



Minibond and earnings management: leveraging the signaling effect of minibond listing

Federico Bertacchini¹ · Alessandro Giovanni Grasso¹ · Ennio Lugli¹ · Ivan Russo²

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Abstract

Minibonds are a hybrid between bank debt and bond issuance introduced in Italy to expand the range of possible financing resources available to unlisted enterprises. This peculiar debt security was introduced as part of a regulatory reform in 2012 to diversify funding sources and facilitate access to capital markets for Small and Medium Enterprises (SMEs). In this study, we investigate whether firms that decide to issue and list a minibond engage in earnings management (EM) to leverage the growth-signaling effect generated by the listing of this security. Listing bonds on a financial market is not mandatory, but a strategic choice. Collecting a sample of 136 minibond listings during 2013–2020, we use panel analysis to show that issuers tend to manage their earnings in the year of listing. We argue that this behavior is undertaken in order to provide a better representation of their economic and financial situation and consequently to better impress current or future stakeholders. Moreover, we also find that larger minibond size partially discourages EM, thus confirming the role of debt as a means of control over management. Overall, we argue that stakeholders should be aware that, even though minibond issuers are sound firms on average, they tend to inflate their earnings in the year of listing in order to reinforce the signaling effect of the quotation.

Keywords Corporate bonds · Earnings management · Going public · Minibond · SME

JEL Classification G30 · M41

1 Introduction

The puzzle of capital structure (CS) has been a matter of interest in the scientific literature on small and medium-sized enterprises (SMEs) for a very long time. In particular, scholars have striven to understand how these firms balance the different

Extended author information available on the last page of the article

sources of funding at their disposal in order to foster their growth. Various factors and determinants impact firms' behavior when choosing among different sources of financing (Acedo-Ramírez and Ruiz-Cabestre 2014). According to several studies, SMEs face significantly higher financing costs on the capital markets: Cassar and Holmes (2003) state that SMEs have historically reduced access to capital or face higher costs than larger firms because it is more burdensome for them to reduce the information asymmetry between investors and issuers. Beck and Demirguc-Kunt (2006) argue that SMEs face higher risk premiums due to their opacity and have less collateral to offer. This makes it more cost-effective for SMEs to turn to bank credit by virtue of the potential benefits of loan relationships. Banks can collect soft information on companies and carry out monitoring activities, thus reducing agency costs (Diamond 1984; Boot 2000). As a result, SMEs are heavily dependent on bank loans as their main source of external financing (Petersen and Rajan 1994; Cole 2013; Robb and Robinson 2014; Kraus et al. 2017). The tightening of financial conditions as a result of the global financial crisis and the subsequent sovereign debt crisis in the euro area led to severe difficulties in accessing finance for SMEs: this highlighted the fact that SMEs' heavy reliance on bank financing can suddenly reduce access to credit, limiting investment and thus transmitting initial shock to the real economy (Crouzet 2018; Bats and Houben 2020). To reduce their dependence on the banking system, regulators in the EU are trying to favor SMEs' participation in the capital markets (Bongini et al. 2021), expanding their range of sources of financing, including the removal of existing regulatory barriers to the use of market financing. Regarding debt financing, since 2012, in the Italian context, the Regulator has introduced a form of debt financing under the name of *minibond* which can be considered a hybrid between bank debt and bond issuance. This term indicates a peculiar kind of debt securities intended to broaden the range of possible funding options and to make access to capital markets cheaper for Italian unlisted companies. When companies issue minibonds, they may or may not choose to list them. With the aim of making bond issuing a more attractive option, in 2013 Borsa Italiana set up the ExtraMOT PRO Market, a multilateral trading facility limited to institutional investors and created specifically to facilitate the trading of minibonds. Although similar examples exist across the continent, Italy can be considered as a point of reference in Europe with respect to the minibond market due to the fact that it is a second-tier market. The topic of minibonds has currently only been partially covered by the scientific literature, which underlines this financing instrument's economic benefits for the issuer (Giacosa and Mazzoleni 2016) and the risk-return ratio for the investor (Altman et al. 2020). Financing through the issue of minibonds has also been considered as a possible development and sustainability tool (Paoloni et al. 2020), capable of signaling SMEs' quality and growth-orientation (Boccaletti et al. 2022). Our study differs from those carried out up to now since it focuses on how the listing of minibonds can be considered as a process of going public. Listing brings a substantial gain in visibility to the issuer, and can, thus, act as a spotlight for the company. Hale and Santos (2008) study the role of firm reputation in the decision to enter the public bond market for the first time. They find that reputation has a non-monotonic effect on the timing of firms' first public bond issue: firms with the highest and lowest reputation enter the public bond market earlier than firms with

intermediate reputation. Consequently, the going public process gives new visibility to issuers, thus enabling them to grab market share from their private competitors (Chemmanur and He 2011).

As well as to support short-term liquidity, firms that choose to issue minibonds want to take advantage of the signaling effect resulting from the issuance and subsequent listing (Osservatorio Minibond 2022). Indeed, the issuance of this instrument can signal SMEs' quality and growth-orientation (Boccaletti et al. 2022). The subsequent *marketing effect* brings a major benefit in terms of enhancing issuers' standing in relation to stakeholders. Our research aims to verify whether this effect may be boosted by earnings management (EM) operations intended to provide a more positive picture of the company's economic and financial situation and consequently to make a better impression on current or future stakeholders. Indeed, just as Cormier and Martinez (2006) have highlighted that companies that issue listed securities manage earnings in order to meet the expectations of external stakeholders, we argue that firms that issue and list a minibond also seek to meet or exceed stakeholders' expectations regarding company growth-orientation and engage in EM operations in order to do so. Therefore, our paper aims to identify the presence of EM in the financial reports of companies that decide to list the minibond issued. Our study helps to establish whether the quality of financial reporting is influenced by the signaling and visibility effects that SMEs seek to achieve through the issuance and subsequent listing of minibonds.

The paper comprises the following parts. The next section discusses the relevant literature on the topic. Sections 3 and 4 describe the institutional background and the development of our hypotheses. Section 5 explains our dataset and research methods. Section 6 reports the empirical results and discusses the implications of the paper. Section 7 concludes.

2 Literature review

CS is essentially about how a firm finances its strategies using different solutions related to tools and channels. An optimal capital structure is the best combination of internal and external funds that supports business performance at lower costs.

The modern theory of CS began with the celebrated paper of Modigliani & Miller (1958), which is based on assumptions related to the behavior of investors and capital markets and affirms that a firm's value is unaffected by its capital structure. During the past 65 years many theories have been developed: for a good review see Harris and Raviv (1991), Martinez et al., (2018) and Rajan and Zingales (1995).

The choice between different sources of financing is a complex one, which depends on various factors and incentives, both intrinsic and extrinsic to the company. CS theory states that firms are basically faced with two choices when determining the funding of their activities: on the one hand financing through equity and on the other hand, recourse to debt. The case of listed minibonds gives us the opportunity to investigate the reasons behind the choice regarding the debt instruments in the liabilities side of SMEs' balance sheets.

