example, the degree of protection guaranteed to minority shareholders in equity markets.
Time needed to dispute resolution	Average time needed to resolve a dispute in calendar day. Source: "Doing Business" by World Bank	Longer time is expected to have a positive relation on firms access to market-based finance	The longer the time to resolve a dispute, the higher the probability that firms are denied credit from banks. Diversifying external funding through capital markets can help mitigate credit constraints.
Number of procedural steps	Number of procedural steps involved in a commercial dispute." Source: "Doing Business" by World Bank	Number of procedural steps should have a negative effect on access to external market-based finance.	High number of procedural steps involved in the judicial enforcement system should be linked with a reduced access to external capital markets funding.

Table 2 Number of SAFE sample firms by country and size (waves from 2 to 13- 2009-2015)

Country	All firms		Micro		Small		Medium		Large	
	number	%	number	%	number	%	number	%	number	%
Belgium	4,572	9.2%	1,756	12.1%	1,678	10.2%	907	6.3%	231	5.0%
Germany	8,593	17.2%	1,667	11.4%	2,821	17.2%	2,992	20.8%	1,113	24.0%
France	10,589	21.2%	3,189	21.9%	3,248	19.8%	3,048	21.2%	1,104	23.8%
Finland	4,010	8.0%	1,320	9.1%	1,578	9.6%	902	6.3%	210	4.5%
Italy	7,753	15.5%	1,994	13.7%	2,359	14.4%	2,603	18.1%	797	17.2%
Spain	10,015	20.0%	3,137	21.5%	3,165	19.3%	2,824	19.7%	889	19.2%
Portugal	4,421	8.9%	1,509	10.4%	1,527	9.3%	1,092	7.6%	293	6.3%
Total	49,953	100.0%	14,572	100.0%	16,376	100.0%	14,368	100.0%	4,637	100.0%
	100.0%		29.2%		32.8%		28.8%		9.3%	

Source: matched database SAFE-Amadeus. Firms are only non-financial corporations. Micro firms are defined as firms with less than 10 employees, small are firms with 10-49 employees, medium are firms with 50-249 employees, and large are firms with more than 250 employees. Period: 2009-2015.

Table 3. Firms which have used market-based finance according to SAFE replies (weighted percentages)

Panel A. All firms

All Firms (%)			
	debt securities	equity capital	market-based finance
Belgium	5.1	4.6	8.8
Germany	2.3	14.3	16.1
Spain	2.7	3.3	5.2
Finland	6.5	8.9	12.9
France	1.9	6.7	7.9
Italy	1.7	4.7	6.1
Portugal	3.2	1.6	4.6

Panel B. SMEs and large firms breakdown

SMEs (%)				Large firms (%)			
	debt securities	equity capital	market-based finance		debt securities	equity capital	market-based finance
Belgium	0.8	5.7	6.4	Belgium	6.9	6.9	12.1
Germany	0.7	16.3	16.7	Germany	2.6	10.9	13.0
Spain	2.2	3.0	4.3	Spain	3.4	3.8	6.5
Finland	1.1	4.8	5.8	Finland	13.3	10.6	20.3
France	1.3	4.8	5.8	France	3.8	9.8	11.9
Italy	1.4	3.4	4.6	Italy	2.3	7.9	9.9
Portugal	0.9	1.2	1.9	Portugal	7.4	3.4	10.7

Source: matched database SAFE-Amadeus. Weighted average percentages of firms that have used market-based instruments (equity or debt securities) in the previous six months and 0 otherwise. Debt securities are short-term commercial paper or long-term corporate bonds issued, equity capital refers to raising capital through the sale of shares. SMEs defined as firms with less than 250 employees. Period: 2009-2015

Table 4 Descriptive Statistics of explanatory variables

Panel A. Matched SAFE-Amadeus database (2009-2014)

Variable	Obs	Mean	Std. Dev.	Min	Max
tangibility	40,802	0.320	0.245	0.00	0.95
profitabil~y	36,359	0.084	0.128	-0.43	0.48
av_turn_gr~h	31,446	0.048	0.342	-1.87	4.00
lav_fa_gro~h	39,142	0.066	0.396	-0.51	1.31
current_ra~o	38,937	2.259	3.284	0.15	26.15
asset_equity	37,601	1.852	3.807	0.00	27.77
listed	49,590	0.032	0.176	0.00	1.00
fp	31,924	0.348	0.442	0.00	2.69
size	36,501	8.167	1.999	0.00	17.97
age	49,547	24.052	18.654	1.00	105.00
finlev	35,925	0.222	0.217	0.00	0.93
TAX	34,466	0.197	0.215	-0.15	0.92
mark_cap_g~_	42	0.544	0.218	0.15	0.87
bond_nofi~gdp_	42	0.055	0.037	0.000	0.148
dom_credit~_	42	1.067	0.336	0.54	1.72
rulelaw_in~_	42	1.242	0.460	0.34	2.12
days_	42	564.51	279.45	235.0	1210.0
prop_	42	74.591	12.875	50.0	95.0
proc_	42	33.226	4.829	26.0	41.0
gdp_	42	0.435	1.847	-7.49	5.01

Panel B. Amadeus database (2000-2014)

Variable	Obs	Mean	Std. Dev.	Min	Max
tangibility	11,190,690	0.32	0.28	-1.44	3.00
profitabil~y	10,945,429	0.11	0.15	-0.5	0.64
av_turn_gr~h	11,191,380	0.06	0.44	-1.0	5.00
lav_fa_gro~h	10,948,713	0.04	0.49	-1.0	5.00
current_ra~o	11,142,673	1.81	1.98	0.05	15.5
asset_equity	10,214,269	1.8	3.26	0.0	30.00
listed	11,191,380	0.0	0.04	0.0	1
fp	9,322,379	0.34	0.43	0.0	2.99
size	11,189,678	6.43	1.75	0.0	19.02
age	11,161,345	14.16	12.74	0.0	435
finlev	10,912,585	0.16	0.21	0.0	0.99
TAX	10,336,077	0.21	0.27	-1.0	1.0

Source: All firms (Large and SMEs) in our Eurozone country sample. See Table 1 for a description of the independent variables. Panel A: Descriptive statistics of independent variables for firms in the matched database SAFE-Amadeus Period:2009-2014. Panel B Descriptive statistics of independent variables for firms in the enlarged Amadeus sample. Period:2000-2014.

