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FIRST-TIME CORPORATE BOND ISSUERS IN ITALY

di Matteo Accornero*, Paolo Finaldi Russo*, Giovanni Guazzarotti* and Valentina Nigro*

Abstract

The paper looks at the characteristics of Italian non-financial firms that accessed the bond market for the first time between 2002 and 2013. The results of logit estimations indicate that first-time bond issuers are significantly larger and more frequently listed on the stock exchange than firms not issuing bonds. We also find that their decision to enter the bond market stems from a need to finance growth, especially where internal resources are limited, and to rebalance maturity mismatches between assets and liabilities. Our estimates also suggest that the sharp drop in the number of small issuers during the economic crisis is partly due to increased risk aversion on the part of market investors. Based on the econometric results, we estimate that the non-issuers include some 450-650 firms whose characteristics are very similar to those of companies that have begun to issue bonds in the last decade. These estimates are surrounded by considerable uncertainty due to the evolution of the macroeconomic context as well as the effects of new rules on minibonds.

JEL classification: G10, G23, G32

Keywords: bond market, corporate finance, corporate bonds

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1. Introduction

The analysis of firms' choices among different funding sources is mainly important in those countries where capital markets are not well developed and firms would benefit the most from a diversification of their financing channels. This is the case of the Euro area, where capital markets are typically small and firms largely depend on banks' financing. In the Euro area bonds represent only 10 per cent of firms' financial liabilities, compared to 30 per cent in the United Kingdom and 40 per cent in the United States.

In Italy, the recent developments following the financial crisis provide an opportunity to contribute to the scarce literature on bond financing in European countries. During the economic crisis bank loans to Italian firms decreased substantially owing to the decline in investment and working capital and the increased strains on banks' balance sheets. Bank credit was affected by supply-side factors relating to changes in regulation (i.e. higher capital requirements), severe episodes of liquidity strain at the height of the crisis, and deterioration in credit quality that weighed heavily on banks' profitability and ability to grant new loans. Difficulty accessing the credit market prompted firms to seek non-bank funds, not an easy task in a country where bank loans are by far the largest source of corporate financing; in 2012 measures were introduced to remove regulatory obstacles and introduce fiscal incentives to promote bond issuance by unlisted firms.

In this paper, we analyse the characteristics of the Italian firms that tapped the bond market for the first time between 2002 and 2013. We estimate the probability of a first-time bond issue taking into account indicators of firms' economic performance and financial choices. We also identify a pool of possible first-time issuers in order to estimate the potential size of the Italian bond market as an alternative to the traditional bank channel. Our analysis is based on a new comprehensive dataset that includes information on both public and private single placements, supplemented with firms' balance sheet data.

In line with most of the empirical literature, our analysis confirms that reputational aspects and firms' transparency positively affect the probability of issuing a bond for the first time. We also find evidence for two typically important drivers of the decision to enter the bond market: the need to finance growth and the need to reduce maturity mismatches between assets and liabilities. For large and medium-sized firms the most important factors driving the choice to issue are associated with the need to finance investment and growth, whereas among smaller firms issuing probability depends more often on their financial structure, such as the

leverage or the maturity mismatch between assets and liabilities. Moreover, only among smaller firms does the scarcity of internal sources of finance positively affect the probability of issuing bonds for the first time. Our estimates also suggest that the sharp drop in the number of issuers during the economic crisis is partly due to the increased risk aversion among market investors. Based on the analysis conducted, we estimate that the non-issuers include about 450-650 firms with characteristics very similar to those of companies that have placed bonds in the past decade. Anyway, considerable uncertainty surrounds these point estimates; the actual numbers of new issuers will crucially depend on the evolution of the macroeconomic context as well as the effects of some recent changes in the regulation of bond issues.

The rest of the paper is organized as follows. In Section 2, we present a survey of the literature. Section 3 describes the main characteristics of the corporate bond market in Italy. Section 4 summarizes descriptive statistics relating to the companies that have issued bonds for the first time compared with the universe of Italian non-financial firms. In Section 5 we describe the econometric model and the results of the estimates. In Section 6 we provide an estimate of the potential size of the Italian bond market by identifying a subset of firms with characteristics similar to those of issuer companies. In the last section we present some concluding remarks.

2. The literature

With respect to bank loans, bonds typically entail lower monitoring costs, greater difficulty of renegotiation due to the larger number of subscribers, fewer guarantees or restrictive covenants, longer maturity, and stricter disclosure requirements. Even if these characteristics are more evident in public issuances, they frequently apply also to private placements.

Economic theory holds that a firm's reputation (in terms of project quality or financial soundness) is one of the main factors affecting the decision to enter the bond market. Diamond (1991) suggests that as bank financing involves a higher degree of monitoring by banks (informed lenders) than by (uninformed) bond investors, firms start issuing bonds after establishing a reputation for efficient use of resources that mitigates the effects of moral hazard. In equilibrium, riskier firms could also find it convenient to issue bonds because of

the limited gains they obtain from bank monitoring.¹ Chemmanur and Fulghieri (1994) and Bolton and Freixas (2000) indicate that firms' risk affects the decision to issue bonds, emphasizing the enormous difficulties involved in renegotiating debt with a large number of creditors; this could lead high-risk borrowers to use bond financing less often than bank financing because banks are better able to ensure efficient liquidation or continuation of the business in cases of distress. Similarly, Cantillo and Wright (2000) stress banks' greater reorganization skills and predict that arm's length borrowing is mainly chosen by large, profitable companies, with a high proportion of tangible assets.

The predictions of Myers' 'debt overhang' model (1977) in terms of firms' maturity choices could also be applied to the decision to issue bonds: firms with greater growth opportunities tend to enter into comparatively less long-term debt (and not issue bonds) in order to avoid sharing the benefits of future growth options with debt-holders.

Most empirical studies focus on macroeconomic factors (such as inflation, GDP growth, fiscal policy, market liquidity or volatility) to investigate cross-country differences in the size of bond markets or to highlight the reasons for sudden increases in the number of issuances in particular periods.² Only a few studies deal specifically with the decision to issue bonds in order to identify the main characteristics of issuers. The most common and most salient result of this literature is the positive correlation between the probability of bond issuance and firm size, which is consistent with the high fixed costs of issuance and the high information asymmetries that could prevent smaller firms from tapping the market (see Calomiris et al., 1995; Cantillo and Wright, 2000; Dennis and Mihov, 2003; Mizen and Tsoukas, 2013).

Financial conditions also affect the ability of firms to issue bonds. Some authors find a negative correlation between leverage and bond issuance, a result that is coherent with the hypothesis of more difficult access to the market for firms with a fragile financial structure (Cantor, 1990; Bourgeois et al., 2006). Other studies stress the fact that high leverage could be a signal of good credit standing and borrowing capacity (Dennis and Mihov, 2003).

¹ In the same spirit, Rajan (1992) shows that the superior monitoring ability of banks comes at a cost as banks gain bargaining power over firms' profits, which negatively affects the efforts of entrepreneurs. Firms' choice between the two forms of debt is the result of an attempt to circumscribe banks' power: the model predicts that borrowers with projects of intermediate quality find it best to use bank loans, whereas for firms with projects of the highest and lowest quality the cost of bank monitoring could make it convenient to tap the bond market.

² Guscina et al. (2014), for instance, analyse a sample of first-time issuers in a large number of emerging economies in order to highlight the role of macroeconomic factors (such as inflation, GDP growth, fiscal policy, market liquidity, volatility) among the determinants of the recent rise in bond issuances across these countries. See also IMF (2006).

