Structure of corporate funding

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Abstract
Funding is crucial for firms to invest but also to operate their daily business. Different types of debt have different characteristics and requirements for firms. This paper aims to identify the main determinants of the composition of corporate funding. In addition to bank and trade credit, two relevant funding sources, we also include in the analysis tax liabilities and loans from shareholders or intra-group operations. The results suggest that some firms' characteristics present a similar impact on alternative funding sources, such as profitability, while others show a heterogeneous effect. Moreover, the results suggest the relevance of variables related to firms' operational activity and business risk in funding structure. (JEL: G21, G32)

Introduction

Funding is crucial for firms to invest and to expand, but also to operate their daily business. Some firms rely more intensively on internal funds, while others rely more intensively on external funding. What determines a firm's capital structure and the heterogeneity across firms are important topics in corporate finance, but also for the real economy. The level of indebtedness of Portuguese firms and its implications for the economic recovery have often been discussed during the last years, in particular during the most recent crisis.

The literature on corporate capital structure is huge. In particular, this literature explores the advantages and disadvantages of capital and debt for firms, due to market frictions, conflict of interest or tax benefits. The *trade-off* theory (where leverage reflects debt's advantages and costs) and the *pecking order* theory (the optimal hierarchy of funding sources) are two of the most discussed theories in this field. However, it is also important to look carefully at the composition of corporate funding. Indeed, even for the set of firms that

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have relatively stable leverage ratios, a non-negligible share of these firms also changed the composition of their liabilities (as discussed in Rauh and Sufi (2010)).

Different types of debt have different characteristics and requirements for firms. For instance, each type of debt has a distinct market functioning, different sensitivity to firm's information and different payments schemes. Thus, it is also important to analyze debt components. Under this framework, some studies explore the composition of firm's liabilities as well as firm's access to financial markets. Due to their relevance in total external funding in several countries, bank and trade credit are two debt components that have received special interest in the literature.

This study explores the composition of corporate debt. In addition to the analysis of bank and trade credit, we also analyse debt components related to tax liabilities and shareholder or intra-group loans. Tax liabilities can be a relevant component for liquidity and working capital management. In turn, loans from shareholders or intra-group operations are important due to their nature, *i.e.* owners provide funding to firms thought debt instruments rather than own equity. The purpose of this study is to identify the main determinants of bank and trade credit, but also of tax liabilities and shareholders or intra-group loans. The analysis is performed using a unique and detailed micro dataset for Portuguese firms, the Central Balance Sheet database, which covers virtually the entire Portuguese corporate sector.

This study contributes to the empirical literature on corporate funding, given that it explores different debt components that have different characteristics and consequently expose firms to different shocks. Moreover, a particular contribution is related to the analysis of some debt components that are not usually documented in the literature of corporate funding or liquidity management, namely loans granted by shareholders or intra-group operations and tax liabilities.

According to the results, we observe that profitability is negatively related to the funding sources included in the analysis. We also find that variables related to the activity and operational cycle of firms play a role in determining the respective funding sources. Furthermore, firm's business risk seems also to be an important feature, in particular for tax liabilities and shareholders or intra-group loans.

The remainder of this article proceeds as follows: Section 2 briefly reviews some of the literature on corporate funding. Section 3 describes the data sources and presents some descriptive statistics. Section 4 presents the main econometric results. Section 5 explores heterogeneity across firms, while Section 6 presents a robustness test. Finally, Section 7 presents the main conclusions.

Review of the literature

According to Modigliani and Miller (1958), under some assumptions, in particular the absence of taxes, firm's capital structure is irrelevant to determine its value. However, as discussed in Modigliani and Miller (1963), the existence of corporate taxes and the possibility of recording interest payments as a cost (creating tax shields) alter considerably the *irrelevance proposition* presented previously, demonstrating that there are some benefits for firms holding debt. But, holding debt also has costs, such as the costs associated with financial distress.

Since these seminal papers, there was an explosion of (both theoretical and empirical) research on capital structure. Most of the empirical research has focused on testing the two main views of capital structure: the *trade-off* theory and the *pecking order* theory (Myers (1984) and Myers and Majluf (1984)). According to the former theory, firms have targets for the leverage ratios that balances several debt costs (*e.g.* financial distress costs, stockholders-bondholders agency conflicts) and debt benefits (*e.g.* tax savings, mitigate manager-shareholder agency costs). According to the *pecking order* theory, firms follow an optimal financing hierarchy in order to minimize adverse selection costs related to market imperfections. Under this theory, firms first use internal funds, then use debt and only issue equity once their debt capacity is exhausted. Even though these theories identified relevant facts related to firm's capital structure, some unexplained facts persist. Neither of these theories were able to explain the heterogeneity observed in the structure of corporate funding. More recently, other theories complement this analysis, trying to introduce alternative explanations for firm's capital structure decisions, such as the *dynamic trade-off* theory (related, for instance, to adjustment costs or endogenous investment), or *equity market timing* theory.[1]

Understanding firms' decisions between internal and external funding sources is a relevant topic. However, it is also important to look carefully to the composition of corporate debt. Indeed, even within firms that present relatively stable leverage ratios (*i.e.* own capital versus debt), some firms also adjust some funding components (as described in Rauh and Sufi (2010)).

Looking at financial debt, empirical studies (such as Barclay and Smith (1995), Gomes and Phillips (2005), Houston and James (1996) and Houston and James (2001), Johnson (1997), Cantillo and Wright. (2000), or Hadlock and James (2002)) investigate the relation between the access to financial markets and firms' characteristics. In general, these studies confirm the positive relation between the access to debt markets or financial institutions and firms' characteristics such as size, leverage, age, and the amount issued.

1. See Graham and Leary (2011) for a survey of the literature on capital structure.

Denis and Mihov (2003) also analysed differences within debt types, exploring the determinants of new debt issues. The authors argue that one of the main determinants is firm's credit quality. Their results suggest that firms with highest credit quality obtain credit in financial markets, firms with medium credit quality obtain funding from banks, while firms with the lowest credit quality borrow from non-bank private lenders.

More recently, Rauh and Sufi (2010) adopted a different perspective in analysing capital structure decisions and debt components, finding that the standard correlation between determinants and debt ratios can be quite different depending on the debt instrument in analysis. Moreover, they also show that firms rely on several debt instruments, depending on the firms' credit quality. By contrast Colla *et al.* (2013) extended the dataset used by Rauh and Sufi (2010) by including unrated public firms. They found instead a tendency towards debt specialization, *i.e.* the concentration in one type of debt. This study also highlights that looking more deeply into debt components contain relevant information about corporate funding.