Table 5 Correlation matrix of independent variables

Panel A. Firm-specific variables

	tangibility	profit~y	av_tur~	lav_fa~	curren~o	asset_e	listed	fp	size	age	finlev	TAX
tangibility	1											
profitabil~y	0.03	1										
av_turn_gr~h	0.01	-0.01	1									
lav_fa_gro~h	0.10	0.05	0.08	1								
current_ra~o	-0.16	0.05	-0.01	-0.02	1							
asset_equity	0.28	0.00	0.00	0.06	-0.09	1						
listed	0.02	0.00	-0.01	0.00	-0.01	0.00	1					
fp	0.05	-0.54	-0.01	-0.03	-0.07	0.08	-0.01	1				
size	-0.01	0.09	-0.04	0.04	-0.09	-0.01	0.18	-0.12	1			
age	0.01	-0.03	-0.05	-0.05	0.06	-0.05	0.05	-0.03	0.37	1		
finlev	0.35	-0.12	-0.01	0.03	-0.03	0.22	-0.04	0.28	-0.10	0.07	1	
TAX	0.03	0.30	-0.01	0.06	0.01	-0.02	-0.01	-0.37	0.12	0.01	-0.08	1

Panel B. Country-specific variables

	mark_cap_g~_	dom_cr~_	bond_	rulela~_	days_	prop_	proc_	gdp_
mark_cap_g~_	1							
dom_credit~_	0.26	1						
bond_nofi~_	0.08	-0.34	1					
rulelaw_in~_	0.41	-0.23	0.60	1				
days_	-0.61	-0.06	-0.54	-0.90	1			
prop_	0.31	-0.26	0.69	0.96	-0.87	1		
proc_	0.00	0.74	-0.46	-0.59	0.47	-0.60	1	
gdp_	0.10	-0.32	0.49	0.24	-0.24	0.29	-0.31	1

Source: matched database SAFE-Amadeus. All firms (Large and SMEs) in our Eurozone country samples. See Table 1 for a description of the independent variables. Period 2009-2015

Table 6 Probit Estimation with firm-specific and country-specific variables

Panel A. Regression coefficients

VARIABLES	(1)	(2)	(3)	(4)
profitability	-0.853***	-0.978***	-1.021***	-0.586***
future turnover growth	0.213***	0.171***	0.179***	0.113***
current ratio	0.0267***	0.0190**	0.0196**	0.00930
listed	0.204**	0.202**	0.195**	0.222***
size	0.109***	0.0911***	0.0914***	0.0764***
financial leverage	0.328***	0.402***	0.387***	0.280***
past asset growth				0.0899***
market capitalization/gdp			0.616***	0.804***
domestic credit/gdp			1.071***	0.667***
rule of law index			0.933***	0.429**
time needed			0.299***	0.234***
property rights			0.0196***	0.0219***
n of procedures			-0.0743***	-0.0488***
gdp growth			0.0600*	0.0908***
construction & real estate	-0.0314	-0.00939	-0.0343	0.0363
electr., gas and water supply	0.0333	-0.00879	-0.0288	-0.0344
I & C & R&D	0.153	0.167	0.143	0.166*
manufacturing	-0.0827	-0.0683	-0.0970	-0.00254
other business activities	0.0375	0.0195	-0.00469	0.0675
retail trade	-0.141	-0.147	-0.161	-0.0400
transport, storage	-0.107	-0.129	-0.147	-0.0375
wholesale trade	-0.146	-0.135	-0.153	-0.0901
Germany		0.278**		
Spain		-0.154		
Finland		0.317**		
France		0.115		
Italy		-0.0519		
Portugal		-0.136		
Constant	-3.045***	-2.908***	-5.876***	-5.407***
Observations	25,306	25,306	24,605	23,999
Errors	robust	robust	robust	robust
Country FE	NO	YES	NO	NO
Wave FE	YES	YES	YES	YES
Sector FE	YES	YES	YES	YES
Sample weights	YES	YES	YES	NO
Pseudo R-squared	0.0693	0.0796	0.0815	0.0529

*** p<0.01, ** p<0.05, * p<0.1

Panel B. Marginal effects

VARIABLES	(1)	(2)	(3)	(4)
profitability	-0.116***	-0.132***	-0.139***	-0.0675***
future turnover growth	0.0289***	0.0229***	0.0244***	0.0130***
current ratio	0.00363***	0.00256**	0.00267**	0.00107
listed	0.0277**	0.0272**	0.0266**	0.0255***
size	0.0148***	0.0122***	0.0124***	0.00881***
financial leverage	0.0445***	0.0541***	0.0528***	0.0322***
past asset growth				0.0104***
market capitalization/gdp			0.0839***	0.0927***
domestic credit/gdp			0.146***	0.0769***
rule of law index			0.127***	0.0495**
time needed			0.0407***	0.0269***
property rights			0.00267***	0.00253***
n of procedures			-0.0101***	-0.00562***
gdp growth			0.00817*	0.0105***
Observations	25,306	25,306	24,605	23,999
Errors	robust	robust	robust	robust
Country FE	NO	YES	NO	NO
Wave FE	YES	YES	YES	YES
Sector FE	YES	YES	YES	YES
Sample weights	YES	YES	YES	NO

*** p<0.01, ** p<0.05, p<0.1

Source: matched database SAFE-Amadeus. All firms (Large and SMEs). Dependent variable is a dichotomous variable that takes value 1 if firms report (on SAFE questionnaire) to have used marked-based instruments (new equity or debt securities) in the previous six months and 0 otherwise. Column 1 refers to model specification with only firm-specific variables without country dummies and sector fixed effects (1), column 2 with firm-specific variables and country dummies (2), column 3 including country-specific variables with sample weights (3) and column 4 including country-specific variable without sample weights (4). Independent variables are defined in Table 1. Period: 2009-2014. Panel A summarizes regression coefficients while Panel B describes marginal effects.