Typically, SMEs are heavily dependent on bank loans as their main source of external funding (Petersen and Rajan 1994; Cole 2013; Robb and Robinson 2014). In fact, according to several studies, SMEs face significantly higher financing costs on the capital markets: Cassar and Holmes (2003) state that SMEs have reduced access to capital or face higher costs than larger firms because it is more costly for them to reduce the information asymmetry between investors and issuers. Beck and Demircuc-Kunt (2006) argue that SMEs face higher risk premiums due to their opacity and have less collateral to offer. In fact, compared to large firms, SMEs typically have less publicly available information and have been characterized as relatively opaque and bank-dependent (Petersen and Rajan 1994). Opacity causes SMEs to rely on relationship lending. This means that lending depends more on “soft information” gathered by loan officers through personalized contacts (Berger and Udell 2005; Tang et al. 2017). As a result, it is more advantageous for SMEs to turn to bank credit by virtue of the potential benefits of loan relationships. Banks can collect soft information on companies and carry out monitoring activities, thus reducing agency costs (Diamond 1984; Boot 2000).

However, after the 2008 financial crisis underlined the inefficiencies related to the typical SME-bank relationship commonly found in Europe (Wehinger 2014), regulators in the EU are trying to encourage SMEs’ participation in the capital markets (Bongini et al. 2021; Boccaletti et al. 2022). Indeed, firms that do not depend exclusively on bank financing sources are less affected by periods of crisis (Chava and Purnanandam 2011). It should also be emphasized that limited funding alternatives reduce competition between lenders, thus increasing SMEs’ financing costs (Rice and Strahan 2010) and consequently restricting new business initiatives and innovation (Black and Strahan 2002; Cornaggia et al. 2015).

In this sense, recourse to public debt could mitigate the above-mentioned issues. Another perk of issuing public debt regards the increased bargaining power in relation to banks (Hale and Santos 2008; Santos and Winton 2008). In fact, issuance enlarges the pool of potential lenders, leading to a situation in which market competition forces banks to reduce their costs of procurement to attract SMEs. Ongena et al. (2021) find that after their first issue, minibond-issuing firms in Italy obtained a reduction in the lending rates charged by banks versus ex-ante similar non-issuer firms.

Moreover, listing brings the issuer a substantial gain in visibility, and therefore this process can act as a spotlight for the company. Hale & Santos (2008) study the role of firm reputation in the decision to enter the public bond market for the first time. They find that reputation has a non-monotonic effect on the timing of firms’ first public bond issue: firms with the highest and lowest reputation enter the public bond market earlier than firms with intermediate reputation. Consequently, the process of going public gives issuers new visibility, thus enabling them to grab market share from their private competitors (Chemmanur and He 2011).

One of the most important factors discouraging the issuing of public debt is the incurrance of considerable administrative expenses. For example, Blackwell and Kidwell (1988) and Krishnaswami et al. (1999) argue that the high flotation costs of public placements make public bond financing unattractive for firms with small external funding needs. A second important factor concerns underpricing. In the

field of security offering, underpricing occurs when good firms want to signal their superior prospects to investors and use a low initial public offering (IPO) price as a signal. Underpricing the firm's initial offering is a credible signal to investors that the firm is sound, because only good firms can be expected to recoup this loss after their performance is realized (Allen and Faulhaber 1989). Cai et al. (2007) confirm the signaling role of underpricing, finding that in the case of bonds, underpricing is greater for unknown firms, such as private firms for which the debt IPO is the very first security offering, firms that have not been issuing in the corporate bond market for long, and firms that only recently issued equity in the public markets. Among the costs to be taken into consideration there are also those related to the disclosure of information, which implies the loss of confidentiality. Bhattacharya and Chiesa (1995) and Yosha (1995) in turn show that firms needing to protect confidential information choose to fund themselves with bank loans.

In view of the considerable above-mentioned drawbacks of public debt, in the Italian context the regulator has introduced the minibond. The listing process of this instrument can be seen as a first approach to the capital markets for most SMEs. In this sense, the case of Italian listed minibonds is paradigmatic, because they enable many SMEs, which would never have considered traditional listing as a source of funding, to obtain at least some of the benefits generally associated with listed instruments without incurring all the burdens of the going public process. Moreover, and this is not a secondary issue, listed minibonds allow issuers to gain more visibility and reduce the costs typically linked to the private firms' opaqueness (Boccaletti et al. 2022; Ongena et al. 2021).

3 Institutional background

Minibonds are debt securities issued by Italian unlisted non-financial companies. These issuances are made by joint stock companies or cooperatives, excluding banks, insurance companies, and financial institutions, for amounts less than €50 million and can be listed on markets open exclusively to institutional investors. Minibonds are an alternative and complementary form of financing to bank debt (Grasso and Pattarin 2019). In Italy, the legislative path that introduced minibonds started in 2012 with the so-called "Decreto Sviluppo" (Law Decree 83/2012, converted into the Law 134/2012). Originally, the Law applied to non-financial firms that qualified as SMEs under the European Union Commission definition¹, but it was later extended to all unlisted firms. This reform relaxed the constraint that only listed firms could issue bonds; this legislative measure also broadened the tax treatment applicable to minibonds, aligning it with that of bonds issued by listed companies. This includes tax relief on interest expenses and issuance costs, along with a favorable tax regime for the interest income earned by investors, making the minibonds' fiscal regime equivalent to that of traditional bonds issued by listed firms. Moreover, the Italian Legislator set three important constraints

¹ Under this definition, a firm qualifies as SME if it has fewer than 250 employees and has either total assets of less than €43 million or an annual turnover of up to €50 million.

to reduce the risk associated with this kind of instruments. First, he set the limit for the maximum notional amount of the issuances up to €50 million. Second, he provided that only professional investors can invest in minibonds. Third, issuers must be assisted by a “sponsor”, i.e. a registered financial intermediary that should facilitate the private placement of the minibond, as well as have their latest financial statements audited. With regards to this last point, the professional investor who typically underwrites the instrument is the bank with which the issuer already has an ongoing relationship (Osservatorio Minibond 2022).

In addition, to reduce costs for the issuers and improve the market liquidity, in 2013, the Italian Stock Exchange set up the ExtraMOT PRO Market, a multilateral trading facility restricted to institutional investors and created with the purpose of facilitating and encouraging the issuance of SMEs’ debt securities (not necessarily with an issuing value below €50 million). As it is a second-tier market, the listing process is simplified in terms of both admission and disclosure requirements. The listing procedure is not subject to the EU Prospectus Directive and does not require the prior approval of the financial market supervisory authority (CONSOB). Companies must provide an admission document that details and explains their key financial information, the related risk factors and the main terms and conditions of the debt instrument.

The ExtraMOT PRO market is dedicated to bonds and debt securities issued by unlisted companies and is open exclusively to institutional investors. Trading volume has been very low since its inception, making it a highly illiquid market. Another characteristic of the ExtraMOT PRO market is the absence of a market maker and the role of the arranger: since rating is not mandatory, rating solicitation is largely encouraged by arrangers for riskier or more opaque issuers.