Due to the relevance of bank credit as an external funding source to firms, given that a significant fraction of firms do not have access to wholesale debt markets in several countries, another important avenue of research explores this debt component and bank lending relationships. This literature is quite extensive and suggests an impact of these relationships on firm's access to external finance. According to the literature, firm-bank relationships play a critical role in mitigating asymmetric information, which is more relevant for smaller and younger firms. The literature suggests that a borrower should benefit from a smaller number of relations and longer bank lending relationships. However, empirical results on this topic are mixed.[2] In particular, a significant fraction of firms have more than one lending relationship. These lending relationships are conditioned by several factors: for both firms and banks, there is a trade-off between the benefits of a closer relationship and the benefits of a broader diversification of funding/borrowers, such as firm's hold-up problems, market competition or banks' portfolio diversification (Carletti *et al.* (2007)). The relation between the number of banking relationships and firm's credit quality has also been an important topic of research, but the arguments in this topic are divergent (*e.g.* Degryse and Ongena (2001), Farinha and Santos (2002), and Fok *et al.* (2004)).

Beyond financial debt markets and bank credit, there is some literature on other funding sources, namely non-financial funding, such as trade credit.

2. For instance, an increase of the number of lending relationships decreases the amount of credit (Petersen e Rajan (1994), Cole (1998) and Harho and Körting (1998)), while longer relationships increase the availability of credit (Petersen and Rajan (1994), Harhoff and Körting (1998)), and decrease collateral requirements (Harhoff e Körting (1998) e Berger e Udell (1995)). However, regarding interest rates the empirical evidence is mixed (e.g. Berger and Udell (1995), Houston and James (1996), Petersen and Rajan (1994), Bonfim et al. (2009)).

This was mainly motivated by the fact that trade credit is widely used and represents an important funding source for several firms. In the traditional perspective, trade credit plays a non-financial role for firms, such as the reduction of transaction costs, price discrimination, warranty of product quality, or to foster longer relationships with customers, (*e.g.* (Petersen and Rajan (1997)). Financial literature complemented this analysis, showing that trade credit also plays a role as a funding source for firms.

Given the implicit high cost of trade credit (based on the implicit interest rate), one of the main questions is the relation between trade credit and other funding sources (perceived as cheaper), namely bank credit. The predominant idea is that firms use trade credit because there are bank credit constraints (*e.g.* Petersen and Rajan (1994), Nilsen (2002), and Cuñat (2007)).[3] Trade credit is therefore seen as a substitute funding source, *i.e.* firms use alternative available forms of credit before trade credit (*e.g.* Atanasova and Wilson (2004)). Nevertheless, according to Biais and Gollier (1997) and Burkart and Ellingsen (2004), trade credit can also play a role as a complement to bank credit. Firm's suppliers may have a comparative advantage over banks in collecting information, assessing a firm's creditworthiness, and monitoring firm's decisions. Thus, due to suppliers' ability to discriminate between good and bad firms, trade credit may work as a signal about firm's credit quality.

This study explores the differences in funding components, as highlighted in Rauh and Sufi (2010). However, while the authors focus on financial debt instruments, we analyse firm liabilities in a broader perspective. Therefore, this article is related to papers that explore bank and trade credit, two of the main components of firm liabilities, but it explores additional debt components, namely tax liabilities and loans granted by shareholders or intra-group operations. These debt components are not so well documented in the empirical literature of corporate funding. Tax liabilities can be related to the possibility that firms explore the payment schedule of these liabilities (*e.g.* allowing firms to overcome/manage working capital needs). In turn, shareholders or intra-group loans are a topic that raises several questions, due to the holders of these loans and the relation to own equity. Depending on the contract, these loans can be perceived as capital by other debt holders. Indeed, in several jurisdictions, these loans are treated as capital when insolvency events occur. Moreover, the remuneration of these loans may also contribute to their attractiveness. For firms, the interest paid on these loans, under some circumstances, can be treated as a cost. Thus, for the other debt holders these loans can be seen as a "form of equity", but they may generate tax shields. Since in Europe equity decreases are seriously constrained, shareholders or

3. Cuñat (2007), looking at a panel of UK firms, found that trade credit is used at the margin, when other forms of credit have already been exhausted. Their results also suggest that the evolution of trade credit is related to the length of the commercial relationships, and that trade credit seems to be more prevalent when firms have lower levels of liquidity.

intra-group loans become a more flexible way to finance firms than equity. The reimbursement of these loans is limited by covenants imposed by the debt terms of these contracts instead of the general equity law. Additionally, from the shareholders' perspective, there can also exist some heterogeneous fiscal treatment on income earned by interests or dividends (loans versus capital remuneration). This may also have impact on shareholders' incentives between the two options to "invest" in firms.

Data and variables

Data sources

The data used in this article correspond to the annual information from the Central Balance Sheet database (CB) of the Portuguese corporate sector, available at Banco de Portugal.

The CB includes financial information, based on financial statements, and some additional firm's characteristics, such as the industry sector and the start-up date. Since 2006, the annual CB is based on the Simplified Corporate Information survey (Informação Empresarial Simplificada - IES) instead of a voluntary survey.[4] In order to exploit IES, which has almost universal coverage of the Portuguese corporate sector, the sample period begins in 2006 and goes up to 2012.

In 2010, there were some relevant changes with impact on the analysis. On one hand, there was a change in the accounting rules. On the other, a new IES's survey was implemented. These events required some adjustments in the information available in IES. Some variables need to be interpreted with special care due to the need to reconcile the two reports and establish a link between the two accounting schemes.[5]

Simultaneously, we impose some selection criteria in the definition of the dataset. Firstly, the financial sector and public administrations were excluded, as well as observations with misreported data for total assets, business volume, number of employees, and age. Furthermore, firms with less than 5 employees were also ruled out. Moreover, in order to remove outliers, we winsorize the variables at the top and bottom two per cent levels.

4. IES is an electronic submission of accounting, fiscal and statistical of information nature that companies have to submit to the Ministry of Justice, the Ministry of Finance, Statistics of Portugal and the Banco de Portugal. Thus, instead of companies reporting nearly the same information to the different public entities in different moments in time and in different formats, as happened until 2006, they report once a year to the simplified system. As all firms have to submit the report, IES allows for a high coverage of the Portuguese corporate sector.

5. This topic will be analysed in more detail whenever relevant in the analysis.

The final dataset comprises of more than 655 000 observations, which corresponds to an unbalanced panel covering the period 2006 to 2012 and around 147 000 firms.[6]

Descriptive statistics

Table 1 displays some descriptive statistics on the capital structure and debt composition of firms included in the dataset. In turn, Table 2 presents the mean and median figures of the distribution of these variables in each year.

At the aggregate level, bank debt is the main external funding source for firms included in the dataset. Despite this fact, a significant share of firms in the sample do not have any bank credit (around 30 per cent). For Portuguese firms, bank credit corresponds to the main component of their financial debt. Debt securities represent a small share of this component, reflecting the fact that few firms have access to the wholesale debt market. Therefore, debt securities are included in the component "other funding", the omitted category. The two other sizable categories are trade credit and shareholders or intra-group loans. Tax liabilities amount to a smaller fraction of funding, but all firms use or manage the payment schedule of these liabilities.

In turn, when we observe the distribution of these variables in the sample, there are relevant differences. Total indebtedness levels are higher, both in terms of the mean and the median. This means that several smaller firms present higher leverage ratios than larger firms. The structure of funding sources is also different between aggregate values and the respective distribution. The share of trade credit increases significantly, while the bank credit decreases. Shareholders or intra-group loans also increase considerably in the first years of the sample period, but decrease afterwards. However this break is related mainly to changes in the accounting schemes and IES's reports introduced in 2010. These events seem also to affect the share of bank credit, but to a smaller extent.[7]

The results of the two approaches highlight the importance of complementing the analysis of the corporate sector at aggregate level, with additional analysis based on microdata due to the significant differences in firms' funding structure.