Table 7. MSI mean value with only firm-specific variables by firm size

Panel A. Size based on number of employees

Firm size (%)				
	Size<10 employees	Size< 50 employees	Size<250 employees	Size> 250 employees
Belgium	4.6	3.7	7.4	31.1
Germany	4.0	3.2	6.4	24.6
Spain	2.5	3.4	17.6	56.4
Finland	5.7	14.6	40.9	80.4
France	4.6	10.9	42.7	85.0
Italy	2.4	5.7	24.7	68.2
Portugal	2.2	3.9	17.3	54.8
<i>Average</i>	3.7	6.5	22.4	57.2

Panel B. Size based on EC classification

Firm size (%)				
	Micro	Small	Medium	Large
Belgium	2.2	2.5	5.9	32.1
Germany	1.1	2.1	4.8	23.3
Spain	2.4	3.4	17.4	58.5
Finland	5.3	14.9	41.9	82.1
France	4.1	11.2	45.0	87.2
Italy	2.0	4.0	22.8	68.8
Portugal	2.1	4.4	19.3	59.4
<i>Average</i>	2.8	6.1	22.4	58.8

Source: matched database SAFE-Amadeus. Panel A and B display results of MSI index computed with only firm-specific variables across years 2000-2014. MSI index selects those firms that are market suitable by introducing a threshold on the SAFE score. We pick the top x% of the distribution of the SAFE score by country, where x is the percentage of firms which declared in the SAFE survey to use market-based instruments over 2009-2015, For each year firms suitable for market-based financing are identified as those with a value of the SAFE score greater than the threshold. The MS indicator (MSI) will be equal to 1 for firms with a SAFE score greater than the threshold and zero otherwise. SMEs are defined on number of employees (Panel A) and on EC definition (Panel B). According to EC definition: Micro are firms with less than 10 employees and with sales and total asset less than €2 million. Small are firm with a number of employees between 10 and 49 or with sales and total asset less than €10 million. Medium-sized are firms with a number of employees between 50 and 249 or with sales between €10 and €50 million and total asset between €10 and €43 million. Large are firms with more than 250 employees or with sales more than €50 million and total asset more than €43 million. Averages are simple (non-weighted) means of country values

Table 8 Difference between MSI value and SAFE replies by firm size and country

Panel A. MSI index with only firm-specific variables (without country fixed effects)

	Firm size (%)			
	Micro	Small	Medium	Large
Belgium	-0.7	-2.4	1.3	28.0
Germany	-6.2	-6.5	-7.5	14.6
Spain	-0.3	-0.6	24.1	69.2
Finland	-0.6	12.4	50.1	72.6
France	-0.9	8.7	57.0	84.3
Italy	-1.1	-0.1	25.4	72.5
Portugal	0.5	2.0	20.0	62.0
<i>Average</i>	<i>-1.3</i>	<i>1.9</i>	<i>24.3</i>	<i>57.6</i>

Panel B. MSI index including country-specific variables

	Firm size (%)			
	Micro	Small	Medium	Large
Belgium	0.6	-1.4	2.0	17.1
Germany	-4.9	-5.7	-6.4	11.8
Spain	0.4	-0.5	14.9	39.9
Finland	1.3	12.3	37.0	53.7
France	-1.2	5.8	37.1	71.0
Italy	-0.3	1.0	17.9	52.9
Portugal	1.0	1.9	14.3	41.8
<i>Average</i>	<i>-0.4</i>	<i>1.9</i>	<i>16.7</i>	<i>41.2</i>

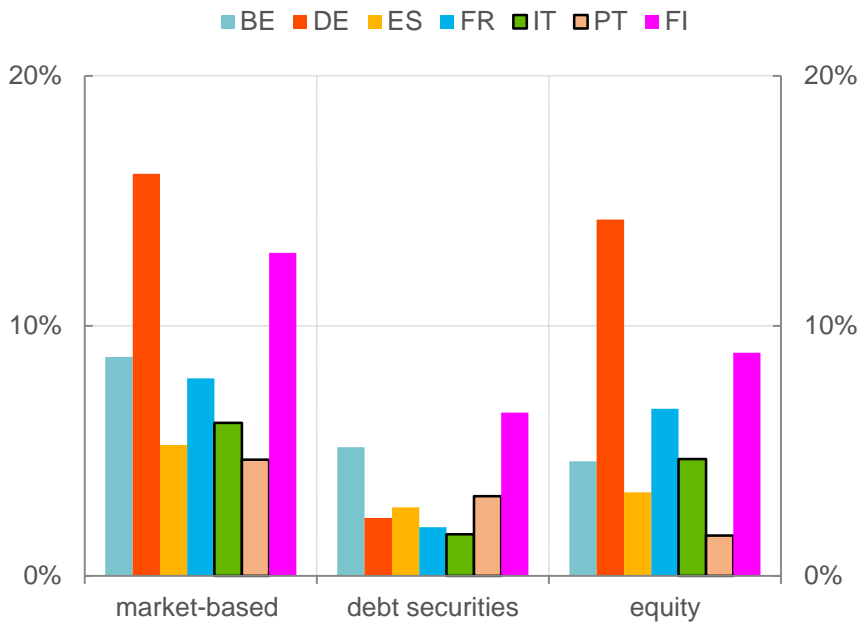
Source: matched database SAFE-Amadeus. The MSI index selects those firms that are market suitable by introducing a threshold on the SAFE score derived from the SAFE (see note on Table 7). Panel A displays results when using MSI index computed with only firm-specific variables without country dummies according to the model specification of column 1 in Table 6, while Panel B exhibits the differences employing the MSI index including also country-specific variables (column 3 of Table 6). SMEs are defined on the basis of number of employees. Averages are simple (non-weighted) means of country values. Period analysed: 2009-2014.