Moreover, in 2019, with the aim of rationalizing and giving greater visibility to the offer of financial instruments listed by SMEs, the ExtraMOT market was expanded with the addition of another segment: ExtraMOT PRO Cube. This segment is specifically dedicated to SMEs not listed on regulated markets that want to list debt securities with an issue value of less than €50 million. Thus, the main differences between ExtraMOT PRO and ExtraMOT PRO Cube consist essentially of two elements: first, the types of debt securities eligible for listing; second, the maximum notional amounts of the securities. Consequently, ExtraMOT PRO Cube is currently the preferred segment for listing minibonds.

It is important to underline that when companies issue minibonds in Italy, they may or may not choose to list them. It is a managerial choice, not a legislative requirement. Therefore, minibonds issuances takes the form of a private debt placement where all conditions and covenants are negotiated directly with the counterpart before the issuance. After the private placement has taken place, the listing on official public markets is the result of a specific choice of the issuer. The rationale for listing a minibond can be found in gaining know-how and reputation rather than economic reasons. In fact, as minibonds rarely represent a cheaper alternative to bank debt, firms choose to list this instrument in order to acquire new skills with respect to the capital market and also to obtain a ‘certification’ effect, which brings reputational benefits (Iannamorelli et al. 2024), thanks to the listing process (Osservatorio Minibond 2023).

Due to the peculiar nature of this instrument, Italy can be considered a privileged context for understanding how SMEs can indirectly approach public markets.

4 Hypotheses development

To date, the topic of minibonds has been only partially covered by the scientific literature, which highlights the economic benefits of the financing instrument for the issuer (Giacosa and Mazzoleni 2016) and the risk-return ratio for the investor (Altman et al. 2020). Financing through the issue of minibonds has also been considered as a possible development and sustainability tool (Paoloni et al. 2020).

However, as well as diversifying their sources of funding, firms choosing to list minibonds also want to take advantage of the signaling effect resulting from the issuance and subsequent listing. Indeed, the listing of this instrument can signal SMEs' quality and growth-orientation (Boccaletti et al. 2022). The *marketing effect* resulting from the listing brings a major benefit in terms of enhancing issuers' standing with stakeholders.

Due to the importance of this marketing effect, the listing process may be prone to EM intended to boost the signaling effect of the operation.

EM can be classified into accrual earnings management and real earnings management, depending on whether it leads to direct consequences on cash flows (Sun et al. 2014). Accrual earnings management is the managerial manipulation of earnings through estimates and accounting methods, which has no direct impact on cash flows. In this case, the discretion inherent in any financial statement valuation is used, thus providing a certain representation of business results. Each company adopts explicit accounting policies in choosing specific representation and valuation criteria from those proposed by GAAP. Accrual EM is achieved by changing the way the same phenomena are represented in the financial statements: in this case, these are temporary maneuvers of accounting policies within the limits established by regulations and GAAP (Giunta and Pisani 2016). As these are primarily assessments, rather than transactions directly affecting cash flows, they are typically undertaken during the preparation of financial statements. This timing allows management to assess the financial performance of the period and adjust accruals to meet earnings targets. However, discretionary accruals will eventually reverse in subsequent years: earnings inflated or deflated by accounting methods will be necessarily corrected in the future (Baber et al. 2011). If current bad debt estimates are understated, resulting in higher earnings, future bad debt expenses will increase, thus lowering income. Similarly, if the present depreciation charge is too low, future depreciation will rise, or the firm will have to impair assets or report a loss upon selling the asset (Penman 2013).

In the EM literature, some authors find that firms going through an IPO manage accruals upwards to inflate earnings before the operation (Teoh et al. 1998; DuCharme et al. 2001). Other studies, on the other hand, highlight that investors' due diligence, the presence of a credit rating, as well as the underwriters'

reputation, discourage high quality firms from engaging in EM activities (Ball and Shivakumar 2008; Chang et al. 2010; Gounopoulos and Pham 2017).

The EM phenomenon has been documented not only in equity issuances but also in debt issuances. Pae and Quinn (2011) investigate whether firms manage earnings through either abnormal accruals or real operating decisions during the period in which the debt is issued: using data on a sample of public bond issuers from 1992 through 2002, they show evidence that discretionary total accruals increase prior to the issuance and decline afterwards. Liu et al. (2010) find significant positive discretionary accruals prior to bond issues, which lead to a lower cost of debt. According to Mellado-Cid et al. (2017), bond-issuing firms increase their EM activities in the five quarters leading up to a bond issuance: as a result, these firms tend to show a lower cost of debt.

Since the literature indicates that firms engage in EM to obtain greater benefits from the listing, we hypothesize that, in order to increase the signaling effect of the operation, minibond issuers might have a greater incentive to engage in EM practices in the year of the listing itself. As Cormier and Martinez (2006) show how issuers of debt securities manage their earnings in order to meet external stakeholders' expectations, we argue that in a similar way firms that issued and listed a minibond might be willing to manage their earnings in the year of the listing. This is because the main benefit of issuance (i.e., increased visibility) is actually a consequence of the listing, as issuers gain visibility chronologically after the quotation on the public markets, which leads stakeholders to look more closely at the firm and its information disclosure. Therefore, we posit our first hypothesis as follows:

H1: Minibond issuers engage in EM activities in the year of the minibond listing.

According to Jensen and Meckling (1976), leverage mitigates equity agency costs. This corroborates the findings that debt acts as a means of external control, mitigating agency problems between owners and managers (Fleming et al. 2005; Margaritis and Psillaki 2007; Gogineni et al. 2022). Indeed, excessive indebtedness would lead to an increase in debt agency costs, and in particular to bankruptcy costs (Jensen and Meckling 1976). According to Muñoz Mendoza et al. (2021) the impact of leverage on agency costs is non-linear and U-shaped, as the effectiveness of debt in controlling agency costs depends on the firm's level of leverage. Companies should tailor their financing policy not only to the qualities of their businesses but also to the magnitude of their agency costs. Many studies emphasize the active role of debt holders in disciplining the management of the company (Berglof and von Thadden 1994; Dewatripont and Tirole 1994, 1996; Bolton and Scharfstein 1996).

Therefore, in the case of minibonds this means that a larger issue size should be expected to partially discourage EM on the part of issuers. We thus posit our second hypothesis as follows:

H2: Larger minibond size is negatively associated with EM activities in the year of the minibond listing.

5 Research methods

5.1 Methodology

The literature on EM is extensive and several models have been produced for the measurement of abnormal accruals (Larson et al. 2018), which are typically used as a proxy to calculate EM. The most widely used models include the Jones model (Jones 1991), the modified Jones model (Dechow et al. 1995), the Dechow and Dichev model (Dechow and Dichev 2002) and the performance-matched modified Jones model (Kothari et al. 2005). However, Stubben (2010) points out that above-mentioned models tend to provide noisy, biased estimates of abnormal accruals, and proposes the so-called “conditional revenue model”, which is less biased and better specified. Therefore, we choose the Stubben model because of its unbiasedness, consistent with the recent studies focused on the Italian setting (e.g. Capalbo et al. 2014, 2021; Ruggiero et al. 2021).