Most of the analyses cited do not distinguish between first-time and seasoned issuers. Datta, Iskandar-Datta and Patel (2000) explicitly address this issue by studying initial public offerings (IPOs) of bonds by listed US industrial and financial corporations; using a probit analysis they document a positive effect of firm size and financing needs (approximated by the change in sales and the CAPEX ratio) on the probability of issuing bonds. Hale and Santos (2008) use a sample of non-financial corporations to investigate the role of firm reputation and banking relationships in bond IPO decisions. They document a non-monotonic effect of reputation on the timing of bond issues, a finding consistent with Diamond's (1991) model; they also find that firms that are larger and with more investment opportunities undertake their bond IPO earlier. Moreover, they find that previous experience of private bond issuance or syndicated loans speeds up entry into the public bond market, indicating that these firms may have already borne part of the fixed costs (in terms of transparency, for instance) associated with market financing.

Our work is more similar in spirit to the last two studies focusing on the decision to tap the bond market for the first time, which should allow for a better identification of issuers' characteristics. With respect to Datta et al. (2000), however, we focus only on non-financial firms as the determinants of bond issuances by banks could be radically different from those of industrial companies. More importantly, we include both listed and non-listed corporations. We think that limiting the analysis to listed corporations might reduce the external validity of the results as listed firms have a comparative advantage in issuing debt securities given that they have already undergone the operational, organizational and disclosure upgrades needed to list their equity. Finally, we consider both public and private placements as this distinction is often not economically significant, particularly in the euro area, where corporate bond markets are typically illiquid. The uniqueness of our database could therefore give important insights into the characteristics of firms that are really at their first experience of placing securities among external investors.

3. The corporate bond market in Italy

We build a very comprehensive dataset that includes security-by-security information on both public and private bond placements of Italian listed and non-listed firms in domestic and international markets. The information comes from the Dealogic archive of international issues and the Bank of Italy securities database. We use the map of the major industrial

groups provided by Cerved to identify issues by non-financial Italian groups, including those realized through financial or foreign subsidiaries.

Overall, the number of non-financial firms accessing the market from 2002 to 2013 was, on average, about 160 per year and annual gross issues averaged 25 billion (Fig. 1). During the crisis volumes have been significantly higher than in the previous period:³ gross issues averaged €32 billion per year, about 50 percent more than in the period 2002-08, and reached a maximum of €40 billion in 2013.⁴ In spite of this increase, the number of placements dropped significantly after 2008: the average number of issues decreased from about 185 per year in 2002-08 to 130 between 2009 and 2013.

Issuance volumes by large firms and by SMEs followed very different patterns. During the crisis, large firms increased placements, partly offsetting the reduction in bank credit with new debt securities;⁵ most of their issues were placed in the international market. By contrast, small and medium-sized enterprises reduced both volumes and number of placements significantly. Unlike large firms, SMEs tap almost exclusively the domestic market, which is mainly bank-driven and much less liquid than the international market.

Smaller firms are hampered in their recourse to the bond market by a number of factors. Bonds issued by SMEs are often unappealing to institutional investors because of their low liquidity and high credit risk; at the same time, many businesses are reluctant to bear the costs connected with the greater level of transparency required by the market. To promote the access by SMEs to the bond market, in 2012 the Government introduced a new and more favourable system for bond issues by non-listed companies, known as minibonds.⁶ From the first placement in November 2012 to the end of 2014 there have been 70 issuers of minibonds for a total of €7.1 billion. The average issue size fell significantly in 2014 (about 30 million against 120 for the whole market).

³ After the peak in 2011, average bond yields decreased significantly following the drop in both market rates and sovereign risk premiums. However, in the same period the dispersion of yields increased, reflecting both the higher risk aversion of investors and the deterioration in borrowers' creditworthiness.

⁴ Gross issuances remained substantial in 2014 too; see Bank of Italy (2014).

⁵ An analysis conducted on a sample of around 260 Italian industrial groups shows that between 2009 and 2013 those that turned to the bond market reduced their indebtedness to banks operating in Italy by around 42 per cent, while bank lending to other groups remained basically unchanged.

⁶ Decree Law 83/2012, ratified by Law 134/2012, updated the rules for debt security issues (financial bills and bonds) by unlisted companies other than banks and micro-enterprises. For securities listed in regulated markets or held by professional investors, the law removes the limit on the tax deductibility of interest payments and the maximum value of the securities that can be placed (Article 2412 of the Civil Code) and exempts some categories of investor (including banks, companies and non-residents) from the 20 per cent withholding tax.

Our dataset allows us to identify companies that entered the bond market for the first time by selecting those firms that had not issued any securities for at least ten years (see Fig. 2 and Table 1). Between 2002 and 2013 first-time issuers numbered slightly more than 1,250. The number of new entrants decreased considerably during the crisis, mainly for SMEs: between 2009 and 2013 first-time bond issues by small and medium-sized firms numbered about 54 a year, 46 fewer than in the previous period; for large companies the decline was modest (from 26 to 21).⁷ The sectoral composition of new issuers is very different for SMEs and large enterprises. Manufacturing and services account for about 73 per cent of large companies, compared with 44 per cent of SMEs; the share of real-estate and construction is 6 per cent for big firms and 31 per cent for SMEs. The sectors that have recorded a sharper drop in the number of new issuers during the crisis are manufacturing, especially for SMEs, and real-estate and construction.

4. First-time issuers: descriptive statistics

In this section we compare first-time issuers with non-issuers (our control sample) using individual balance sheets from the Cerved archive.⁸

After the merging with Cerved the sample of first-time issuers is reduced to 549 firms. The decrease is mostly due to the exclusion of (i) firms with financial balance sheets (i.e. holding companies or financial subsidiaries of industrial groups); (ii) firms with missing balance sheet data (i.e. firms without two consecutive balance sheet statements before the year of the placement); and (iii) firms with balance sheet statements not covering twelve months. We also dropped first-time issues that were smaller in size than the first percentile of the distribution (€175,000).

Our control sample includes virtually all non-financial firms in the Cerved database that have not yet entered the bond market in any given year. We therefore exclude all firms in the first-time issuer sample from the year after the first placing, and all firms that report non-zero bond liabilities in their balance sheet. With respect to the whole Cerved dataset, we also

⁷ In 2013 and 2014 we observe a slight recovery in the number of new issuers that reflects the application of the new rules on minibonds as well as the increased demand of investors for high-yield securities.

⁸ We consider the individual balance sheets of single issuers as we cannot compute group-level consolidated statistics. In some cases, issuer balance sheet data may be a poor proxy for consolidated data, especially for large conglomerates that may concentrate the market funding of the whole group within a single financial subsidiary. In the multivariate analysis, we check that results are not affected by this problem in two ways: by including a group dummy in the model and by dropping all firms belonging to major groups from the sample. In both cases the results presented in Section 4.3 are largely confirmed.

drop firms that are not allowed by the law to issue bonds⁹ and those whose legal status or sector are not present in the issuer sample (i.e. sectors in which no firms entered the market between 2002 and 2013).¹⁰ We also exclude companies that do not have an outstanding bank credit facility, which we consider a pre-condition for bond financing.¹¹ Finally, we exclude statistical outliers by also eliminating firms with total assets lower than the first percentile (€650,000).¹² The control sample – which presents non-missing values for all the variables of interest – includes 252,428 firms.

Table 2 shows that reducing the sample of first-time issuers does not significantly change its composition in terms of firm size. In the estimation sample the share of manufacturing firms is higher than among total issuers and there is a slight shift in the composition towards issues made during the crisis. The estimation sample also differs in terms of the smaller average issue size, mainly owing to the exclusion of holding companies.