Table 9 Firms “suitable” to access market-based finance and investment ratio/cash holdings (two samples t-test)

	MSI (%)	MSI	Obs	Investment ratios	t-test on means	Cash holding	t-test on means
all	5.8	0	9,788,604	30.3	significant	17.2	significant
		1	607,385	32.8		11.0	
micro	3.5	0	5,439,335	29.4	significant	19.6	significant
		1	196,407	29.7		15.1	
small	6.4	0	1,844,353	33.7	significant	13.0	significant
		1	125,789	35.8		9.4	
medium	25.6	0	336,911	35.7	not sign.	9.8	significant
		1	115,835	35.8		7.1	
large	58.9	0	48,867	35.5	not sign.	9.6	significant
		1	69,909	35.8		6.8	

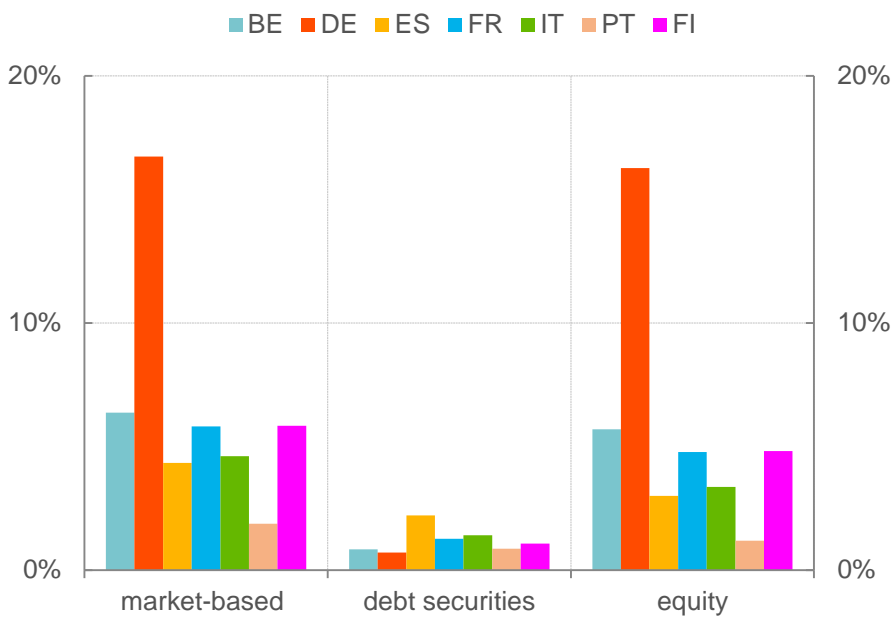
Source: matched database SAFE-Amadeus. Two samples t-test for differences in the samples means for firms’ investment ratios and cash holding. Investment ratios are measured as change in the stock of fixed capital over total asset and cash holding as cash and cash equivalents over total asset. The two samples are based on the value of MS indicator (MSI) at firm level. MSI index used is the specification with firm-specific variables of column 2 in Table 6. For “market suitable” firms is equal to 1, zero otherwise. Firm size is defined on number of employees. Period: 2000-2014.

Figure 1. Firms which have used market-based finance (all firms) (*weighted percentages*)



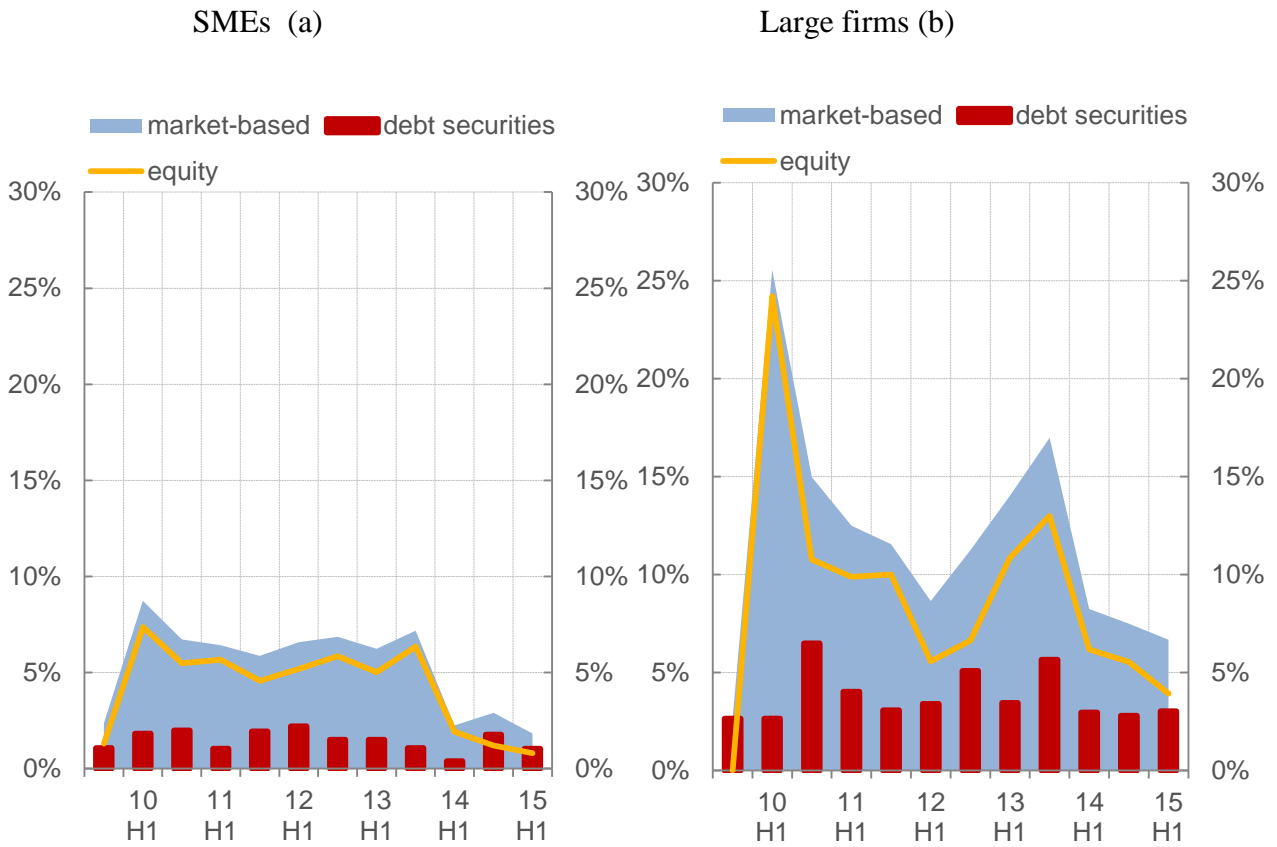
Source: matched database SAFE-Amadeus. All firms (Large and SMEs). Weighted percentages of firms that have used market-based instruments (equity or debt securities) in the previous six months and 0 otherwise. Debt securities are short-term commercial paper or long-term corporate bonds issued, equity capital refers to raising capital through the sale of shares. SMEs defined as firms with less than 250 employees. Period : 2009-2015