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6. However, to lack of available data for some variables under analysis for all observations, the econometric analysis is performed in next sections could include a smaller set of firms.

7. The impact of the changes introduced in 2010 were not so evident at the aggregate level (*i.e.* with weighted figures). The impact of these events will be taken into account in the analysis presented in the next sections. The changes in accounting schemes and reports avoid the distinguish between loans from shareholders and loans from firms in the same economic group, which was possible in the period before 2010.

	N. of Firms	Equity	Total Funding	Bank Credit	Trade Credit	Tax Liabilities	Shareholders & Intra Group
2006	100 355	0.303	0.598	0.188	0.138	0.027	0.078
2007	102 373	0.303	0.596	0.179	0.132	0.024	0.090
2008	100 660	0.283	0.617	0.194	0.129	0.020	0.095
2009	94 741	0.286	0.605	0.189	0.124	0.021	0.101
2010	93 620	0.301	0.645	0.200	0.124	0.019	0.113
2011	86 148	0.293	0.655	0.181	0.123	0.017	0.141
2012	77 283	0.287	0.661	0.168	0.114	0.018	0.148
Share of observations with positive values		0.86	1.00	0.69	0.94	1.00	0.41

TABLE 1. Funding Sources at the Aggregate Level (Weighted average)

Note: All the variables are scaled by total assets at book value. Total funding corresponds to the ratio of total debt, excluding "Acréscimos e diferimentos" and provisions, over total assets. Thus, Total funding and Equity are not complements (the sum of the two variables may be different than one).

	N. of Firms	Equity	Total Funding	Bank Credit	Trade Credit	Tax Liabilities	Shareholders & Intra Group
2006	100 355	0.238	0.722	0.128	0.208	0.083	0.112
		0.226	*0.710*	*0.045*	*0.156*	*0.040*	*0.002*
2007	102 373	0.226	0.717	0.133	0.205	0.077	0.107
		0.243	*0.703*	*0.051*	*0.152*	*0.036*	*0.001*
2008	100 660	0.227	0.715	0.139	0.199	0.073	0.106
		0.247	*0.697*	*0.055*	*0.145*	*0.034*	*0.000*
2009	94 741	0.237	0.705	0.150	0.191	0.070	0.102
		0.259	*0.686*	*0.076*	*0.137*	*0.033*	*0.000*
2010	93 620	0.236	0.747	0.198	0.195	0.071	0.040
		0.268	*0.717*	*0.137*	*0.140*	*0.033*	*0.000*
2011	86 148	0.241	0.744	0.184	0.190	0.070	0.058
		0.283	*0.702*	*0.118*	*0.135*	*0.032*	*0.000*
2012	77 283	0.245	0.739	0.174	0.188	0.072	0.062
		0.300	*0.685*	*0.104*	*0.132*	*0.033*	*0.000*

TABLE 2. Funding sources - Distribution in the dataset (mean and median figures)

Note: The figures presented in italic corresponds to the median figures of each variable in each year. All the variables are scaled by total assets at book value. Total funding corresponds to the ratio of total debt, excluding "Acréscimos e diferimentos" and provisions, over total assets. Thus, Total funding and Equity are not complements (the sum of the two variables may be different than one).

Table 3 presents some summary statistics looking at the funding structure by firm's size (based on the assets, business volume, and number of employees) and age.[8] The empirical literature suggests that there are differences in the access to external finance due to firm size and age, which are are usually proxies for asymmetric information, information opaqueness, and firm's credit quality. By firm size, we observe that larger firms are more capitalized. Looking at the external funding sources, bank credit is more relevant for medium sized firms, while the weight of trade credit is relatively stable across categories. Tax liabilities and loans from shareholders or intra-group operations are particularly relevant in the funding structure of micro and small firms. By firm age, we see that younger firms are relatively less capitalized. They also present differences in the debt structure, with higher shares of tax liabilities and loans from shareholders or intra-group operations.

As far as firm characteristics are concerned, we first analyze the variables highlighted in the capital structure literature, *i.e.* variables related to internal funding, agency costs, bankruptcy costs, and asymmetric information. In line with *e.g.* Rajan and Zingales (1995), we consider profitability, growth opportunities, tangibility and size.

Profitability (PROFITABILITY) is defined as net earnings before provisions and depreciations over total assets. Sales growth (SALES GROWTH) is the year-on-year change of sales, and it intends to control for the firm's growth opportunities. Tangibility (TANGIBILITY) corresponds to the share of tangible assets in total assets, and is used to control for the assets that a firm can pledge as collateral in credit operations, which decrease agency costs. These assets should retain more value in case of liquidation and thus also decrease the cost of bankruptcy. Moreover, tangibility gives us some information about the assets structure of each firm. Firm's size (SIZE) is included in the analysis as the logarithm of total assets. Size is usually related to asymmetric information and credit quality. In particular, lenders see larger firms as a lower credit risk and more transparent. In the same line, age (AGE) is also included: older firms have established track records that lenders can evaluate. Additionally, age is also related to the firm's life cycle, and financial needs are usually higher in the initial years of firms.

As we intend to explore corporate funding in more detail, instead of the total leverage ratio, it is also important to control for additional factors that could be underlying the use of different funding sources. In particular, as some of funding sources considered are related to firm's activity and operational

8. Firms' size is defined according to the European Commission Recommendation of 6 May 2003 (2003/361/EC). Thus, micro firms are defined as those with less than 10 employees and less than 2 million euro of business volume or total assets; small firms are those with fewer than 50 employees and less than 10 million euro of business volume or total assets; medium firms are those with fewer than 250 employees and a business volume below 50 million euros or whose total assets is lower than 43 million euros. The remaining firms are considered large firms.

Panel A - Firm size

	Micro		Small		Medium		Large	
	mean	*median*	*mean*	*median*	*mean*	*median*	*mean*	*median*
Total funding	0.76	0.72	0.70	0.69	0.65	0.65	0.61	0.61
Equity	0.21	0.25	0.26	0.27	0.28	0.29	0.29	0.30
Bank credit	0.14	0.05	0.17	0.11	0.19	0.15	0.14	0.05
Trade credit	0.19	0.13	0.20	0.16	0.20	0.16	0.18	0.14
Tax liabilities	0.08	0.04	0.07	0.03	0.06	0.02	0.05	0.02
Ec. group and shareholders	0.11	0.00	0.07	0.00	0.05	0.00	0.07	0.00
Share of each class	52.39		40.35		6.19		1.07	