Table 3 compares some characteristics of first-time issuers (in the year prior to the placement) with those of non-issuers. Both before and during the crisis, new issuers are older and significantly larger than other companies (the median turnover is around €11 million versus €2 million). They also make more investments and grow faster;¹³ these data suggest that many enterprises might enter the bond market in order to finance growth. New issuers are also less leveraged than non-issuers. Between 2009 and 2013 the median age of new issuers decreased somewhat, as did the median values of turnover growth, the profitability ratio, and size; instead the investment rate is higher than in the previous period. However, the differences between issuer and non-issuer companies do not seem to change substantially during the crisis compared with the previous period.

⁹ According to the Italian law firms are allowed to issue bonds only if they are incorporated as *S.p.A.* or *S.A.p.A.* (see Civil Code, Article 2412, for the limits on the amount issued), *S.r.l.* (see Civil Code, Article 2483, requiring the issue to be placed initially among institutional investors that are guarantors for the firm's solvency if the securities are subsequently distributed among retail investors), *Cooperativa per Azioni* or *Cooperativa a responsabilità limitata* (see Law 448/98, Article 58.c. 1 allowing cooperatives to issue bonds, and CICR Resolution n.1058, 19 July 2005, introducing limits on such bonds). Data from ISTAT ('Struttura e dimensione delle imprese', 5 June 2012) show that in 2010 816,424 firms could issue bonds, of which 727,914 were *S.r.l.*, 51,400 *Cooperative*, and 37,110 *S.p.A.* and *S.A.p.A.*

¹⁰ We exclude three legal forms (*SRL a Socio unico*, *Società Cooperativa a Responsabilità Limitata* and *Società Consortile per Azioni*) and, based on Ateco 2007 classification at the 2-digit level, 24 of the 88 classes of economic activity; half of the dropped firms belong to the following three classes: 'Services for buildings and landscape', 'Social assistance', 'Sport and entertainment'.

¹¹ This is suggested, for example, in Diamond (1991); moreover, almost all first-time issuers have a banking relationship.

¹² As robustness check we dropped firms with total assets lower than the 5th percentile computed on the first-time issuers distribution (around €1 million); the results of the baseline estimation (presented in Table 6, column 1) are largely confirmed.

¹³ Investments are drawn from the fund flow statement and include expenses for the purchase of tangible and intangible assets.

5. Multivariate analysis

In this section, we analyze the factors that potentially influence the probability to enter the bond market in a multivariate context.

5.1 The empirical model

The econometric analysis is based on the following model:

$$p(Y_{j,t}=1) = F(\alpha + \beta_1 LOGSALES_{j,t-1} + \beta_2 AGE_{j,t} + \beta_3 HIGH_GROWTH_{j,t-1} + \beta_4 GROWTH_{j,t-1} + \beta_5 INVEST_{j,t-1} + \beta_6 EBITDA_{j,t-1} + \beta_7 LEVERAGE_{j,t-1} + \beta_8 SHORTDEBT_{j,t-1} + \beta_9 FIXED_ASSETS_{j,t-1} + \beta_{10} SHORTDEBT_{j,t-1} * FIXED_ASSETS_{j,t-1} + \beta_{11} LISTED_{j,t}),$$

where $p(Y_{j,t}=1)$ is the probability that firm j in year t issues a bond for the first time and F is a logistic distribution function. As the proportion of issuers is very small, around 0.05 per cent, estimates might be affected by a rare events bias, which typically leads to an underestimation of the probability of the event. We correct for this bias using the algorithm suggested by King and Zeng (2001).

The variables on the right-hand side of the model include proxies of firms' characteristics that the literature indicates as relevant for the decision to enter the bond market. On the demand side, we try to catch firms' capacity to finance investments, the need to rebalance their financial structure (by closing the maturity mismatch between assets and liabilities, diversifying financing sources, or reducing funding costs), and the ability to bear the fixed costs of bond issuance; on the supply side, we include proxies of firms' creditworthiness, which depends on financial soundness, transparency and reputation.¹⁴

In order to proxy for the financing needs associated with growth and investment in fixed assets we include two dummies based on the change in sales between $t-2$ and $t-1$ (*GROWTH*, equal to 1 when the rate of sales growth lies between 0 and the median value of the positive growth, computed for each sector and year; *HIGH_GROWTH*, equal to 1 when the rate is higher than the median). As a proxy for financing needs we also include a measure of investments (*INVEST*, investments over sales). Because decisions on external financing depend inversely on the ability of firms to finance investments through internal resources, we also include firms' profitability, measured by EBITDA over total assets (*EBITDA*). To control for the maturity mismatch between assets and liabilities, which could prompt firms to lengthen their debt maturity by issuing bonds, we include the share of short-term debt and that

¹⁴ See G. Hale and J. Santos (2008) and S. Datta, M. Iskandar-Datta and A. Patel (2000).

of tangible fixed assets over total assets (*SHORTDEBT* and *FIXED_ASSETS*, respectively) and the interaction between the two. To account for factors such as transparency to investors, reputation and the impact of issuing fixed costs, we use firms' size, measured by the logarithm of sales (*LOGSALES*). For the same reason we also include the firms' age (*AGE*) and a dummy for listed firms (*LISTED*). This last variable also allows us to take in account the effects of a different regulatory framework for listed and non-listed firms.¹⁵ We also take into account firms' leverage, measured by financial debt over the sum of financial debt and equity (*LEVERAGE*), as a proxy of financial soundness and credit risk. Finally, we add a set of dummies to control for time, sector and geographical factors.¹⁶

5.2 Results

Table 5 presents the results of our baseline model. The estimates obtained correcting for the rare events bias (second column) do not show significant differences with respect to those obtained without correction.¹⁷ This suggests that the bias is negligible. Table 6 presents the marginal effects, as a ratio with respect to the predicted probability, of the baseline model and some alternative specifications. Tables 7 and 8 report the marginal effects of the baseline model on sub-samples based on size,¹⁸ financial soundness¹⁹ and time period (before and during the crisis). Overall, the ability of the model to discriminate between issuers and non-issuers is high, as shown by the ROC index,²⁰ averaging around 80 per cent across specifications (Table 6).

The main results are as follows.

Financing needs

In line with the results of Datta et al. (2000) and Hale and Santos (2008), we find that on average new issuers are firms that need to finance investments and growth projects. The coefficients of *INVEST* and *GROWTH* are positive and statistically significant in all the specifications of Table 6. A one standard deviation increase in investments over sales raises

¹⁵ These differences have been partly eliminated for 2012 with the application of the new rules on minibonds (see footnote 6).

¹⁶ Tables 4 shows the correlation coefficients of the exogenous variables.

¹⁷ Standard errors are clustered by firm.

¹⁸ Size is defined using the European Commission's harmonized definition of micro, small, medium and large firms (EU recommendation 2003/361).

¹⁹ Financial soundness is based on the Z-score computed by Cerved: we separate financially sound firms (with Z-score between 1 and 4) from vulnerable and risk firms (with Z-score between 5 and 9).

²⁰ The ROC index is a measure of discrimination, i.e. the ability of the test to classify the single observations correctly. It represents the area under the ROC curve where the true positive rate is plotted as a function of the false positive rate for different cut-off points for the estimated probability.

the predicted probability by about 16 per cent (see Table 9). Firms with low but positive growth rates have 23 per cent more probability of entering the market than firms with negative growth rates. Instead, firms with high rates of change in sales (*HIGH_GROWTH*) do not have a significantly higher probability of entering the bond market; a possible explanation for this result is that investors could perceive firms with very high growth to be too risky.