Figure 2. SMEs which have used market-based finance (*weighted percentages*)



Source: matched database SAFE-Amadeus. SMEs are defined as firms with less than 250 employees. Weighted percentages of firms that have used market-based instruments (equity or debt securities) in the previous six months and 0 otherwise. Debt securities are short-term commercial paper or long-term corporate bonds issued, equity capital refers to raising capital through the sale of shares. SMEs defined as firms with less than 250 employees. Period: 2009-2015

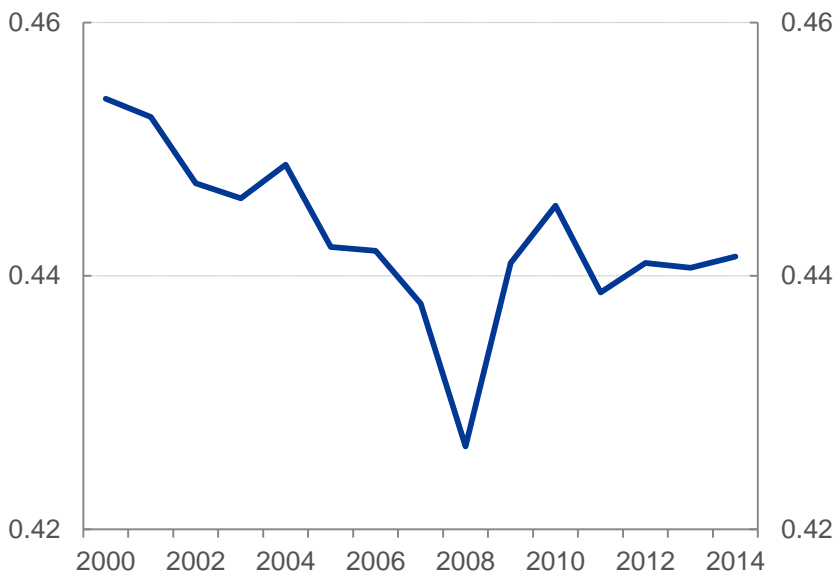
Figure 3 SMEs and Large firms which have used market-based finance across time (*weighted percentages*)



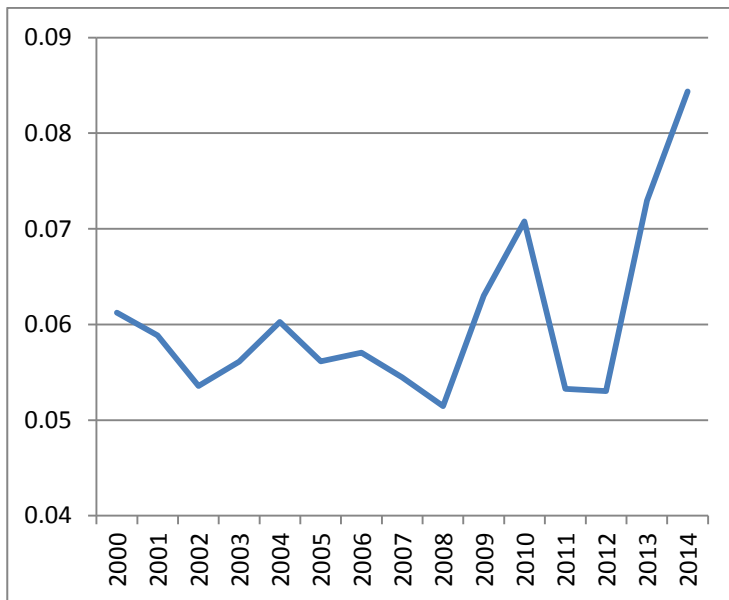
Source: matched database SAFE-Amadeus. Weighted percentages of firms that have used market-based instruments (equity or debt securities) in the previous six months and 0 otherwise. Debt securities are short-term commercial paper or long-term corporate bonds issued, equity capital refers to raising capital through the sale of shares. SMEs defined as firms with less than 250 employees. Period: 2009-2015