The Stubben model (Stubben 2010) proxies levels of EM using abnormal changes in accounts receivable. The main explanatory variable in this model is *change in revenues*, followed by a group of variables which reflects the business cycle, financial strength, and operational performance relative to the industry. Business cycle is proxied by AGE, measured as the log of years since foundation, and AGE_SQ, calculated as the square of AGE. Financial strength is approximated by SIZE, calculated as the log of Total Assets. Relative performance is proxied by the growth rate of revenues adjusted for industry-median growth rate of revenues (GRR_P if positive, GRR_N otherwise), and the gross margin adjusted for the industry-median gross margin (GRM) and its square (GRM_SQ).

Stubben (2010) emphasizes how revenues serve as an ideal component for measuring EM practices, as they represent the primary item within the income statement. Consequently, manipulations related to this item can lead to notable distortions. Therefore, the proposed model considers the trends of revenues and accounts receivable, focusing on the portion of the latter that can be considered discretionary or, likewise, unexpected. Discretion is essentially established by comparing the expected change in accounts receivable, measured considering also data reported by companies operating in the same industry and year, with the actual change in accounts receivable reported by the company in its financial statements.

Therefore, our discretionary accruals model is as follows:

$$\begin{aligned} \Delta AR_{it} = & \beta_0 + \beta_1 \Delta R_{it} + \beta_2 \Delta R_{it} \times SIZE_{it} + \beta_3 \Delta R_{it} \times AGE_{it} + \beta_4 \Delta R_{it} \\ & \times AGE_SQ_{it} + \beta_5 \Delta R_{it} \times GRR_P_{it} + \beta_6 \Delta R_{it} \times GRR_N_{it} \\ & + \beta_7 \Delta R_{it} \times GRM_{it} + \beta_8 \Delta R_{it} \times GRM_SQ_{it} + \varepsilon_{it} \end{aligned} \quad (1)$$

Table 1 Average estimates of conditional revenue model

	Average Coefficient	Fama-MacBeth <i>t</i> -statistic
ΔR	0.126	0.51
$\Delta R \times \text{SIZE}$	0.017	4.07
$\Delta R \times \text{AGE}$	-0.078	-0.51
$\Delta R \times \text{AGE_SQ}$	0.011	0.47
$\Delta R \times \text{GRR_P}$	0.073	4.14
$\Delta R \times \text{GRR_N}$	-0.220	-9.80*
$\Delta R \times \text{GRM}$	0.074	1.51
$\Delta R \times \text{GRM_SQ}$	0.525	3.42
Constant	0.003	2.20
<i>N</i>	711,408	
Average R^2	0.1866	

This table reports the results for the Stubben's (2010) conditional revenue model estimated as per Equation 1. FamaMacbeth *t*-statistic is the Fama and Macbeth (1973) *t* statistic to test whether a given average coefficient is statistically significant across estimates. *, **, *** indicates significance at 0.1, 0.05 and 0.01, respectively.

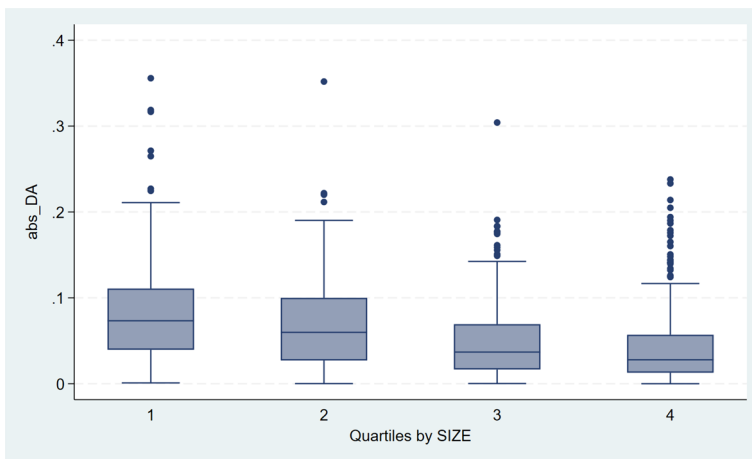


Fig. 1 Box plots showing the distribution of abs DA by firm size quartiles. *Source:* authors' own elaboration

where Δ is annual change. All revenue and accrual variables are scaled by Total Assets and, following Capalbo et al. (2014), we winsorize each input variable at 5% and 95%. The model parameters are estimated for each industry (defined using 2-digit ATECO codes) and year using ordinary least squares regression. For each industry-year regression, being *t* the listing year, we exclude firms that listed a minibond in *t* and *t*-1, following a common approach in the literature (Sletten et al.

2018). The absolute value of estimated residuals ($\hat{\varepsilon}_{it}$) from Equation (1) is the predicted discretionary accruals (abs_DA), which we use as proxy for EM of the firms. Following Capalbo et al. (2014), we use Fama & MacBeth (1973) t -statistics to test whether the coefficients are statistically significant across sector estimates. Results of this estimations are presented in Table 1. In Fig. 1 we report the distribution of the abs_DA by firms size quartiles, where 1 is the lowest quartile and 4 is the highest quartile. According with previous literature (Wang and Yung 2011; Ruggiero et al. 2021; Capalbo et al. 2021), we note that EM decreases with firm size.

In order to evaluate the impact of minibond issuance on EM, we adopt a panel data analysis. We regress our proxy for EM on our main explanatory variables: listing year (LIST) and the interaction term between LIST and relative size of the minibond issuance (LISTxProceed). LIST is a dummy variable equal to 1 in the listing year and 0 otherwise. We also include the interaction term LISTxProceed, calculated by multiplying LIST by the ratio between the size of the minibond issue and the Total Assets of the firm in the year before the listing. We add this variable to investigate whether a higher level of minibond debt affects EM. We expect this relation to be negative because, as theory suggests (DeAngelo et al. 1994; Becker et al. 1998; Chung et al. 2005; Rodríguez-Pérez and van Hemmen 2010), debt is a form of control on management.

Furthermore, we control for a set of variables which are shown to affect EM, following a common approach in the literature (Wang and Yung 2011; Capalbo et al. 2014, 2021; Ruggiero et al. 2021). Thus, our model is as follows:

$$abs_{DA_{it}} = \beta_0 + \beta_1 LIST_{it} + \beta_2 LIST_{it} \times Proceed + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 ROA_{it} + \beta_6 NOI_{it} + \mu_i + \varepsilon_{it} \quad (2)$$

where i is the firm, t is the year, μ_i represents the firm-specific effect and ε_{it} is the random error; SIZE is the log of total assets; LEV is the leverage calculated as the ratio between debt and equity; ROA is return on total assets; and NOI is the non-operating income to sales. Equation 2 was estimated using both fixed effects (FE) and random effects (RE) with robust standard error. In order to identify the best model to fit our data we conducted the Hausman test (Hausman 1978). The results $\chi^2(6) = 14.86$ ($p < 0.05$) suggest that the FE model is preferable for our data. For the sake of completeness, we also present the results for the ordinary least squares regression (OLS) and the RE model.