Panel B - Firm age

	Class 1		Class 2		Class 3		Class 4	
	mean	*median*	*mean*	*median*	*mean*	*median*	*mean*	*median*
Total funding	0.85	0.81	0.74	0.72	0.67	0.66	0.63	0.60
Equity	0.10	0.15	0.22	0.24	0.29	0.31	0.33	0.37
Bank credit	0.15	0.05	0.16	0.09	0.16	0.10	0.15	0.08
Trade credit	0.22	0.16	0.20	0.15	0.19	0.14	0.17	0.13
Tax liabilities	0.10	0.05	0.07	0.04	0.06	0.03	0.06	0.03
Economic group + shareholders	0.10	0.00	0.08	0.00	0.08	0.00	0.08	0.00
Share of each class	26.59		25.03		24.31		24.07	

TABLE 3. Funding sources by firm size and age

Note: All the variables are scaled by total assets and defined at book value. Total funding corresponds to the ratio of total debt, excluding "Acréscimos e diferimentos" and provisions, over total assets. Thus, total funding and equity are not complements. Age classes were defined based on the quartiles of the distribution. Class 1: age <6 years; Class 2: 6< age < 12 years; Class 3: 11<age<21 years; Class 4: age>20 years.

cycles, variables related to these dimensions are also explored. Therefore, we include variables directly related to firms' activity and working capital needs, such as inventories (INVENTORIES), account receivables (ACCOUNT RECEIVABLES), and the turnover ratio (TURNOVER). A variable related to the business risk of the firms is also included, using as proxy the volatility of the cashflow ratio (SD CASHFLOW).

Finally, the set of firm characteristics includes an indicator for wether firm belongs to an economic group (EC. GROUP). This control variable is motivated by the fact that the balance sheet data is not reported on a consolidated basis, which implies that the share of some funding sources may be affected by transactions within the group.

Table 4 presents some summary descriptive statistics of the considered variables. Table A.1 in the Appendix briefly describes each variable.

	N	mean	sd	p10	p25	p50	p75	p90
PROFITABILITY	655187	0.04	0.17	-0.11	0.01	0.05	0.11	0.20
SALES GROWTH	568450	-0.03	0.32	-0.38	-0.16	-0.02	0.11	0.30
TANGIBILITY	655187	0.27	0.24	0.02	0.07	0.20	0.41	0.64
SIZE	655149	13.07	1.57	11.23	12.02	12.95	13.97	15.07
AGE	655187	2.49	0.84	1.39	1.95	2.56	3.09	3.50
ASSET TURNOVER	655187	1.48	1.20	0.38	0.70	1.16	1.86	2.93
INVENTORIES	655187	0.18	0.23	0.00	0.00	0.09	0.28	0.54
ACCOUNT RECEIVABLE	655187	0.25	0.23	0.00	0.02	0.20	0.42	0.60
CASHFLOW VOLATILITY	638929	0.11	0.14	0.02	0.03	0.06	0.12	0.25

TABLE 4. Summary statistics: Firm characteristics

Note:"sd" stands for standard deviation; while p10, p25, p50, p75, p90 stand for, respectively, the percentiles 10, 25, 50, 75 and 90 of the distribution of each variable.

Determinants of firms funding sources

Empirical approach

As mentioned above, we are interested in analyzing firms' funding sources, namely bank credit (key component of financial debt), trade credit, loans from shareholders or intra-group operations, as well as tax liabilities. The econometric analysis is based on seemingly unrelated regressions (SUR), as a firm's alternative funding sources may be related. Each equation in the system has the following specification:

$$\frac{Funding^{j}_{i,t}}{Asset_{i,t}} = c + \beta X_{i,t-1} + \delta z_i + \varphi w_t + \mu^{j}_{i,t} \tag{1}$$

where j stands for each funding source, i is firm's identification and t corresponds to the time dimension. Therefore, the dependent variable corresponds to funding source j of firm i in period t, scaled by total assets. $X_{i,t-1}$ is a vector of firm i specific variables, which may affect firm's debt components, evaluated at $t-1$. Additionally, z_i and w_t correspond to industry sector and time effects, respectively. The industry sector dummies control for relevant differences in the market where firm operates, while time effects, represented by year dummies, control for changes that affect all firms simultaneously. Finally, $\mu^{j}_{i,t}$ corresponds to the error term of each equation.

The SUR approach estimates the four equations simultaneously and takes into account the relation between those error terms. Moreover, standard errors are robust and clustered at the firm level, controlling for the heteroscedasticity issues and the longitudinal dimension at firm level.

Empirical findings

Capital structure variables. As a starting point of the econometric analysis, the firm characteristics included as explanatory variables are motivated by the capital structure literature. Thus, the specifications include variables related to profitability, sales growth, size and tangibility. Firm's age is also included as it is a proxy for firm's information opaqueness and life cycle. Additionally, the specifications include a dummy variable that controls if a firm belongs to an economic group.

Table 5 contains the results under the SUR approach.[9] An overview of the results allows us to conclude that these variables are broadly statistical significant.

Profitability has a negative coefficient in all equations, suggesting that firms with more internal funds tend to use less external funding than other firms, which is in line with some findings in the literature. The comparison of the coefficients allows us to observe that profitability seems to have a larger impact on trade credit component. The negative relation between internal funds measures and external funding is usually presented as an evidence supporting the *pecking order* theory (*i.e.* due to asymmetric information, firms use internal funds before external funding sources), in opposition to the *trade-off* theory. Following the latter theory, profitability should be positively related to leverage, as it contributes to decrease the bankruptcy costs and allow tax shields.[10]

In turn, sales growth, when statistically significant, has a positive coefficient. This result may signal some financial needs, since sales growth should be related to firm's growth opportunity. However, the economic impact is relatively low, based on changes of a standard-deviation.

Size is always statistically significant, but has a heterogeneous impact on funding sources: a positive coefficient in bank and trade credit and the opposite sign in the remaining funding sources. The positive sign on bank and trade credit should be related to asymmetric information and firm's

9. As the set of regressors is the same in the four equations in the system, the coefficients estimated under the SUR approach coincide with those estimated with Ordinary Least Squares (OLS). However, as the SUR controls for the correlation between the residuals of the equations included in the system, the t-statistics and consequently the significance of the coefficients can be different under the two econometric approaches.

10. Nevertheless, as described in Section Review of the Literature, more recent researches in this field also identified alternative explanations for the negative coefficient of profitability, that are not necessarily contradicting the trade-off theory.

credit quality. Indeed, larger firms tend to have more information available to external agents and usually have associated lower credit risk, since they are usually more diversified, as discussed in Fama and French (2002). Therefore, the access to financial debt, in particular bank credit, should be easier to these firms. A potential reason underlying the positive relation between size and trade credit is the fact that larger firms may have more offers of credit by their suppliers, given that they are perceived as good firms. Moreover, large firms may also have some bargaining power with the suppliers and, consequently, they can obtain better contract conditions. This may be reflected, for instance, in higher credit amounts and/or longer periods to repay the credit.