The importance of firms' financing needs is confirmed by the negative coefficient of *EBITDA*: the probability of issuing a bond rises as the availability of internal funds decreases.²¹ The negative effect of *EBITDA* might also be linked to firms' credit risk, assuming that low-performing firms issue bonds because they are rejected by banks. To control for this hypothesis we let *EBITDA* interact with investments: in the model presented in column 3 of Table 6 *INVEST* and *EBITDA* have been substituted with three dummies: one for firms with low *EBITDA*, one for firms with high investments (according to the median values of the continuous variables), and one for their interaction term. The marginal effect of the interaction between the two dummies is positive and significant, suggesting that the negative effect of *EBITDA* is stronger when investments are high and thus confirming the financing need hypothesis. As a further check we specify a model with a dummy for low profitability, a dummy for riskier firms and an interaction term between the two (col. 4, Table 6). The marginal effect of the interaction term is not significantly different from zero, strengthening the interpretation that, in the baseline model, *EBITDA* is not catching the effect of firms' risk.

While the coefficient of *INVEST* remains basically unchanged across the sub-samples analysed in Table 7, that of *GROWTH* loses significance during the crisis and among riskier and smaller firms. The profitability of firms (*EBITDA*) is never significantly different from zero among medium-sized and large firms, suggesting that for these firms the decision to tap the bond market rarely depends on the scarcity of internal finance (whereas other factors, such as relative costs of financing, could be more important).

Maturity mismatches

Maturity mismatches seem to be one of the main reasons why firms tap the bond market. Firms with high shares of short-term debt and of tangible assets systematically have a higher probability of entering the bond market. Moreover, the interaction term between the share of short-term debt and that of fixed assets is positive and significant. Although the size of the effect is small, it suggests that firms with an unbalanced financial structure (high short-

²¹ In order to verify the linearity of the relation between profitability and bond issuance probability we substitute *EBITDA* with three dummies corresponding to the three highest quartiles of the *EBITDA* distribution (see col. 2, Table 6); the effect is always negative and significant and is stronger for higher quartiles.

term debt and high fixed capital) are more likely to issue bonds as they want to rebalance the maturity mismatch between assets and liabilities. Tables 7 and 8 show that this effect is important only for micro and small firms, whereas it is not confirmed for larger ones.

Risk, size, age

First-time bond issues are more likely for less leveraged firms, as their securities represent a safer investment for subscribers; this finding seems coherent with several theoretical and empirical contributions (Bolton and Freixas, 2000; Cantor, 1990; Bourgeois et al., 2006). A one standard deviation increase in *LEVERAGE* reduces the predicted probability by about 28 per cent (Table 9). This relationship is statistically significant in all the sub-samples in Tables 7 and 8, with the exception of the sub-sample for large firms (whose leverage is lower and less variable than that of small firms) and that for the crisis period. As a further test for the importance of firm's risk, in columns 5 and 6 of Table 6 we add to the independent variables a dummy equal to one for financially sound firms (according to a Z-score computed by Cerved) and a proxy of the cost of debt computed as the ratio of interest expenses to total debt. The dummy for sound firms is not significantly different from zero, probably because its effect is largely captured by other independent variables, as *LEVERAGE* or *EBITDA*. Instead, the proxy for the cost of debt shows a negative relationship with the probability of issuing bonds for the first time.²²

Moreover, confirming one of the most common results of the empirical literature, the probability of a first-time bond issue is higher for large firms, as well as for listed ones, that are more able to bear the fixed costs associated with the bond issue and whose creditworthiness is easier for external investors to assess. The magnitude of the effect is big: the probability of listed firms is 5 times higher than that of unlisted ones, while a one standard deviation increase in size raises the probability 1.4 times. This result remains significant across all sub-samples.

The variable for firms' age, instead, is never significant, showing that the relation suggested by the descriptive analysis in Section 4 could be driven by the correlation between *AGE* and other variables.

Given the importance of firms' size in determining the probability of entering the bond market, we estimated our baseline model separately for small firms and for larger ones (Table

²² In the first two columns of Table 7 we split the sample into firms that are financially sound and those that are not. The first sub-sample shows a higher predicted probability and has low growth as one significant driver to enter the bond market, unlike the other firms.

7, columns 3 and 4). As expected, the predicted probability of issuing a bond for the first time is much higher for medium-sized and large firms than for small ones. Moreover, the sample split by size shows that for large firms the driving forces of the decision to enter the bond market are mainly firms' financing needs associated with growth and investments. Instead, for SMEs the issuing probability depends more often on the need to rebalance their financial conditions, the leverage and the availability of internal resources.

Before and during the crisis

During the crisis the signs of all estimated marginal effects remain unchanged with respect to the previous period, although the probability of issuing a bond for the first time, as predicted by the model, drops by more than 50 per cent.

In order to evaluate correctly the decrease in the predicted probability between the two sub-periods, we try to disentangle the effects of a change in the model coefficients from those of a change in the values of the independent variables. This exercise allows to answer the following question: what would have happened if the values of firms' indicators had remained unchanged?

Taking the pre-crisis period as the reference category, i.e. leaving the independent variables unchanged at their pre-crisis mean values, we compute the change in the probability of issuing for the first time. This counterfactual shows that the probability estimated by the model would drop by 27 per cent, about half of the actual change in the predicted probability as reported in columns 5 and 6 of Table 7.²³

The results suggest that an important contribution to the drop in the predicted probability of issuing bonds also comes from a change in the estimated coefficients. Specifically, the most significant changes are a reduction of the coefficient related to *INVEST* and an increase in those related to *SHORTDEBT* and *LISTED*.²⁴ The higher value of the estimated coefficient of *SHORTDEBT* is probably due to the sharp reduction of the market interest rates during the crisis, which raised the incentive of lengthening the debt maturity. The large increase in the coefficient of *LISTED* could reflect the effect of an increase in investors' risk aversion and their propensity in subscribing bond issued by more transparent firms; similarly the lower effect of investments on the probability of entering the bond market

²³ This result remains valid if we compute the counterfactual for the crisis period by substituting the actual coefficients with those estimated in the pre-crisis period (col. 5 of Table 7) and leaving the independent variables unchanged at their crisis mean values: in this case the change in probability would be -25 per cent.

²⁴ This check has been done by estimating a model in which all the independent variables are interacted with the dummy CRISIS; the four variables cited are those with significant coefficients of the interaction terms.

could be linked to the difficulties of external investors in evaluating firms' growth opportunities among the uncertainties of a deteriorated macroeconomic context.

6. Potential issuers

Based on our estimates, we identify potential first-time issuers as the subset of non-issuer firms with characteristics similar to those of the firms that have entered the bond market in recent years.

We first compute the predicted probability of a first bond issue for each firm based on the estimates in Table 6, column 1. The probability distributions for the two subsets of firms (first-time issuers and non-issuers) in 2013 are shown in Figure 3. As expected non-issuers have a far lower predicted probability than first-time issuers; the median values of the two distributions are 0.02 per cent and 0.1 per cent respectively. Non-issuers are concentrated around very low values, while issuers have a much more dispersed distribution.

We then select all non-issuer firms with a predicted probability exceeding certain thresholds, corresponding to the median and the 75th percentile of the distribution of the issuer companies. We repeat this estimation for all the models in Table 6. The results reported in Table 10 indicate that the number of companies with a higher estimated probability of entering the bond market than the median in 2013 is somewhere between 3,950 and 4,300. The number drops sharply once we select companies with an estimated probability above the 75th percentile (between 450 and 650). The point estimates of the potential issuers are surrounded by considerable uncertainty: a 95 per cent confidence interval includes a number of firms ranging from 180 to 1870.²⁵ Figure 4 shows that potential issuers are mainly energy and manufacturing enterprises, medium-sized and large, and located in the North West; they are also concentrated in the less risky category according to the Z-score.