5.2 Data and sample

We created our dataset considering companies that issued minibonds and then listed them on the ExtraMOT PRO and ExtraMOT PRO Cube markets, the segments of the Italian Stock Exchange dedicated to this type of securities. We considered minibonds listed from 2013, when the ExtraMOT PRO market was launched, until the end of 2020.

The data was collected through three main sources. We obtained the initial list of all the firms that listed minibonds in the period 2013-2020 from data published by the Italian Stock Exchange, based on admission documents.

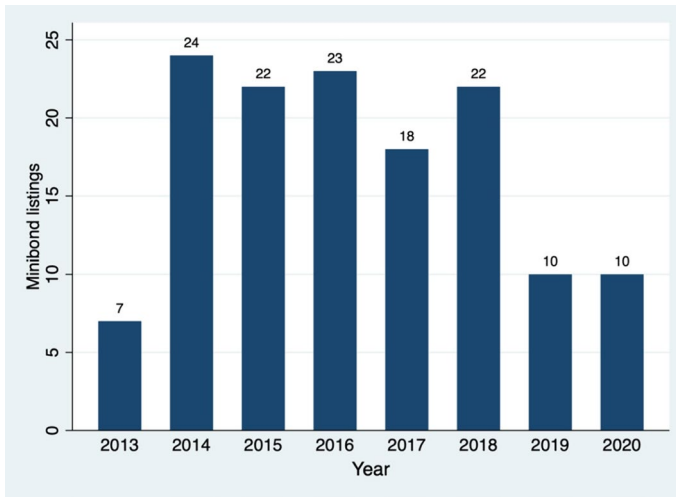


Fig. 2 Temporal distribution of minibond listings. *Source:* authors' own elaboration

Figure 2 shows the temporal distribution of the minibond listings in the sample. The year with the highest number of listings is 2014 with 24 quotations, while the year 2013 is the one with the lowest number, with only 7 minibonds listed.

The second source used for the construction of the sample was the AIDA – Bureau Van Dijk database, which contains financial data for firms in the sample. Third, we collected the information regarding the size of the issuance from the quotation prospectuses available on the website of Borsa Italiana.

Specifically, in the initial phase we obtained financial data for calculation of the discretionary accruals used as our dependent variable. In fact, in order to estimate discretionary accruals, we need the data of all the firms operating in the same industries as the firms which issued minibonds. After discarding observations whose financial data were missing, this phase yielded a set of 88,896 firms for the period 2012–2020 (in order to calculate ΔAR and ΔR , we need an additional year), for a total of 711,408 firm-year observations. After calculating the abnormal accruals, we then retained only the firms which issued minibonds for the performance of our main analysis. The final sample consists of 136 firms, for a total of 1,029 firm-year observations. Table 2 presents descriptive statistics for our sample of 1,029 firm-year observations. We can observe that the mean (median) age of the firms in the sample is around 26 (25) years, and the average size in terms of total assets is about € 78 million.

6 Results and discussion

Table 3 shows the results of the correlation analysis between the variables used in the model. We can observe that SIZE is negatively associated with accruals, consistent with the literature that shows that bigger firms are less likely to manage

Table 2 Descriptive statistics of the sample

Variable	N	Mean	Median	SD	Min	Max
Abs_DA	1,029	0.057	0.042	0.052	0.000	0.356
Δ AR	1,029	0.019	0.011	0.112	-0.566	0.817
Δ R	1,029	0.084	0.037	0.313	-1.380	4.225
AGE	1,029	26.614	25.205	15.844	1.000	73.964
GRR_P	1,029	0.095	0.027	0.143	0.000	1.099
GRR_N	1,029	-0.046	0.000	0.085	-0.507	0.000
GRM	1,029	0.008	0.007	0.064	-0.511	0.463
LIST	1,029	0.132	0.000	0.339	0.000	1.000
LISTxProceed	1,029	0.020	0.000	0.090	0.000	1.445
Proceed	136	6,626.699	4925	8,105.173	100	50,000
SIZE	1,029	78,262.005	43,742.912	100,955.879	510.584	646,383.474
ROA	1,029	0.035	0.038	0.104	-1.597	0.917
LEV	1,029	4.559	3.364	8.826	-190.070	57.518
NOI	1,029	-0.041	-0.028	0.324	-6.178	2.330

In this table SIZE is the amount of Total Assets, expressed in thousands of Euros (€). In subsequent analyses, SIZE is used as the natural logarithm of Total Assets. Proceed is the size of the issuance in thousands of Euros (€).

Table 3 Correlations

Variable	Abs_DA	LIST	LISTx	Proceed	SIZE	ROA	LEV	NOI
Proceed				1				
Abs_DA	1							
LIST	0.0241	1						
LISTxProceed	-0.002	0.5709***	1					
SIZE	-0.314***	0.0204	-0.0683	1				
ROA	-0.0872***	-0.00159	0.0530	-0.0943***	1			
LEV	0.0864***	0.0108	0.0178	-0.135***	0.0202	1		
NOI	-0.0890***	-0.00590	-0.0037	-0.0231	0.161***	-0.00701	1	

This table presents the correlations of the variables used in the main analysis. *** indicate significance level at 0.01.

Table 4 Collinearity Diagnostics

Variable	VIF	SQRT VIF	Tolerance
LIST	1.493183	1.221959	0.6697103
LISTxProceed	1.502875	1.225918	0.6653913
SIZE	1.036629	1.01815	0.964665
ROA	1.038979	1.019303	0.9624832
LEV	1.019064	1.009487	0.981293
NOI	1.027029	1.013424	0.9736823

This table presents the VIF values for the independent variables used in Equation (2).

Table 5 Regression results

Abs_DA	(1)	(2)	(3)	(4)	(5)	(6)
LIST	0.0114** (0.00454)	0.0139*** (0.00472)	0.00931* (0.00525)	0.0115** (0.00514)	0.0106** (0.00457)	0.0124*** (0.00463)
LISTxProceed	-0.0579*** (0.0162)	-0.0604*** (0.0181)	-0.0392** (0.0187)	-0.0460** (0.0182)	-0.0506*** (0.0172)	-0.0529*** (0.0182)
SIZE		-0.0169*** (0.00584)		-0.0125*** (0.00149)		-0.0127*** (0.00193)
ROA		-0.0357 (0.0270)		-0.0555** (0.0266)		-0.0517* (0.0265)
LEV		0.000241 (0.000173)		0.000234* (0.000121)		0.000224 (0.000140)
NOI		-0.00626 (0.00850)		-0.0113*** (0.00379)		-0.0100* (0.00511)
Constant	0.0661*** (0.00394)	0.240*** (0.0607)	0.0517*** (0.00518)	0.185*** (0.0168)	0.0520*** (0.00548)	0.187*** (0.0214)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	No	Yes	Yes	Yes	Yes
<i>N</i>	1029	1029	1029	1029	1029	1029
R2	0.007	0.120	0.049	0.138	0.064	0.155