In turn, tangibility also shows a heterogeneous impact on the various funding sources. This variable allows us to identify the share of assets that can be pledged as collateral in credit contracts, which contribute to a decrease of bankruptcy costs. For bank credit, as expected, we observe a positive coefficient (*e.g.* in line with Rauh and Sufi (2010)). Tangibility also denotes a positive coefficient for shareholders or intra-group loans. In turn, for trade credit and tax liabilities the coefficients are negative. The highest impact is recorded for bank credit. These results are consistent with the idea that fixed assets should be financed with longer term funding and also support the role of collateral in mitigating information asymmetries. Finally, age has a negative coefficient in all equations except shareholders loans. older firms appear to be less indebted than younger ones, for some specific debt components. These results may also be related to firm's life cycle, as firms tend to have higher financial needs in the beginning of their activity (*e.g.* they have lower levels of capital accumulated).

Time dummies capture differences that affect all the firms simultaneously, such as macroeconomic and financial developments. The inclusion of these variables in the analysis is crucial, as the sample period includes different phases of the economic business cycle: years of economic activity growth and years of severe economic recession. Moreover, the time dummies also control for the impact of changes in the IES' reports and accounting schemes mentioned previously, which took place in 2010 and were transversal to all firms. The specifications also include industry dummies. The literature emphasizes the importance of controlling for the business sector of firms, in particular in the analysis of funding issues (*e.g.* Fisman and Love (2003)). For simplicity the coefficients of these variables are not presented in the tables.

All in all, the results highlight the heterogeneous impact of some firms' characteristics on different funding sources. The exception is profitability which has a negative relation with all of the funding sources in analysis. Profitability is also within the variables with higher economic impact on the different funding sources (assessed by a standard-deviation).

The econometric results presented allow us to identify some correlation between key firm characteristics and funding components, which may contribute to a better understanding of corporate funding.

	Bank Credit	Trade Credit	Tax Liabilities	Shareholders & Intra group
PROFITABILITYt-1	-0.1913***	-0.2464***	-0.1310***	-0.2124***
	(-95.42)	(-130.68)	(-122.48)	(-124.46)
SALES GROWTHt-1	0.0004	0.0197***	0.0043***	0.0042***
	(0.50)	(24.68)	(9.51)	(5.83)
SIZEt-1	0.0273***	0.0076***	-0.0195***	-0.0157***
	(137.44)	(40.81)	(-184.46)	(-92.95)
TANGIBILITYt-1	0.1716***	-0.1164***	-0.0452***	0.0326***
	(134.31)	(-96.90)	(-66.36)	(30.00)
AGE	-0.0196***	-0.0384***	-0.0119***	0.0010***
	(-44.66)	(-93.15)	(-50.73)	(2.70)
Ec. Group	yes	yes	yes	yes
Time dummies	yes	yes	yes	yes
Industry sector	yes	yes	yes	yes
N	434100			
R-sq	0.112	0.153	0.172	0.163

TABLE 5. Econometric analysis: Capital structure standard variables

Note: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. The t-statistics are in parenthesis. The results were obtained running a SUR, with robust standard errors and clustering at firm level. Firm's characteristics were included as regressors with a lag, with exception of the variable Age. All specification included a constant term.

Delving deeper into firm activity. The previous analysis focused on the key variables discussed in the capital structure literature. In order to look into the composition of funding in more detail, it is important to control for additional factors that can be underlying the use of the different funding sources. Therefore, we also include in the analysis measures related to the firm's operational cycle and activity as explanatory variables, namely variables related to inventories, credit granted by firms to customers, and turnover. We also include a variable related to firm business risk, given that this characteristic may affect the type of funding that the firm can obtain.

The results for the new specification are presented in Table 6. According to the results obtained, the new variables seem to contain additional information in the analysis of funding structure. Inventories present positive and statistically significant coefficients, with exception of tax liabilities, for which we observe a negative coefficient. This means that firms with a higher proportion of inventories have associated higher share of bank and trade credit, as well as shareholders or intra-group loans. Actually, for the latter funding source, inventories have the main impact. An increase of one standard-deviation implies an increase of 2.4 percentage points in the share

of these loans. The coefficient of account receivables is also positive for the funding sources in analysis, with exception of tax liabilities. These results may be related to a suitable cash management policy adopted by firms, allowing for a better match between inflows and outflows. This relation is particularly relevant, as expected, for trade credit. An increase of a standard-deviation implies an increase by 4.7 percentage points. The results obtained also suggest some impact on the other funding sources, even though to a smaller extent. The results are in line with some qualitative evidence. Indeed, according to the results of the Bank Lending Survey conducted in Portugal, inventories and working capital needs have been reported as a critical factor underlying bank loan demand in the corporate segment.

Turnover, which captures the volume of firm's activity, has a negative coefficient for bank credit and shareholders or intra-group loans and a positive coefficient for trade credit and tax liabilities. These results seem to be in line with the argument that firms exploit payments schemes and "grace periods" provided by suppliers.

In turn, the proxy for the business risk shows a positive coefficient in all equations, *i.e.* firms with higher volatility in their cash flows tend to rely more on the funding sources under analysis than on omitted sources in the system. Note that equity is a key component of the omitted category. The positive relation suggests that firms with more instable performances need more external funding to operate their activity. For bank credit, this could be somewhat counterintuitive. Nevertheless, the results suggest that the ability of riskier firms to obtain bank credit seems to be lower in comparison to the other funding sources, given the significant difference in the magnitude of the coefficients. For riskier firms, tax liabilities seem to be an important funding/liquidity management tool and one of the main drivers underlying this component. Indeed, a standard-deviation increase implies a increase by around 2 percentage point of these liabilities. To a smaller extent, loans granted by shareholders or intra-group operations also seem to play an important role for these firms.

Regarding the other variables included in the specifications, the results described in the previous section remained broadly the same. Therefore, based on these results, across the different funding sources in analysis, profitability and size are in the set of variables with higher economic impact. For bank credit, the main driver is tangibility (around 4.5 percentage points based on a standard-deviation increase). For trade credit, account receivables and, to a smaller degree, inventories should also be highlighted (4.7 and 2.7 percentage points respectively). In turn, for loans from shareholders or intra group operations, inventories and the business risk show sizable economic impact (2.4 and 1.4 percentage points, respectively). For tax liabilities, a sizeable impact is from the measure of business risk (a standard-deviation increase implies an increase by 2.1 percentage points in those liabilities).

	Bank Credit	Trade Credit	Tax Liabilities	Shareholders & Ec. Group
PROFITABILITYt-1	-0.1573***	-0.2321***	-0.1089***	-0.1553***
	(-74.04)	(-120.01)	(-98.80)	(-86.54)
SALES GROWTHt-1	0.0023***	0.0052***	-0.0006	0.0068***
	(2.74)	(6.68)	(-1.26)	(9.52)
SIZEt-1	0.0262***	0.0156***	-0.0134***	-0.0162***
	(120.09)	(78.49)	(-118.49)	(-87.81)
TANGIBILITYt-1	0.1955***	-0.0101***	-0.0544***	0.0580***
	(132.72)	(-7.52)	(-71.21)	(46.66)
AGE	-0.0204***	-0.0359***	-0.0089***	0.0005
	(-46.59)	(-90.05)	(-39.30)	(1.25)
INVENTORIESt-1	0.0870***	0.1211***	-0.0583***	0.1052***
	(55.06)	(84.19)	(-71.17)	(78.82)
ACCOUNT RECEIVABLESt-1	0.0204***	0.2013***	-0.0146***	0.0116***
	(13.24)	(143.40)	(-18.28)	(8.91)
TURNOVERt-1	-0.0060***	0.0281***	0.0057***	-0.0098***
	(-21.28)	(109.60)	(38.70)	(-41.05)
SD CASHFLOWt-1	0.0420***	0.0653***	0.1597***	0.1067***
	(17.65)	(30.17)	(129.48)	(53.11)
Ec. Group	yes	yes	yes	yes
Time dummies	yes	yes	yes	yes
Industry sector	yes	yes	yes	yes
N	434100			
R-sq	0.120	0.215	0.226	0.185

TABLE 6. Econometric analysis: Activity and business risk variables

Note: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. The t-statistics are in parenthesis. The results were obtained running a SUR, with robust standard errors and clustering at firm level. Firm characteristics were included as regressors with a lag, with exception of the variable age. All specifications included a constant term.