With respect to similar estimates of the basin of potential issuers made by other Italian analysts, these numbers are widely lower, mostly reflecting the differences in the methodology used. Specifically, we consider a larger number of variables and we use an econometric analysis to estimate their specific effects on the probability of issuing bonds.²⁶

²⁵ The actual number could also be somewhat lower, ranging from 130 to 1720, if we consider that some companies belong to the same industrial group and that bond financing at group level is often concentrated in one issuer.

²⁶ In October 2014 the CRIF rating agency calculated that about 8,000 firms could potentially issue minibond since they respect specific thresholds of four balance-sheet indicators (turnover, EBITDA over sales ratio, leverage ratio, net debt over EBITDA ratio; see <http://www.crif.it/News/Comunicati-stampa/Pages/Studio->

Whether or not these potential issuers eventually decide to enter the bond market is contingent on a number of factors. On the demand side, it depends on the actual interest of investors for this asset class, which could increase as investors seek higher yields, or shrink again when market interest rates rise. On the supply side, the probability of entering the market depends mainly on firms' financial and economic conditions as these factors have an impact on firms' financing needs. As we estimated the number of potential first-time issuers using 2012 balance sheet data, the estimate will probably be higher when the macroeconomic cycle eventually improves. Finally, our estimates do not take in account the potential effect of the recently introduced rules on minibonds that extend to non-listed firms some of the fiscal and regulatory advantages enjoyed by listed ones.

7. Conclusions

In this paper we examine the characteristics of Italian non-financial firms that accessed the bond market for the first time between 2002 and 2013. We build a very comprehensive dataset that integrates security-by-security information on public and private bond placements with balance sheet data for all firms. Our dataset includes all bond issues by Italian non-financial firms, listed and not listed, in domestic and international markets.

We estimate a logit model for a firm's decision to enter the bond market. In line with most of the empirical literature, our analysis confirms that reputational aspects and firms' transparency positively affect issuing probability: the coefficients of firms' size and a dummy for listed firms are large and always significantly greater than zero. These issuers are easier for investors to assess and better able to bear the fixed costs of a first-time issue.

We also find evidence for two typically important drivers of the decision to enter the bond market: the need to finance growth and the need to rebalance the financial structure. The rate of investment expenses and the rate of sales growth are positively correlated with issuing probability; moreover, first issues are more frequent among firms with high short-term debt and high fixed capital. For medium-sized and large firms the most important factors driving the issuing decision are those associated with the firm's need to finance growth, whereas among small firms issuing probability depends more frequently on their financial structure, such as leverage and the maturity mismatch between asset and liabilities. Moreover, only

impresa-mini-bond-CRIF-Rating_Agency.aspx). Similarly Cerved Group (2013) indicated that about 35,000 non-financial unlisted companies with more than 5 million sales have characteristics compatible with minibond placements, as these could be classified "investment-grade" according to the issuing firms' Z-score.

among small firms does the scarcity of internal financial sources positively affect the probability of issuing bonds for the first time.

Finally, we find evidence that during the crisis the increased risk aversion of market investors played an important role in the drop of the probability of issuing bonds for the first time.

Overall, these results may help to explain why Italian firms have a low propensity to tap the bond market. In particular, the importance of size, leverage, and growth prospects in determining the probability of a first-time issue suggests that some important characteristics of Italian firms (small average size, high leverage and limited macroeconomic growth over the last two decades) could be slowing the development of the bond market.

Based on the analysis conducted, we estimate that the non-issuers include about 450-650 firms whose characteristics are similar to those of companies that have placed bonds in the past decade. Potential issuers are mainly manufacturing companies, large and medium-sized, and located in the North West. The point estimates of the potential issuers are surrounded by considerable uncertainty; for instance they do not take in account the possible positive effects of the recently introduced rules on minibonds on the probability of first-time issues.

The analysis could be improved along several lines. Some of our results could be tested with an ex-post analysis to study how entering the bond market affects firms' growth or financial choices. It would also be interesting to study the role of the costs of the different sources of funding and investigate what drives the choice between bank and bond financing, also controlling for the characteristics of the bank-firm relationship. A specific analysis of the effects of the recent minibond measure is also left for future research.

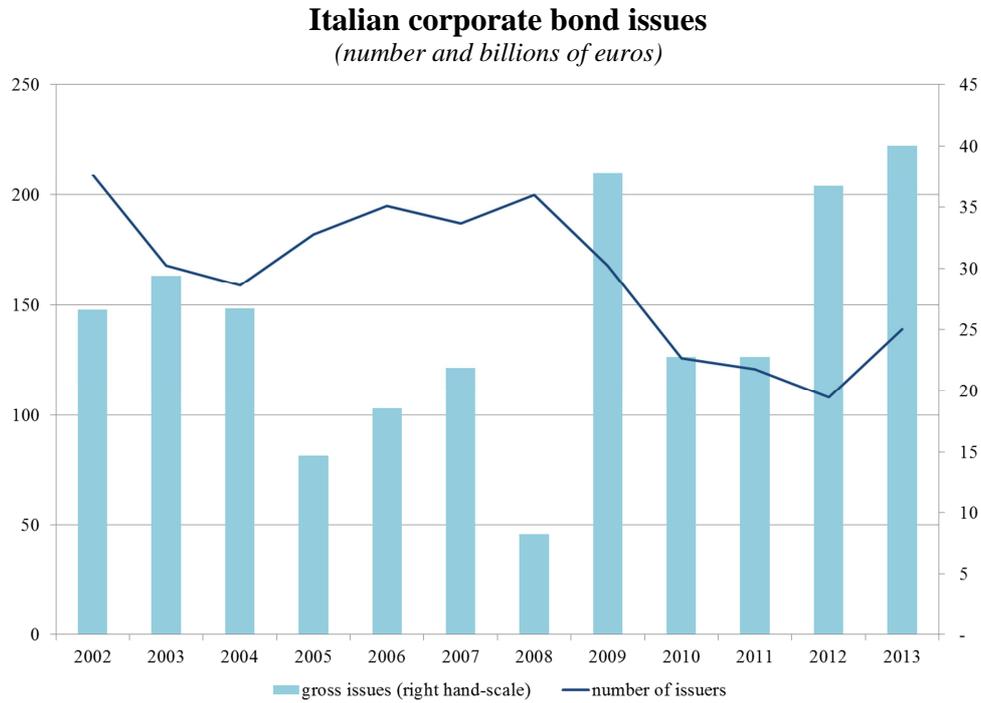
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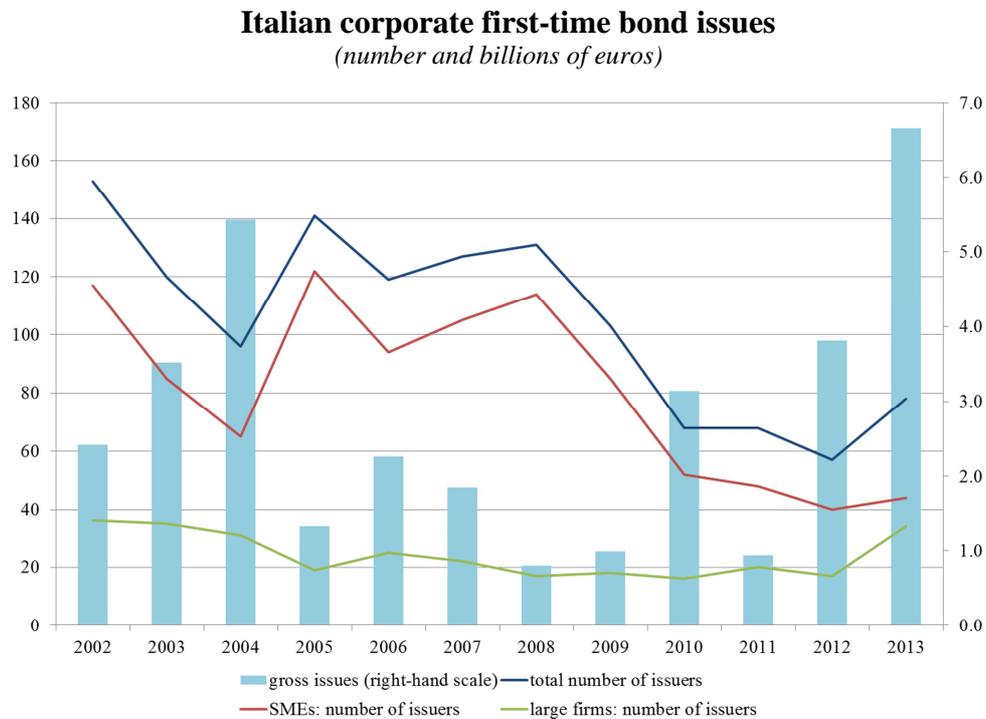
Appendix