This table presents the results of the regression analysis shown in Equation (2). Columns 1–2 show the results for FE models, Columns 3–4 the results for Ordinary Least Squares (OLS) regressions, and Columns 5–6 the results for RE models. Robust Standard Errors are presented in parentheses. R2 refers to overall R-squared for Models 1–2 and 5–6, while it refers to adjusted R-squared for Models 3–4. *, **, *** indicate significance at 0.1, 0.05 and 0.01, respectively.

earnings (Ruggiero et al. 2021; Capalbo et al. 2021). Moreover, the highest level of correlation is 0.5709, which is observed between LIST and LISTxProceed. This is expected, as LISTxProceed is derived from the LIST variable. Nonetheless, since this level of correlation might raise concerns regarding collinearity, in Table 4 we show the Variance Inflation Factor (VIF) matrix. In fact, all variables show a VIF value lower than 2, which indicates that collinearity does not bias our results (O'Brien 2007).

Table 5 reports the results of our regression analyses, with Abs_DA as our dependent variable. The results of the main model are presented in Columns 1 and 2, obtained with the FE regression. As a robustness check we also show the results of the OLS and RE regressions in Columns 3–4 and Columns 5–6, respectively. The table presents different specifications: in Columns 1, 3 and 5, the results of the basic specification are reported, while in Columns 2, 4 and 6 we also add the control variables.

In Model 1, we can observe that the coefficient of LIST is positive and significant at the 5% level, signaling that in the year of the minibond listing firms tend to have a higher level of EM. Moreover, we note that the coefficient of the interaction term LISTxProceed is negative and significant at the 1% level. These

Table 6 Tobit regression results

Abs_DA	(7)	(8)
LIST	0.0106** (0.00530)	0.0124** (0.00525)
LISTxProceed	-0.0500** (0.0205)	-0.0522*** (0.0201)
SIZE		-0.0127*** (0.00166)
ROA		-0.0523*** (0.0154)
LEV		0.000225 (0.000175)
NOI		-0.0102** (0.00477)
Constant	0.0520*** (0.00641)	0.186*** (0.0186)
Year FE	Yes	Yes
Industry FE	Yes	Yes
N	1029	1029
chi2	44.82	134.6
Log-likelihood	1643.0	1676.8

This table presents the results of the Tobit regression. Robust Standard Errors are presented in parentheses. *, **, *** indicate significance at 0.1, 0.05 and 0.01, respectively.

results show that a higher minibond size reduces the amount of EM in the listing year. The main results of our analysis still hold when we add the control variables, in Model 2. In fact, LIST is still positive and with a high level of significance (1%), and the interaction term is negative and significant at the 1% level. With regards to the control variables, we find that the SIZE of the firm negatively affects the amount of EM, in line with our univariate analysis and the previous literature showing that bigger firms tend to have lower levels of EM (Wang and Yung 2011; Ruggiero et al. 2021; Capalbo et al. 2021). ROA is also significant and is negatively related to the amount of abnormal accruals, indicating that more profitable firms show lower levels of EM, consistently with Van Tendeloo & Vanstraelen (2008). Finally, regarding LEV and NOI, we find a non-significant relationship between LEV and abnormal accruals, while NOI has a negative impact on the level of accruals. As a final remark, we note that Model 2 has a reasonable explanatory power with R² equal to 12%.

As robustness check, we also re-run Equation (2) using the OLS and RE models. In both cases, shown in Columns 3–4 (OLS) and 5–6 (RE), our main results are confirmed. Indeed, LIST has a positive impact on Abs_DA, while the interaction term is negatively related to EM.

To further control the robustness of our results, we also run a Tobit regression. The results of this model are presented in Table 6: Column 7 shows the basic

specification, while Column 8 shows the full model. We choose to run the Tobit regression because, by construction, our dependent variable can only show positive or null values, following an approach similar to Ashbaugh-Skaife et al. (2008). Here again, the results for LIST and LISTxProceed still hold.

Our results show that, on average, minibond issuers tend to manage earnings in the year of minibond listing, thus corroborating *H1*. This finding confirms that the listing year is a crucial time for minibond issuers, since through this operation firms obtain a double-sided benefit: firstly, they can signal their quality and growth-orientation (Boccaletti et al. 2022); and secondly, they gain greater market visibility (Osservatorio Minibond 2022). In particular, focusing on the latter, companies deciding to list minibonds can leverage this newly gained exposure to obtain better business conditions with their primary stakeholders: as the literature indicates, bond issuers get better covenants with banks after the emission (Hale and Santos 2008, 2009; Santos and Winton 2008; Ongena et al. 2021). Moreover, the issuance of a listed security may enable these firms to stand out on the market compared to their private competitors. Therefore, we could argue that the decision underlying issue of the minibond is associated with what we may call a “*certification effect*”. This could be defined as the firm’s desire to break down the information asymmetry that typically plagues SMEs, signaling to its environment that it is capable of carrying out a structured operation such as issuing and then listing a (mini)bond.

So, due to the considerable gains at stake, firms may be led to engage in behaviors which enable them to further leverage the benefits related to the quotation (Hale and Santos 2008; Chemmanur and He 2011; Ongena et al. 2021; Boccaletti et al. 2022). In the setting of our research, we argue that these behaviors take the form of EM activities. Therefore, EM is a way of boosting their newly gained visibility in relation to both primary and secondary stakeholders. Indeed, EM is a typical way in which firms seek to obtain better conditions from the listing process (Liu et al. 2010; Pae and Quinn 2011; Mellado-Cid et al. 2017).

However, while the previous literature on this topic analyzed the presence of EM activities before issuance, in the context of minibonds this would not make sense, as issuers would not gain any benefit from managing earnings before the listing, because the terms of the operation are already negotiated beforehand with the bank (as already stated in Section 3, banks are the main underwriters of minibonds), which is intrinsically able to reduce the information asymmetry with the issuer (Diamond 1984; Boot 2000). Instead, EM activities generate their biggest advantages after the listing, when the visibility of the issuer can be expected to peak. So, we argue, issuers tend to capitalize on the marketing effect related to this operation by EM, since financial disclosure continues to be a primary touch point with stakeholders for SMEs. In this regard, we wish to highlight that, even if our results reveal that these firms do engage in EM activities, they nonetheless show sound financial health. If it were not so, issuers would not be keen to undertake an operation that puts the spotlight on them: indeed, firms tend to disclose more information when they have good financial performance (Lardon and Deloof 2014).

Our results also support *H2*, thus showing that a larger minibond size is negatively associated with EM activities in the year of listing. Indeed, in the case of listed minibonds with a larger size we notice a reduction in the average level of EM.