Heterogeneity by firm size

In this section, we explore whether the determinants of the funding sources in analysis change for different groups of firms based on firm's size. Thus, we run the previous specification taking into account different size cohorts. The results are presented in Tables 7.[11]

11. In line with the European Commission Recommendation 2003/361/EC, presented previously

According to the results obtained, based on the approach that already includes activity and business risk indicator, we observe that profitability preserves the negative coefficient in all specifications. Although the negative relation is consistent, the impact on the funding sources is heterogeneous across firm size groups. For instance, for micro firms, the largest impact occurs in trade credit and shareholders or intra-group loans. In turn, for medium and large firms, the largest impact occurs for bank credit. Looking at tangibility, we observe the same relation observed for whole sample, *i.e.* the coefficient is positive for bank credit and shareholder or intra-group loans and negative for the other funding sources. In turn, some adjustments occur for the size and sales growth variables in some equations.

The results for age are also in line with the results of the full sample for micro and small firms segments, *i.e.* the coefficient is positive for shareholders or intra-group loans and it is negative for the remaining funding components considered. For medium firms, the coefficients are negative, while for large firms the age coefficient is positive for bank credit. In general, these results are in line with asymmetric information hypothesis, and the higher capital level of elder firms.

Looking at the activity indicators, inventories preserve, in general, the same impact described for the whole sample. In particular, the coefficient is negative for tax liabilities and positive for the other funding sources. The exceptions are loans from shareholders or intra-group operations for medium firms, as it is not statistically significant, and for large firms, for which it presents a negative coefficient. The coefficient for account receivables is positive and statistically significant, regardless of firm size, for bank credit and for trade credit. The impact is quite relevant for the former. For tax liabilities, the relation is negative. Looking at shareholders or intra-group loans the results are mixed. In turn, turnover presents some heterogeneous impact across firm size and in comparison to the full sample results. Consistently across size cohorts, it presents a positive relation with trade credit.

Finally, as far as business risk is concerned, the positive coefficient recorded for whole sample, in all the funding sources in the analysis, remained for micro and smaller firms. For medium and larger firms, the coefficient of this variable is negative for bank credit, which is in line with what we would expect regarding firm's risk and external sources availability (in particular bank credit and trade credit), as discussed in Section Review of the Literature.

	Micro				Small				Medium				Large			
	Bank Credit	Trade Credit	Tax Liabilities	Shareholders & Intra Group	Bank Credit	Trade Credit	Tax Liabilities	Shareholders & Intra Group	Bank Credit	Trade Credit	Tax Liabilities	Shareholders & Intra Group	Bank Credit	Trade Credit	Tax Liabilities	Shareholders & Intra Group
PROFITABILITYt-1	-0.1334***	-0.2201***	-0.0886***	-0.1593***	-0.1892***	-0.2513***	-0.1280***	-0.1484***	-0.2474***	-0.2598***	-0.1184***	-0.1352***	-0.4349***	-0.2408***	-0.0612***	-0.0787***
	(-44.15)	(-76.00)	(-56.73)	(-55.03)	(-52.61)	(-79.26)	(-69.22)	(-55.34)	(-25.12)	(-32.27)	(-26.64)	(-22.11)	(-18.17)	(-12.39)	(-6.77)	(-4.17)
SALES GROWTHt-1	-0.0022	0.0060***	-0.0012*	0.0125***	0.0022*	0.0064***	-0.0002	0.0048***	0.0040	0.0092***	0.0028*	0.0016	0.0221**	-0.0096	0.0055*	0.0066
	(-1.57)	(4.60)	(-1.74)	(9.52)	(1.66)	(5.55)	(-0.28)	(4.91)	(1.14)	(3.22)	(1.74)	(0.75)	(2.52)	(-1.35)	(1.67)	(0.95)
SIZEt-1	0.0387***	0.0218***	-0.0233***	-0.0173***	0.0311***	0.0227***	-0.0255***	-0.0134***	0.0118***	0.0165***	-0.0279***	0.0028***	-0.0072***	0.0131***	-0.0147***	0.0047***
	(71.99)	(42.38)	(-83.80)	(-33.62)	(70.24)	(58.11)	(-111.79)	(-40.41)	(11.25)	(19.35)	(-59.19)	(4.29)	(-3.33)	(7.46)	(-17.94)	(2.73)
TANGIBILITYt-1	0.1734***	-0.0162***	-0.0486***	0.0747***	0.2090***	-0.0035*	-0.0672***	0.0539***	0.2035***	-0.0250***	-0.0339***	0.0209***	0.1640***	-0.0000	-0.0136***	0.0455***
	(77.61)	(-7.55)	(-42.14)	(34.91)	(90.63)	(-1.70)	(-56.69)	(31.35)	(34.28)	(-5.16)	(-12.64)	(5.66)	(12.59)	(-0.00)	(-2.77)	(4.43)
AGE	-0.0264***	-0.0393***	-0.0062***	0.0023***	-0.0208***	-0.0347***	-0.0113***	0.0020***	-0.0199***	-0.0159***	-0.0054***	-0.0092***	0.0196***	-0.0228***	-0.0014	-0.0117***
	(-38.77)	(-60.22)	(-17.78)	(3.53)	(-30.55)	(-57.63)	(-32.14)	(3.88)	(-11.91)	(-11.64)	(-7.22)	(-8.89)	(5.51)	(-7.87)	(-1.04)	(-4.17)
INVENTORIESt-1	0.0398***	0.1170***	-0.0383***	0.1243***	0.1240***	0.1268***	-0.0679***	0.0843***	0.2318***	0.1167***	-0.0668***	0.0043	0.1758***	0.1381***	-0.0420***	-0.0301*
	(17.61)	(54.05)	(-32.83)	(57.41)	(47.60)	(55.21)	(-50.71)	(43.43)	(28.12)	(17.32)	(-17.95)	(0.85)	(7.65)	(7.40)	(-4.83)	(-1.66)
ACCOUNT RECEIVABLESt-1	0.0073***	0.1885***	-0.0070***	0.0206***	0.0225***	0.2152***	-0.0275***	0.0125***	0.0544***	0.1584***	-0.0163***	-0.0078*	0.0398***	0.0753***	-0.0029	-0.0092
	(3.09)	(83.58)	(-5.74)	(9.13)	(9.32)	(100.91)	(-22.15)	(6.94)	(8.44)	(30.03)	(-5.59)	(-1.94)	(2.74)	(6.37)	(-0.52)	(-0.81)
TURNOVERt-1	0.0014***	0.0270***	0.0001	-0.0109***	-0.0044***	0.0359***	0.0002	-0.0078***	-0.0222***	0.0443***	0.0008	-0.0002	-0.0297***	0.0541***	0.0088***	-0.0027
	(3.06)	(61.02)	(0.50)	(-24.76)	(-9.45)	(86.92)	(0.73)	(-22.44)	(-17.74)	(43.27)	(1.34)	(-0.30)	(-10.10)	(22.67)	(7.91)	(-1.15)
SD CASHFLOWt-1	0.0628***	0.0815***	0.1459***	0.1122***	0.0462***	0.0623***	0.1543***	0.1065***	-0.0472***	0.0528***	0.1543***	0.1050***	-0.0686*	0.0972***	0.1068***	0.0673**
	(17.91)	(24.26)	(80.56)	(33.41)	(11.95)	(18.27)	(77.58)	(36.93)	(-4.14)	(5.67)	(30.01)	(14.83)	(-1.78)	(3.11)	(7.35)	(2.22)
Ec. Group	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Time dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Industry sector	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	179350				179008				27924				4907			
R-sq	0.107	0.211	0.223	0.220	0.138	0.227	0.264	0.163	0.158	0.263	0.310	0.176	0.203	0.344	0.481	0.229