Figure 4 SAFE score and MSI Index based on Amadeus database across time

a) SAFE score

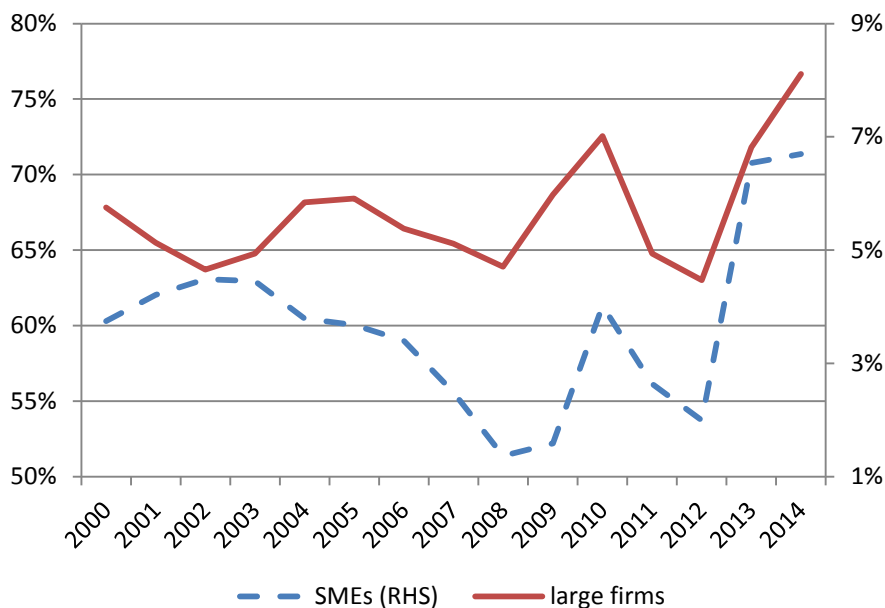


b) MSI Index



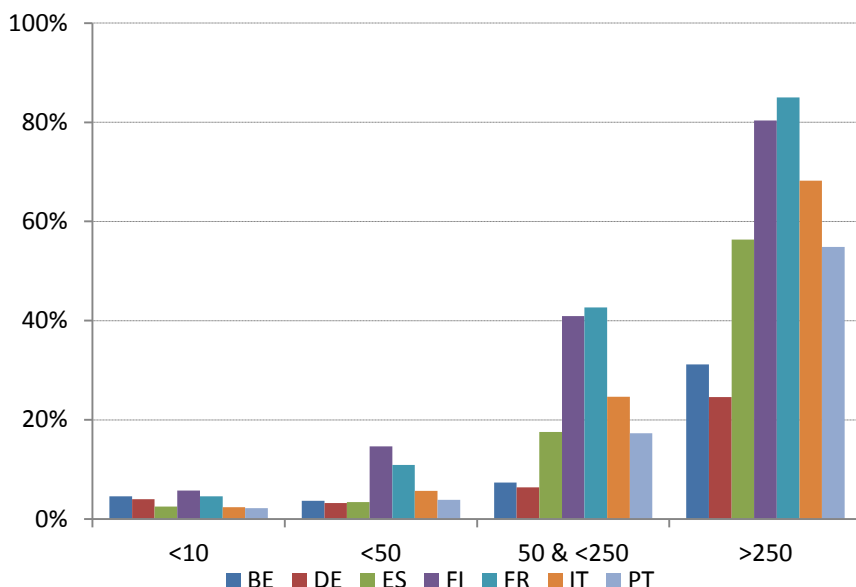
Source: matched database SAFE-Amadeus. All firms (Large and SMEs). In order to compute the SAFE score (Chart a) and MSI Index (Chart b)) we use the coefficients of the estimated survey-based probit with firms-specific variables that come out from the specification in column 2 of Table 6. These coefficients are then applied to the larger pool of firms in the Amadeus dataset in our Eurozone country sample. Period: 2000-2014.

Figure 5 MSI index for SMEs and Large firms across time (2000-2014).



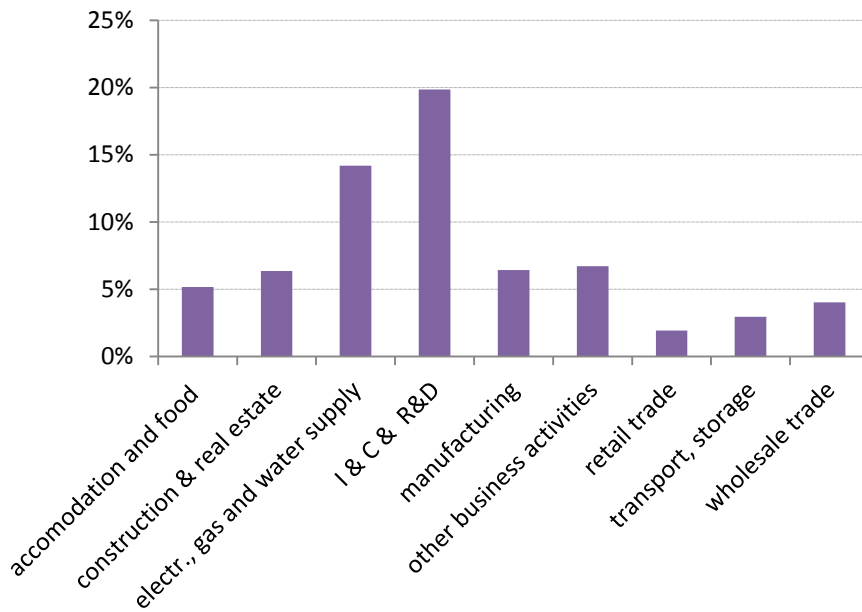
Source: matched database SAFE-Amadeus. The chart displays results of MSI index computed using the estimated coefficients in column 2 of Table 6. To create MSI index we select those firms that are market suitable by introducing a threshold on the SAFE score (see note on Table 7). The MS indicator is equal to 1 for firms with a SAFE score greater than the threshold and zero otherwise. SMEs defined as firms with less than 250 employees. Period: 2000-2014

Figure 6 MSI mean value by firm size (based on the number of employees)



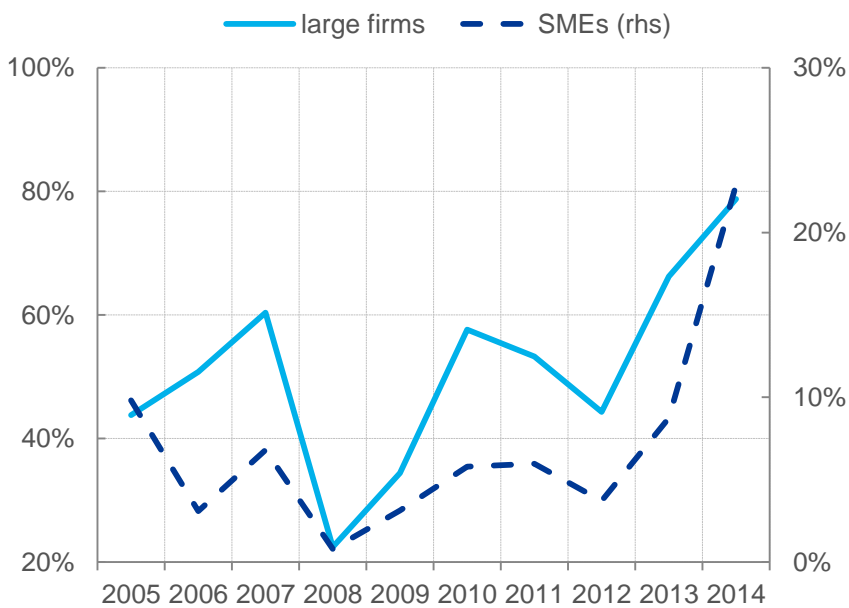
Source: matched database SAFE-Amadeus. To create MSI index we select those firms that are market suitable by introducing a threshold on the SAFE score (see note on Table 7). The MS indicator is equal to 1 for firms with a SAFE score greater than the threshold and zero otherwise. SMEs are defined on number of employees. Period: 2000-2014.