Table 7 Regression results for the total sample of minibond firms and control group

	(9)	(10)
ISSUE	0.0010 (0.0021)	0.0020 (0.0021)
ISSUExProceed	-0.0000 (0.0000)	-0.0000 (0.0000)
LIST	0.0115*** (0.0044)	0.0132*** (0.0045)
LISTxProceed	-0.0575*** (0.0162)	-0.0604*** (0.0172)
SIZE		-0.0125*** (0.0031)
ROA		-0.0101 (0.0096)
LEV		-0.0000 (0.0000)
NOI		0.0000 (0.0000)
Constant	0.0534*** (0.0043)	0.1776*** (0.0316)
Year FE	Yes	Yes
<i>N</i>	5409	5409
R2	0.0075	0.0146

This table presents the results of the regression presented in Equation 3 estimated via Fixed Effects panel regression. Robust Standard Errors are presented in parentheses. R2 refers to overall R-squared. *, **, *** indicate significance at 0.1, 0.05 and 0.01, respectively.

We believe that this finding is a consequence of the monitoring function exercised by debt with respect to issuers. Thus, in case of a higher debt issue firms are less inclined to engage in EM activities. These results are in line with Muñoz Mendoza et al. (2021). Therefore, although companies in this position would still obtain benefits from EM, they undertake it to a lesser extent because this might undermine their relationship with the underwriting professional investors.

To ensure that our results are driven by the listing process and not by the issuing process itself, we conduct a further analysis. Indeed, it is necessary to pinpoint what drives EM activities and, as consequence, when EM occurs. As highlighted in Section 3, a firm is not required to list a minibond after the issuance, and the listing on the ExtraMOT comes from a specific choice of the issuer. Consequently, the actual process can be dissected into two main steps: 1) the issuance of the debt security and 2) the listing of the security on the market. What matters on this point is that the terms of the operation are negotiated directly with the institutional investor, that is frequently also the underwriter of the issued security, before the issuance takes place. Since the issuance of a minibond takes the form of a private debt placement, where the enhanced visibility perks are not even present, we argue that the

EM practices are performed after the issuance and, specifically, subsequently to the listing on the public market. Therefore, stating that EM occurs between the issuance and the listing process would be incongruous for two reasons. First, as underlined in the hypotheses development, accrual EM is performed during the financial statements preparation phase, which occurs at the end of the fiscal year. Second, given that contractual terms have already been negotiated beforehand, firms would not gain any advantage from engaging in EM practices before the listing².

As a consequence, to exclude that our results are driven by the issuance, we proceed to perform a comparison between issuers that listed their debt securities and firms that only issued the bond but decided not to list it. To do this, we took into consideration all unlisted non-financial Italian companies that issued a bond during the study period. We specifically considered bonds with a maximum issue value of €50 million: this allowed to gather an additional set of securities that are similar to the minibonds that were included in the original sample.

Thus, to construct the control group, we identified in the AIDA Bureau van Dijk database all firms that reported a positive value for the balance sheet item ‘bond’ (item D.1. of the liability section of the balance sheet, according to the Italian legislative framework) at least once during our study period, while discarding the firms which were already in the original sample. To determine the year of issuance, we looked for companies that reported a positive value in year t and a value equal to zero in year $t-1$. This enabled us to accurately identify the year in which the company issued a bond loan. Finally, we discarded all firms for which we could not uniquely identify the bond’s issuing year. This first phase yielded a sample of 644 firms that issued, but not listed, a security which is comparable to a minibond.

In the second phase, we collected through AIDA Bureau van Dijk database the financial data to compute the level of EM for this additional sample. We measure the level of EM adopting the Stubben’s (2010) model as has been done for the initial sample. We end up with a total sample of 780 firms: 644 ‘control firms’ and 136 ‘minibond firms’.

Since the objective is to exclude the hypothesis that the EM is related to the issuing process rather than to the listing process, we modify the regression presented in Equation 2 as follows:

$$\begin{aligned}
 abs_{DA_{it}} = & \beta_0 + \beta_1 LIST_{it} + \beta_2 LIST_{it} \times Proceed + \beta_3 ISSUE_{it} + \beta_4 ISSUE_{it} \times Proceed \\
 & + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 ROA_{it} + \beta_8 NOI_{it} + \mu_i + \varepsilon_{it}
 \end{aligned}
 \tag{3}$$

where $ISSUE_{it}$ is a dummy variable equal to 1 in the year of the issuance for only-issuing firms, and 0 otherwise; $ISSUE \times Proceed$ is an interaction term calculated by multiplying $ISSUE$ by the ratio between the size of the bond issued and the Total Assets of the firm in the year before the issuance; all other variables are the same as defined in Equation 2. This allows us to differentiate between the impact of the

² In Appendix A, we statistically address this issue. By exploiting both a logit and a probit model, our results show that EM in $t-1$ does not drive the listing process. Additionally, we also show that the issuance of “control firms” is not influenced by EM in $t-1$.

Table 8 The comparison of the issuing process between minibond firms and the control group

	Minibond Firms	Control Group
ISSUE _{t-2}	-0.0024 (0.0055)	-0.0027 (0.0023)
ISSUE _{t-1}	-0.0054 (0.0045)	0.0024 (0.0021)
ISSUE _t	0.0117** (0.0053)	0.0018 (0.0022)
ISSUE _{t+1}	-0.0046 (0.0049)	-0.0007 (0.0018)
ISSUE _{Proceed}	-0.0598*** (0.0180)	-0.0000 (0.0000)
SIZE	-0.0154*** (0.0057)	-0.0115*** (0.0037)
ROA	-0.0334 (0.0276)	-0.0064 (0.0082)
LEV	0.0002 (0.0002)	-0.0000 (0.0000)
NOI	-0.0064 (0.0086)	0.0000 (0.0000)
Constant	0.2265*** (0.0595)	0.1558*** (0.0378)
Year FE	Yes	Yes
N	1029	4380
R2	0.1225	0.0081

Notes: this table presents the results of the regression in which we added a series of dummy variables to account for the years surrounding the issuing/listing year. Robust Standard Errors are presented in parentheses. R2 refers to overall R-squared. *, **, *** indicate significance at 0.1, 0.05 and 0.01, respectively.

issuance and the impact of the listing on the levels of EM of the firms in our sample. Results are presented in Table 7.

Table 7 presents both the base specification in column 9 and the full specification with control variables in column 10. We can observe that, in both specifications, the relationship we found between the listing and the EM practices of the minibond issuers still holds: in fact, in the listing year minibond firms tend to show higher levels of discretionary accruals; moreover, we find that this relationship is mediated by the size of the issuance, since a larger minibond size affects negatively the levels of EM. A similar assertion cannot be made for our control sample: while positive, the

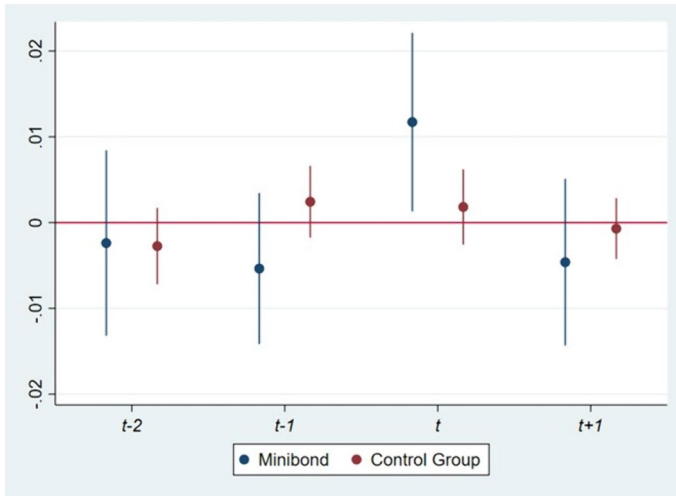


Fig. 3 The effect of the issuance process on the accruals of minibond firms and the control group. This figure presents graphically the coefficients of the regression results presented in Table 8. Source: authors' own elaboration

coefficient of *ISSUE*, is not significant and its magnitude is negligible compared to the coefficient of *LIST*^{3,4}.