TABLE 7. Econometric analysis: Activity and business risk variables – by firm size

Note: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. The t-statistics are in parenthesis. The results were obtained running a SUR, with robust standard errors and clustering at firm level. Firm characteristics were included as regressors with a lag, with exception of the variable age. All specifications included a constant term.

Robustness test

We performed some additional specifications in order to analyse the sensitivity of the results obtained in the previous sections to some of the hypothesis adopted. Due to the relevant changes introduced in 2010 (IES's reports and accounting rules), that required the adoption of some hypothesis and some adjustments, in this section we split of the sample period in two sub-periods, namely: 2006-2009 and 2010-2012. Therefore, we re-estimate the previous specification for both sub-periods.

Table A.2 in the Appendix Section presents some descriptive statistics for firms' characteristics for each of the two sub-periods. The econometric results are presented in Tables A.3 and A.4.

The main conclusions obtained for the full sample period do not change when we analyze the results for the two sub-periods. Therefore, even though the magnitude of the coefficients estimated is different (as was expected), the relations observed between firms' characteristics and funding sources persist. Nevertheless, there are some changes that worth mentioning. In particular, the coefficient of sales growth does not preserve the positive coefficient after 2009 for some funding sources. Additionally, account receivables has a differential impact over the two sub-periods, namely for bank credit (it is not statistically significant for the period before 2009, and positive afterwards) and loans from shareholders or intra-group operations (with opposite coefficients in the two sub-periods, positive and negative, respectively).

Final Remarks

Funding is crucial for firm's activity. The analysis of firm's capital decision (capital versus debt) is important, but it is also relevant to explore the composition of corporate funding. Different types of debt have different characteristics and different requirements. This may be particularly relevant as firms in several countries, such as Portugal, present high leverage ratios.

This study analyse firm's funding components. In addition to bank credit and trade credit, the two main corporate funding sources and quite discussed in the literature, we also include in the analysis tax liabilities and loans from shareholders or intra-group operations. These funding sources are relevant in some corporate segments and raise several questions due to their particular characteristics. Tax liabilities may be related to firm's liquidity management, while loans from shareholders and intra-group operations suggest that there are some differences how owners finance their firms, *i.e.* trough debt rather than equity. Therefore, this study also sheds some light on these debt components.

In the first part of this article, we explore the relevance of the main variables highlighted in the capital structure literature. Given the specificities

of some funding sources under analysis, we also include variables related to firm's activity and business risk as explanatory variables. Consistently across all specifications, profitability presents a negative relation with the funding sources in analysis. Moreover, it is among the variables with higher economic impact across the funding sources. The other variables show heterogeneous impact on funding sources. The results suggest that the variables related to firms' activity contain additional information in the analysis. In particular, working capital needs seem to be a relevant factor for different type of funding, even for bank credit and shareholders or intra-group loans. For riskier firms, tax liabilities and, to a smaller extent, loans from shareholders or intra-group operations seem to be particularly relevant.

The breakdown of the dataset by firm size broadly confirm the main conclusions, even though it highlights the relevance of some variables for some size cohorts.

This study presents some relevant relations between firms' characteristics and the respective debt composition. The definition of a casual inference between the two dimensions is not easy in the current framework. Nevertheless, this analysis contributes to increase what we know about the structure of corporate debt and to identify potential vulnerabilities of firms to economic and financial developments.

Variables		Definition
Funding sources		
	BANK CREDIT	Bank debt over total assets
	TRADE CREDIT	Account payables over total assets
	TAX LIABILITIES	Tax liabilities over total assets
	SHAREHOLDERS & INTRA-GROUP LOANS	Loans from shareholders and loans from firms in the same economic group over total assets
Firm's characteristics		
	PROFITABILITY	Net earnings before provisions and depreciation over total assets
	SALES GROWTH	Year-on-year change rate of sales
	SIZE	Natural logarithm of real total assets
	TANGIBILITY	Tangible assets over total assets
	AGE	Natural logarithm of (1+ age in years)
	INVENTORIES	Inventories over total assets
	ACCOUNT RECEIVABLES	Account receivables over total assets
	TURNOVER	Sales over total assets
	SD CASHFLOW	Standard deviation of cashflow over total assets
	ECONOMIC GROUP	Dummy variable which takes the value 1 if the firm belongs to an economic group
	BUSINESS SECTOR	Dummy variables of business sector (13 sectors)

TABLE A.1. Variables definition

Panel A: Firm characteristics 2006-2010

	N	mean	sd	p10	p25	p50	p75	p90
PROFITABILITY	398136	0.05	0.17	-0.09	0.01	0.06	0.12	0.21
SALES GROWTH	334054	-0.01	0.32	-0.35	-0.14	-0.01	0.12	0.33
TANGIBILITY	398136	0.27	0.24	0.02	0.07	0.20	0.41	0.64
SIZE	398136	13.05	1.57	11.20	12.00	12.93	13.95	15.05
AGE	398136	2.41	0.89	1.10	1.95	2.48	3.04	3.47
ASSET TURNOVER	398136	1.50	1.19	0.40	0.72	1.19	1.89	2.96
INVENTORIES	398136	0.19	0.23	0.00	0.00	0.09	0.30	0.56
ACCOUNT RECEIVABLE	398136	0.24	0.23	0.00	0.01	0.20	0.41	0.59
CASHFLOW VOLATILITY	387523	0.11	0.15	0.02	0.03	0.06	0.13	0.26