Figure 7 MSI mean value by firm's sector



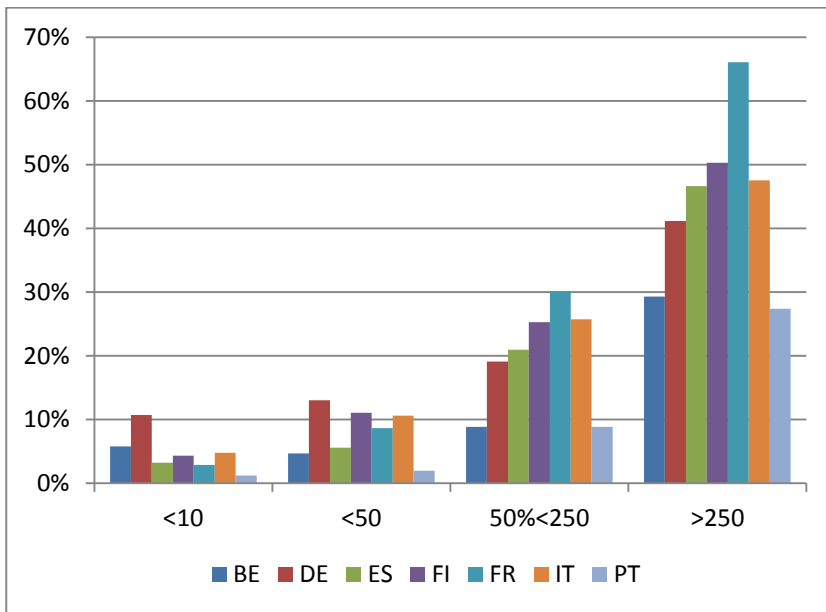
Source: matched database SAFE-Amadeus. All firms (Large and SMEs). To create MSI index we select those firms that are market suitable by introducing a threshold on the SAFE score (see note on Table 7). The MS indicator is equal to 1 for firms with a SAFE score greater than the threshold and zero otherwise. MSI value at firm level is then aggregated at sector level in order to have the MSI mean value by sector reported. Period: 2000-2014.

Figure 8. MSI index including country-specific variables for SMEs and Large firms across time (2005-2014).



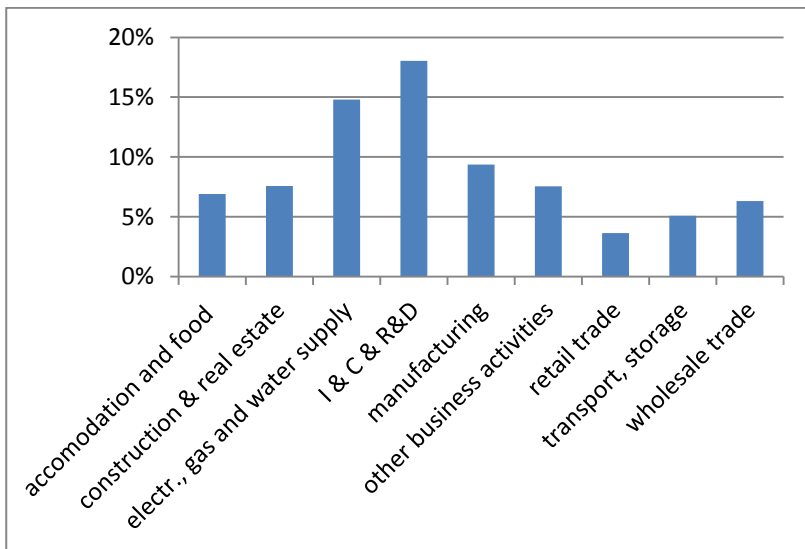
Source: matched database SAFE-Amadeus. The chart displays results of MSI index computed with country-specific variables across years 2005-2014. SMEs defined as firms with less than 250 employees.

Figure 9 MSI mean value with country-variables by firm size (based on the number of employees)



Source: matched database SAFE-Amadeus. To create MSI index we select those firms that are market suitable by introducing a threshold on the SAFE score (see note on Table 7). The MS indicator (MSI) is equal to 1 for firms with a SAFE score greater than the threshold and zero otherwise. SMEs are defined on number of employees. Period: 2005-2014.

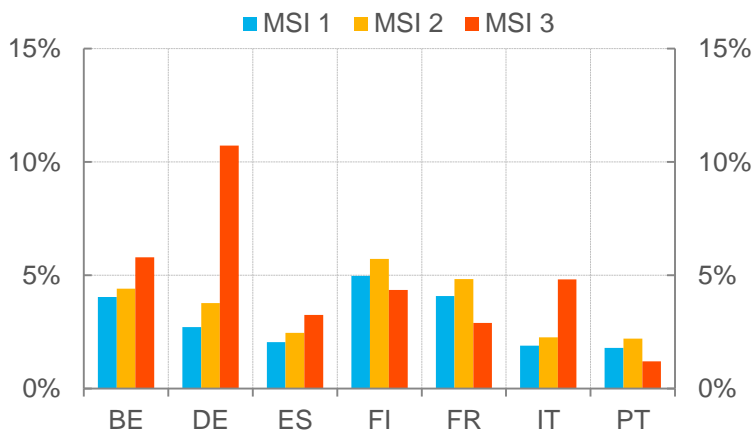
Figure 10 MSI mean value with country-variables by firm's sector



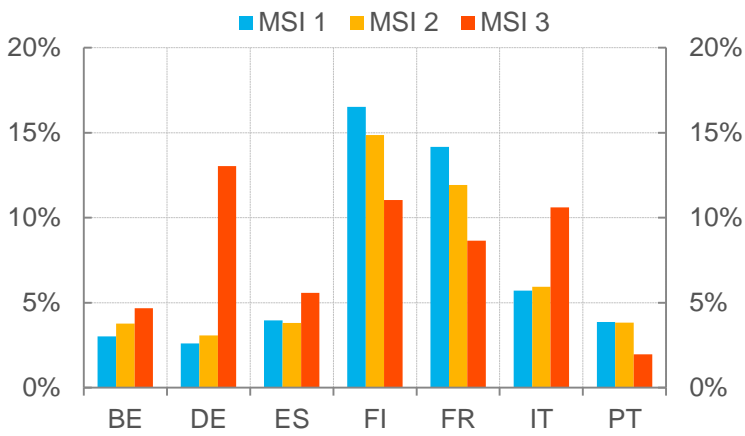
Source: matched database SAFE-Amadeus. All firms (Large and SMEs). To create MSI index we select those firms that are market suitable by introducing a threshold on the SAFE score (see note on Table 7). The MS indicator is equal to 1 for firms with a SAFE score greater than the threshold and zero otherwise. MSI value at firm level is then aggregated at sector level in order to have the MSI mean value by sector reported. Period: 2005-2014.