Fig. 1



Note: Data include both first and secondary issues.

Fig. 2



Note: in this paper, a bond issue is considered a ‘first-time bond issue’ when the issuer (individually considered) has not issued other bonds in the preceding 10 years.

Fig. 3

**Model based probability of corporate first-time bond issues in 2013:
kernel distribution**

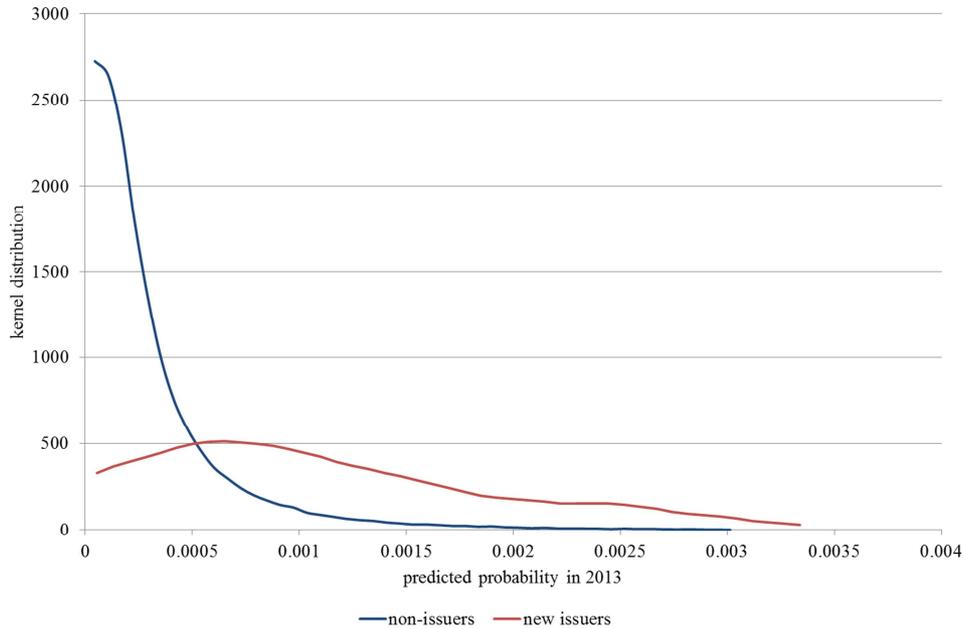
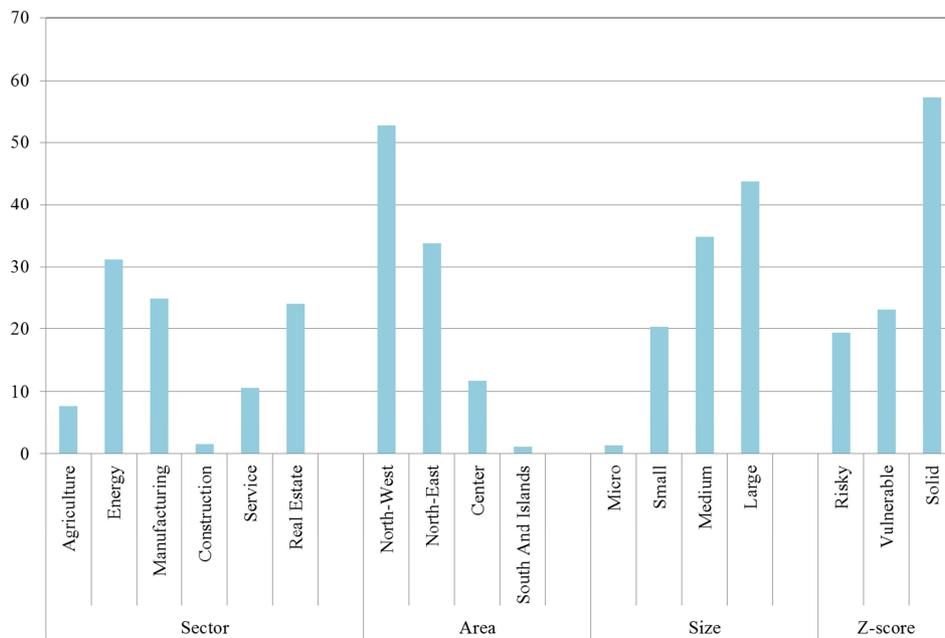


Fig. 4

**Characteristics of potential issuers (1)
(per cent)**



(1) Potential issuers are defined as non-issuers with an estimated issue probability above the 75th percentile of the predicted probability of actual first-time issuers. The estimates refer to the base model in Table 6, col.1.

Table 1

Italian corporate first-time bond issues by size and sector
(number)

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
SME													
Construction and real estate	32	18	19	42	31	32	42	35	20	17	6	7	301
Services	26	19	11	13	10	15	12	8	7	8	10	17	156
Manufacturing	38	30	17	37	28	26	29	20	12	10	16	12	275
Others	21	18	18	30	25	32	31	22	13	13	8	8	239
Total	117	85	65	122	94	105	114	85	52	48	40	44	971
Large enterprises													
Construction and real estate	3	1	1	1	2	2	0	0	1	0	3	2	16
Services	10	8	7	9	4	6	4	6	3	5	2	15	79
Manufacturing	18	18	10	6	15	9	11	8	8	11	8	10	132
Others	5	8	13	3	4	5	2	4	4	4	4	7	63
Total	36	35	31	19	25	22	17	18	16	20	17	34	290

Note: in this paper, a bond issue is considered a 'first-time bond issue' when the issuer (individually considered) has not issued other bonds in the preceding 10 years.

Table 2

**Comparison between the whole set of first-time bond issuers
and the estimation sample**
(numbers and percentages)

	Whole dataset of new issuers	Firms included in estimation sample	Difference
	<i>1261 firms</i>	<i>549 firms</i>	
Dimension			
SME (%)	77.0	77.2	-0.2
Large enterprises (%)	23.0	22.8	0.2
Years			
Pre-Crisis (2002-2008) (%)	70.3	66.5	3.9
Post-Crisis (2009-2013) (%)	29.7	33.5	-3.9
Sectors			
Constructions and real estate (%)	25.1	28.2	-3.1
Manufacturing (%)	32.3	39.7	-7.4
Services (%)	19.0	22.0	-3.1
Other sectors (%)	23.6	10.0	13.6
Avg. issue amount (millions of euros)	26.3	20.6	5.7

Note: The new issuers excluded from the estimation sample are the holding companies of industrial groups (mainly included in 'Other sectors'), firms with missing balance sheet data in the year preceding the issue, and firms with balance sheet statements not covering twelve months, firms with total assets and issue size below the first percentile (respectively, €650,000 and €175,00). Significance levels: 1 per cent (***), 5 per cent (**), 10 per cent (*).