Panel B: Firm characteristics 2010-2012

	N	mean	sd	p10	p25	p50	p75	p90
PROFITABILITY	257051	0.02	0.17	-0.15	0.00	0.04	0.10	0.17
SALES GROWTH	234396	-0.06	0.31	-0.41	-0.18	-0.04	0.09	0.27
TANGIBILITY	257051	0.26	0.24	0.01	0.06	0.19	0.41	0.65
SIZE	257013	13.11	1.57	11.27	12.07	12.99	14.01	15.12
AGE	257051	2.63	0.74	1.61	2.20	2.64	3.18	3.53
ASSET TURNOVER	257051	1.45	1.20	0.36	0.67	1.12	1.81	2.89
INVENTORIES	257051	0.17	0.22	0.00	0.00	0.07	0.26	0.51
ACCOUNT RECEIVABLE	257051	0.26	0.24	0.00	0.02	0.21	0.42	0.61
CASHFLOW VOLATILITY	251406	0.11	0.14	0.02	0.03	0.06	0.12	0.23

TABLE A.2. Summary statistics: Firm characteristics

	2006-2009				2010-2012			
	Bank Credit	Trade Credit	Tax Liabilities	Shareholders & Intra Group	Bank Credit	Trade Credit	Tax Liabilities	Shareholders & Intra Group
PROFITABILITYt-1	-0.2254***	-0.2415***	-0.1236***	-0.3235***	-0.1625***	-0.2584***	-0.1374***	-0.1458***
	(-81.03)	(-88.49)	(-78.73)	(-115.22)	(-46.40)	(-79.41)	(-75.06)	(-59.37)
SALES GROWTHt-1	0.0031***	0.0207***	0.0031***	0.0050***	-0.0041**	0.0222***	0.0062***	0.0064***
	(2.83)	(18.96)	(4.91)	(4.44)	(-2.56)	(14.85)	(7.38)	(5.65)
SIZEt-1	0.0298***	0.0093***	-0.0195***	-0.0247***	0.0259***	0.0055***	-0.0207***	-0.0037***
	(107.44)	(34.01)	(-124.41)	(-88.20)	(73.35)	(16.93)	(-112.04)	(-15.14)
TANGIBILITYt-1	0.0852***	-0.1245***	-0.0454***	0.0534***	0.2492***	-0.1054***	-0.0447***	0.0094***
	(49.06)	(-73.06)	(-46.34)	(30.50)	(110.12)	(-50.11)	(-37.75)	(5.92)
AGE	-0.0125***	-0.0366***	-0.0108***	0.0012**	-0.0265***	-0.0409***	-0.0129***	0.0002
	(-21.24)	(-63.32)	(-32.35)	(1.99)	(-33.43)	(-55.54)	(-31.16)	(0.29)
2008	0.0068***	-0.0062***	-0.0047***	-0.0009				
	(7.51)	(-6.95)	(-9.27)	(-0.93)				
2009	0.0159***	-0.0148***	-0.0082***	-0.0061***				
	(17.48)	(-16.53)	(-15.95)	(-6.63)				
2012					-0.0120***	-0.0005	0.0019***	-0.0002
					(-12.03)	(-0.50)	(3.66)	(-0.24)
Ec. Group	yes	yes	yes	yes	yes	yes	yes	yes
Time dummies	yes	yes	yes	yes	yes	yes	yes	yes
Industry sector	yes	yes	yes	yes	yes	yes	yes	yes
N	220639				139163			
R-sq	0.092	0.162	0.156	0.114	0.131	0.144	0.194	0.310

TABLE A.3. Econometric analysis: Capital structure standard variables - Sub periods

Note: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. The t-statistics are in parenthesis. The results were obtained running a SUR, with robust standard errors and clustering at firm level. Firm characteristics were included as regressors with a lag, with exception of the variable age. All specifications included a constant term.

	2006-2009				2010-2012			
	Bank Credit	Trade Credit	Tax Liabilities	Shareholders & Intra Group	Bank Credit	Trade Credit	Tax Liabilities	Shareholders & Intra Group
PROFITABILITYt-1	-0.1844***	-0.2383***	-0.0980***	-0.2292***	-0.1248***	-0.2160***	-0.1047***	-0.1110***
	(-62.27)	(-84.40)	(-60.47)	(-77.86)	(-33.36)	(-64.65)	(-55.17)	(-42.42)
SALES GROWTHt-1	0.0047***	0.0075***	-0.0021***	0.0086***	-0.0010	0.0029**	0.0001	0.0068***
	(4.23)	(7.07)	(-3.45)	(7.81)	(-0.60)	(1.97)	(0.14)	(5.98)
SIZEt-1	0.0293***	0.0153***	-0.0126***	-0.0261***	0.0254***	0.0166***	-0.0141***	-0.0023***
	(95.58)	(52.35)	(-75.36)	(-85.80)	(65.36)	(47.73)	(-71.74)	(-8.28)
TANGIBILITYt-1	0.1087***	-0.0187***	-0.0617***	0.0974***	0.2701***	-0.0003	-0.0491***	0.0181***
	(53.86)	(-9.74)	(-55.87)	(48.55)	(104.79)	(-0.11)	(-37.57)	(10.02)
AGE	-0.0132***	-0.0347***	-0.0078***	0.0013**	-0.0267***	-0.0374***	-0.0101***	-0.0001
	(-22.45)	(-61.95)	(-24.27)	(2.20)	(-33.71)	(-52.86)	(-25.04)	(-0.20)
INVENTORIESt-1	0.0962***	0.1147***	-0.0619***	0.1565***	0.0584***	0.1281***	-0.0522***	0.0515***
	(45.47)	(56.86)	(-53.51)	(74.42)	(20.26)	(49.70)	(-35.66)	(25.52)
ACCOUNT RECEIVABLESt-1	0.0018	0.2053***	-0.0162***	0.0309***	0.0374***	0.1939***	-0.0117***	-0.0081***
	(0.88)	(102.96)	(-14.17)	(14.87)	(13.74)	(79.64)	(-8.43)	(-4.24)
TURNOVERt-1	-0.0033***	0.0258***	0.0030***	-0.0145***	-0.0087***	0.0300***	0.0083***	-0.0023***
	(-8.88)	(72.00)	(14.47)	(-38.73)	(-17.26)	(66.31)	(32.24)	(-6.57)
SD CASHFLOWt-1	0.0563***	0.0628***	0.2296***	0.2048***	0.0990***	0.1244***	0.1645***	0.0881***
	(13.91)	(16.27)	(103.75)	(50.92)	(21.97)	(30.90)	(71.97)	(27.93)
Ec. Group	yes	yes	yes	yes	yes	yes	yes	yes
Time dummies	yes	yes	yes	yes	yes	yes	yes	yes
Industry sector	yes	yes	yes	yes	yes	yes	yes	yes
N	220639				139163			
R-sq	0.104	0.219	0.217	0.152	0.138	0.215	0.248	0.318

TABLE A.4. Econometric analysis: Activity and business risk variables - Sub periods

Note: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. The t-statistics are in parenthesis. The results were obtained running a SUR, with robust standard errors and clustering at firm level. Firm characteristics were included as regressors with a lag, with exception of the variable age. All specifications included a constant term.

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