Figure 11 MSI index by firm size: a comparison (2005-2014)

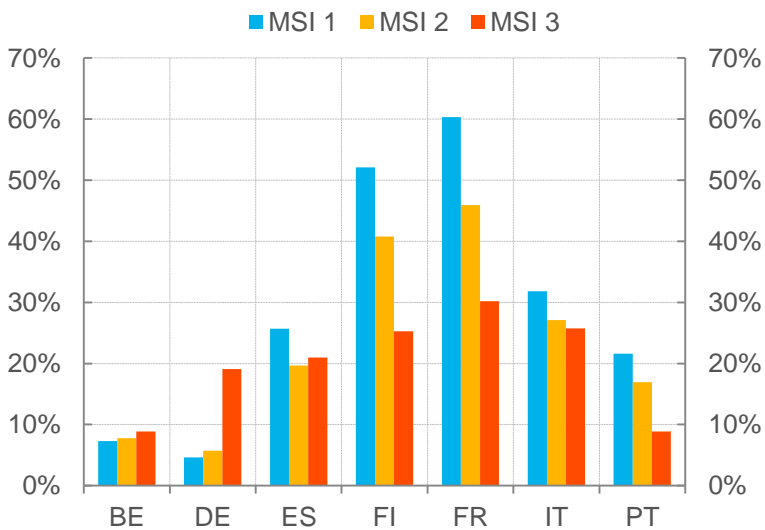
a) Micro firms



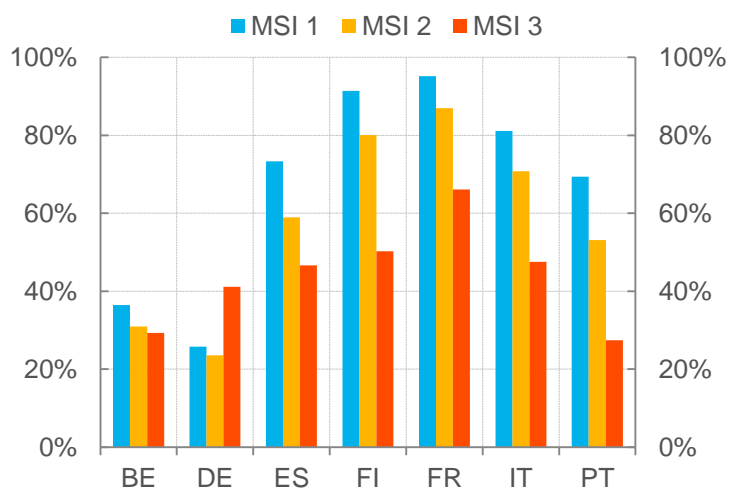
b) Small firms



c) Medium-sized firms



d) Large firms

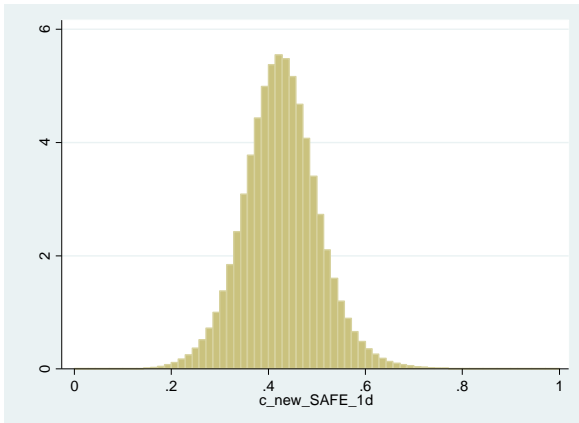


Source: matched database SAFE-Amadeus. The MSI index selects those firms that are market suitable by introducing a threshold on the SAFE score derived from the SAFE (see note on Table 7). Chart display results when using MSI index computed: with only firm-specific variables without country dummies (MSI 1), with firm-specific variables and country dummies (MSI 2) and including country-specific variable (MSI 3) according, respectively, to the model specifications of column 1, 2 and 3 in Table 6. SMEs are defined on number of employees.. Period analysed: 2005-2014.

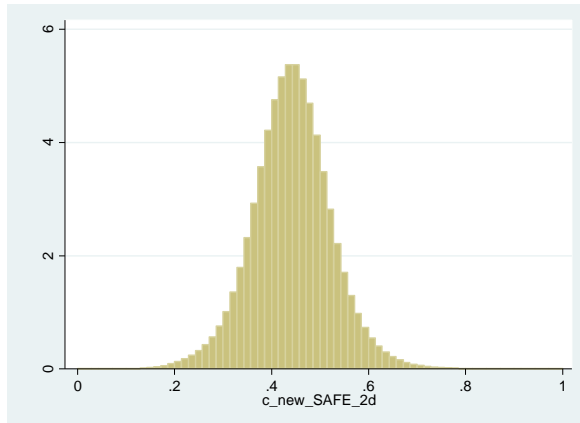
Annex 1

Standardised SAFE score density distribution (overall sample)

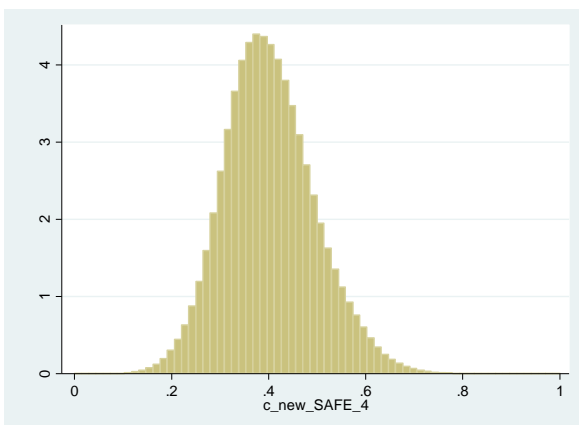
a) with only firm-specific variables



b) including country dummies



c) including country-specific variables



Note: The charts report the density distribution of the standardised SAFE score based on the Amadeus database using the coefficients of columns 1, 2 and 3 of Table 6.