Table 3

Descriptive statistics

	New issuers				Non-issuers			
	Mean	Median	25° Perc.	75° Perc.	Mean	Median	25° Perc.	75° Perc.
	<i>365 firms</i>				<i>163,204 firms</i>			
PRE-CRISIS: 2002-2008								
Turnover (thousands of euro)	62,760	11,084	1,869	30,953	10,651	2,261	920	6,235
Firm age (years)	22.6	19.0	10.0	29.0	18.6	16.0	9.0	25.0
Turnover growth	10.3	4.6	-2.1	16.2	7.8	4.2	-7.3	18.7
Ebitda/assets	7.2	6.3	1.8	11.8	7.6	7.2	3.3	11.8
Investment/turnover	12.4	3.9	0.9	15.1	6.3	1.5	0.2	5.6
Leverage	54.2	58.6	32.5	78.1	66.2	73.1	48.3	88.8
Short term debt	22.0	19.0	6.0	34.0	23.1	19.7	7.7	33.8
Fixed assets	31.1	20.8	7.8	49.1	24.8	14.6	4.0	37.1
	<i>184 firms</i>				<i>197,910 firms</i>			
CRISIS: 2009-2013								
Turnover (thousands of euro)	126,368	9,106	1,216	38,676	8,039	1,549	571	4,108
Firm age (years)	23.3	18.0	9.0	32.0	19.4	17.0	10.0	26.0
Turnover growth	6.2	1.9	-10.4	19.6	2.0	0.0	-15.2	13.6
Ebitda/assets	5.7	4.7	1.7	8.8	5.9	5.4	2.1	9.5
Investment/turnover	15.3	4.6	1.1	28.1	7.1	1.4	0.2	6.1
Leverage	54.9	56.8	33.8	75.2	63.1	68.9	42.2	87.8
Short term debt	22.8	18.8	6.8	32.9	21.0	16.6	5.5	31.2
Fixed assets	29.6	17.8	3.7	51.7	29.6	17.9	3.7	49.0

Note: There are 549 first-time issuers between 2002 and 2013 that have complete balance sheet data in the Cerved database (in the year preceding the issue) and are included in estimates. Statistics for first-time issuers refer to year preceding the issue. Statistics on the change in turnover and investments over sales are winsorized at the 5th and 95th percentiles.

Table 4**Correlations between regressors**

	Logsales	Age	High_ Growth	Growth	Invest	Ebitda	Leverage	Shortdebt	Fixed_ Assets	Listed
Logsales	1									
Age	0.18	1								
High_Growth	0.07	-0.10	1							
Growth	0.10	0.06	-0.37	1						
Invest	-0.21	0.01	0.00	0.00	1					
Ebitda	0.18	-0.01	0.11	0.13	-0.07	1				
Leverage	-0.12	-0.23	0.04	-0.07	-0.05	-0.22	1			
Shortdebt	0.03	-0.05	-0.01	-0.04	-0.05	-0.14	0.47	1		
Fixed_Assets	-0.34	0.12	-0.06	0.07	0.26	-0.01	-0.13	-0.18	1	
Listed	0.06	0.05	0.00	0.00	0.00	-0.01	-0.03	-0.01	-0.0103	1

Note: statistics are computed on the whole sample of equation (2) in Table 5. Continuous variables are winsorized at the 1st and 99th percentiles.

Table 5

Probability of corporate first-time bond issues
(pooled data; estimated coefficients)

	Logit (1)	Baseline model: Relogit (2)
<i>Logsales</i>	0.5255*** (0.0387)	0.5243*** (0.0387)
<i>Age</i>	-0.0026 (0.0029)	-0.0026 (0.0029)
<i>High_Growth</i>	0.1633 (0.1163)	0.1672 (0.1163)
<i>Growth</i>	0.2239** (0.1041)	0.2251** (0.1041)
<i>Invest</i>	0.0015*** (0.0002)	0.0015*** (0.0002)
<i>Ebitda</i>	-0.0204*** (0.0045)	-0.0203*** (0.0045)
<i>Leverage</i>	-0.0111*** (0.0016)	-0.0116*** (0.0016)
<i>Shortdebt</i>	0.0043*** (0.0009)	0.0056*** (0.0009)
<i>Fixed_Assets</i>	0.0064*** (0.0022)	0.0066*** (0.0021)
<i>Shortdebt*Fixed_Assets</i>	0.0001** (0.0000)	0.0000** (0.0000)
<i>Listed</i>	1.7882*** (0.2397)	1.8033*** (0.2396)
Observed probability	0.00050	0.00050
Predicted probability (at means)	0.00023	0.00023
Observations (number)	1,103,116	1,103,116
Issues (number)	549	549

Note: the estimates presented in column 2 are corrected for the rare events bias using the King-Zeng algorithm. Regressors include time, sectoral and regional dummies. Continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are shown in parenthesis. Significance levels: 1 per cent (***), 5 per cent (**), 10 per cent (*).

Table 6

Probability of corporate first-time bond issues
(pooled data; ratio of marginal effects on predicted probability)

	Baseline model	Extended models				
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Logsales</i>	0.5284***	0.5343***	0.4970***	0.5184***	0.5368***	0.5387***
<i>Age</i>	-0.0026	-0.0028	-0.0028	-0.0023	-0.0023	-0.0027
<i>High_Growth</i>	0.1738	0.1960	0.1695	0.1853	0.1755	0.1851
<i>Growth</i>	0.2356**	0.2725**	0.2460**	0.2576**	0.2418**	0.2246**
<i>Invest</i>	0.0015***	0.0014***		0.0014***	0.0015***	0.0015***
<i>Ebitda</i>	-0.0205***				-0.0179***	-0.0184***
<i>Leverage</i>	-0.0117***	-0.0116***	-0.0124***	-0.0118***	-0.0124***	-0.0152***
<i>Shortdebt</i>	0.0069***	0.0069***	0.0070***	0.0067***	0.0069***	0.0072***
<i>Fixed_Assets</i>	0.0076***	0.0082***	0.0058***	0.0080***	0.0079***	0.0071***
<i>Shortdebt*Fixed_Assets</i>	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***
<i>Listed</i>	5.1071***	4.6424***	4.3682***	4.9043***	4.8501***	4.5336***
<i>2^ Q Ebitda</i>		-0.3296***				
<i>3^ Q Ebitda</i>		-0.5800***				
<i>4^ Q Ebitda</i>		-0.5778***				
<i>Low_Ebitda</i>			0.5066***	0.4396***		
<i>High_Invest</i>			0.5900***			
<i>High_Invest*Low_Ebitda</i>			0.5211***			
<i>Financially_Risky</i>				0.1579		
<i>Financially_Risky*Low_Ebitda</i>				0.2844		
<i>Financially_Sound</i>					-0.1247	-0.1808
<i>Debt Cost</i>						-0.0229**
Observed probability	0.00050	0.00050	0.00050	0.00050	0.00050	0.00049
Predicted probability (at means)	0.00023	0.00023	0.00023	0.00023	0.00023	0.00023
Observations (number)	1,103,116	1,103,116	1,103,116	1,102,787	1,102,819	1,102,781
Emissions (number)	549	549	549	547	547	543
Roc index	0.83	0.84	0.84	0.84	0.84	0.84

Note: logit estimates are corrected for the rare events bias using the King-Zeng algorithm. Regressors include time, sectoral and regional dummies. Continuous variables are winsorized at the 1st and 99th percentiles. Marginal effects are computed at mean values. Significance levels: 1 per cent (***), 5 per cent (**), 10 per cent (*).

Table 7

Probability of corporate first-time bond issues by sub-samples
(pooled data; ratio of marginal effects on predicted probability)

	Financially sound (1)	Vulnerable or risky (2)	Micro or small (3)	Medium or large (4)	Pre-crisis (5)	Crisis (6)
<i>Logsales</i>	0.5491***	0.5315***	0.2208***	0.5333***	0.4978***	0.6313***
<i>Age</i>	0.0005	-0.0054	-0.0049	-0.0046	-0.0016	-0.0042
<i>High_Growth</i>	0.2564	0.1084	0.5063***	-0.1347	0.0113	0.4584**
<i>Growth</i>	0.4105***	0.0782	0.1313	0.2558*	0.3167**	0.0464
<i>Invest</i>	0.0011***	0.0024***	0.0011***	0.0043***	0.0060***	0.0018***
<i>Ebitda</i>	-0.0202**	-0.0165***	-0.0299***	0.0003	-0.0220***	-0.0150*
<i>Leverage</i>	-0.0114***	-0.0162***	-0.0156***	-0.0048	-0.0147***	-0.0092***
<i>Shortdebt</i>	0.0136***	0.0068***	0.0053***	0.0048	0.0072***	0.0109***
<i>Fixed_Assets</i>	0.0052**	0.0092***	0.0079***	-0.0020	0.0076***	0.0041
<i>Shortdebt*Fixed_Assets</i>	0.0003***	0.0001**	0.0001***	-0.0004**	0.0001**	0.0001
<i>Listed</i>	3.8788***	5.1905***	87.2161***	4.0169***	1.8107***	15.7129***
Observed probability	0.00060	0.00043	0.00027	0.00207	0.00074	0.00030
Predicted probability (at means)	0.00028	0.00020	0.00014	0.00133	0.00034	0.00016
Observations (number)	436,491	666,328	965,433	137,683	494,080	609,036
Emissions (number)	263	284	264	285	365	184
Roc index	0.83	0.85	0.82	0.78	0.85	0.82

Note: logit estimates are corrected for the rare events bias using the King-Zeng algorithm (ReLogit). Regressors include sectoral and regional dummies. Continuous variables are winsorized at the 1st and 99th percentiles. Marginal effects are computed at average values. Significance levels: 1 per cent (***); 5 per cent (**), 10 per cent (*).

Table 8

Probability of corporate first-time bond issues by sub-samples
(pooled data; ratio of marginal effects on predicted probability)

	Financially sound		Vulnerable or risky		Micro or small		Medium or large	
	Pre-crisis (1)	Crisis (2)	Pre-crisis (3)	Crisis (4)	Pre-crisis (5)	Crisis (6)	Pre-crisis (7)	Crisis (8)
<i>Logsales</i>	0.5201***	0.6317***	0.5077***	0.6933***	0.2481***	0.2417*	0.4291***	0.8871***
<i>Age</i>	-0.0028	0.0075	-0.0009	-0.0149	-0.0017	-0.0091	-0.0044	-0.0033
<i>High_Growth</i>	0.3338	0.1644	-0.2403	0.6611**	0.2600	0.9620***	-0.2041	0.0428
<i>Growth</i>	0.6494***	-0.0224	0.0616	0.0490	0.2562		0.3152*	0.1592
<i>Invest</i>	0.0028*	0.0014***	0.0086***	0.0027***	0.0048***	0.0010***	0.0082***	0.0055***
<i>Ebitda</i>	-0.0232**	-0.0082	-0.0196***	-0.0076	-0.0280***	-0.0320***	-0.0048	0.0094
<i>Leverage</i>	-0.0161***	-0.0016	-0.0154***	-0.0217***	-0.0180***	-0.0162***	-0.0091**	0.0051
<i>Shortdebt</i>	0.0146**	0.0129	0.0052***	0.0150***	0.0072***	0.0088***	0.0068*	-0.0007
<i>Fixed_Assets</i>	0.0054*	0.0057	0.0091**	0.0016	0.0084**	0.0032	-0.0021	-0.0043
<i>Shortdebt*Fixed_Assets</i>	0.0002**	0.0004**	0.0000	0.0001	0.0001*	0.0001	-0.0005***	-0.0004
<i>Listed</i>	1.8837**	13.4882***	1.4014*	15.4779***	15.9032	225.1530***	1.9012***	7.9986***
Observed probability	0.0010	0.0003	0.0006	0.0003	0.0004	0.0002	0.0026	0.0015
Predicted probability (at means)	0.0005	0.0002	0.0002	0.0001	0.0002	0.0001	0.0016	0.0010
Observations (number)	181,907	254,584	311,878	354,450	419,648	545,785	74,432	63,251
Emissions (number)	180	83	184	100	172	92	193	92
Roc index	0.82	0.83	0.88	0.85	0.85	0.82	0.79	0.78

Note: logit estimates are corrected for the rare events bias using the King-Zeng algorithm (ReLogit). Regressors include sector and regional dummies. Continuous variables are winsorized at the 1st and 99th percentiles. Marginal effects are computed at average values. Significance levels: 1 per cent (***); 5 per cent (**), 10 per cent (*).

Table 9**Magnitude of the effects of a one standard deviation increase
in the explanatory variables on the probability of issuing bonds**

	<i>Logsales</i>	<i>Invest</i>	<i>Ebitda</i>	<i>Leverage</i>	<i>Shortdebt</i>	<i>Fixed_Assets</i>
Effect	1.42	0.16	-0.18	-0.28	0.15	0.25
t-test	***	***	***	***	***	***
<i>mean</i>	7.5	17.9	6.7	64.5	21.9	27.5
<i>standard deviation</i>	1.7	93.6	9.2	27.8	20.0	28.9

Note: statistics are computed on the whole sample of equation (1) in Table 6. The effects are computed as the ratio of probability change over the predicted probability (at means). Significance levels: 1 per cent (***); 5 per cent (**), 10 per cent (*).

Table 10**Potential first-time issuers in 2013**

	Threshold value of new issuers' predicted probability		Number of "similar" non-issuers	
	Type	per cent	Estimates	95% - confidence interval
Baseline model (Table 6, col.1)	median value	0.12	4,084	[1349 , 9758]
	75° percentile	0.28	469	[203 , 1549]
Extended model (Table 6, col.2)	median value	0.13	4,157	[1395 , 9968]
	75° percentile	0.28	529	[194 , 1702]
Extended model (Table 6, col.3)	median value	0.12	4,267	[1620 , 10194]
	75° percentile	0.28	647	[210 , 1871]
Extended model (Table 6, col.4)	median value	0.12	3,966	[1321 , 9591]
	75° percentile	0.29	473	[205 , 1484]
Extended model (Table 6, col.5)	median value	0.12	3,946	[1289 , 9675]
	75° percentile	0.29	440	[205 , 1524]
Extended model (Table 6, col.6)	median value	0.13	4,119	[1319 , 9962]
	75° percentile	0.30	448	[183 , 1444]

Note: firms surveyed in the Cerved database 2012 and with an estimated first-time issue probability above the given threshold. We consider only the firms included in our sample. The percentiles are computed on the estimated probability for the new issuers.