Therefore, these results indicate that the EM practices are not related to the issuance process, but rather to the listing of the minibond. Indeed, only firms listing the minibond show higher levels of discretionary accruals in the listing year. If EM practices were associated with the issuance, we would expect an increase in EM in year t also for companies that issued a bond loan.

In addition, it may be argued that, since there is a time lag between the decision to issue a debt security and the actual issuing process, firms may be prone to manage their earnings years before the issuance in order to improve their financials and, thus, obtain better conditions and covenants on their debt securities. We bring two main evidences that demonstrate this interpretation to be non-consistent. First, as mentioned in the institutional background, the terms of the operations are negotiated directly with the institutional investors before the security is issued, thus taking the form of a private placement. Moreover, during this private negotiation the latest available financial statement is audited by the prospective investors, thus allowing little freedom to the firm to manage its earnings. Second, we empirically demonstrate that there is no leading effect of the issuing/listing by running an additional regression, similar to Equation 2, in which we add a series of dummy variables to account for the years surrounding the issuing/listing of the debt securities. The results are presented in Table 8.

³ To address possible endogeneity issues related to the control variables, in Appendix B we repeat the analysis presented in Equation 3 by lagging all the control variables, i.e. *SIZE*, *LEV*, *ROA*, *NOI*.

⁴ As highlighted in Section 4, discretionary accruals might show a certain level of temporal correlation. In Appendix C, we investigate this issue by adding the one-year-lagged value of *abs_DA* to Equation 3.

In Table 8, $ISSUE_t$ represents the listing year for minibond firms and the issuing year for the control group. From these results, we can observe that there is no anticipation effect related to the operation. This is valid both for listing firms and for non-listing firms. Moreover, we also show that the results of our main analysis still hold. In fact, we can see that in the year of the minibond listing, firms tend to undertake more EM practices, but this effect is mediated by the size of the minibond. The same evidences are also shown in Fig. 3, where we graph the coefficients obtained from Table 8.

Overall, these additional results confirm what we found in the main analysis. Minibond issuers are not trying to obtain better conditions on their issuances, but rather are trying to exploit the increased visibility correlated to the listing in order to signal their quality. The rationale is that sound firms might be willing to undertake the listing process since benefits related to the operation more than counterbalance the related costs (Iannamorelli et al. 2024). In fact, in the years following the listing, minibond issuers demonstrate increased bargaining power towards banks and a wider range of financing options (Iannamorelli et al. 2024; Ongena et al. 2021). Therefore, in order to fully exploit these certification effects, minibond firms manage their earnings to demonstrate even better financials. This certification hypothesis is confirmed by the findings of Beccari et al. (2022), who shows that the positive effect of the listing significantly declines between first and seasoned minibond issues. This suggests that firms are willing to incur the higher costs related to the “debut” on the market in order to demonstrate their higher quality compared to non-listing firms: the certification effect will then subside the higher costs once the private information is provided to the institutional investors (Iannamorelli et al. 2024).

7 Conclusions

This paper investigates the relationship between EM and the listing of minibonds. Specifically, this security plays a role which is a hybrid between classical listed bonds and bank debt. Minibond issuers can exploit all the benefits related to listing (Chemmanur and He 2011), without incurring the typical costs of operations of this kind (Blackwell and Kidwell 1988; Krishnaswami et al. 1999).

As highlighted by Boccaletti et al. (2022), one of the major perks related to minibond listing is the increased visibility gained by the issuer. In this context, we argue that firms that decide to issue and list a minibond have an enhanced incentive to manage their earnings in the listing year in order to further leverage the signaling effect of the operation.

Our results show that issuers do engage in EM activities in the year of the listing. Indeed, we find a positive and significant increase in abnormal accruals, measured using the model proposed by Stubben (2010), in the year of minibonds' quotation. Moreover, the analysis also supports our second hypothesis related to the role of debt as a monitoring mechanism: higher proceeds are negatively correlated with EM activities.

This study has non-negligible implications for the stakeholders of these firms. While professional investors have the capabilities and the information to investigate

and assess the financial health of these firms regardless of mere accounting disclosure, other stakeholders may not be able to do so. Therefore, these “uninformed” stakeholders may be overoptimistically misled regarding the company’s real financial situation if they only have access to the publicly available information. By this, we mean that stakeholders should be aware that, even though minibond listing firms are sound on average, they tend to inflate their earnings in the year of listing in order to reinforce the signaling effect of the quotation.

Our research is not without limitations, which could pave the way for further research. First, we focus our analysis on the Italian setting. While this can be considered a paradigmatic context, other attempts to facilitate SMEs’ access to financial markets have been put in place in Europe (Boccaletti et al. 2022). Therefore, a cross-country analysis could identify features peculiar to each national setting.

Second, while we focused on the post-listing behavior of issuing firms, it would be interesting to understand in relation to which kind of stakeholders issuing firms want to leverage their newly gained visibility. In a quantitative framework such as ours, this is impractical: a qualitative approach, on the other hand, could address this question.

Appendix A

This appendix explores the issue that EM activities in t-1 may drive the listing of the “minibond firms” and the issuance process of the “control firms” in t. We statistically test this relationship via a logit (Table 9) and a probit model (Table 10),

Table 9 Logit regressions results

Dependent variable	LIST	LIST	ISSUE	ISSUE
	(1)	(2)	(3)	(4)
abs_DA (lagged)	-3.250 (2.058)	-3.006 (2.113)	1.089 (0.971)	1.416 (0.987)
SIZE		0.0830* (0.0430)		0.121*** (0.0215)
ROA		-0.292 (0.948)		-0.0273 (0.328)
LEV		0.0027 (0.0088)		-0.0012 (0.0017)
NOI		0.0724 (0.157)		-0.0000 (0.0000)
Constant	-1.270*** (0.251)	-2.250*** (0.573)	-2.053*** (0.281)	-3.238*** (0.352)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	885	885	3762	3762
Log-likelihood	-358.23	-357.85	-1450.77	-1445.51

This table presents the results of logit regressions. Robust Standard Errors are presented in parentheses. *, **, *** indicate significance at 0.1, 0.05 and 0.01, respectively.

Table 10 Probit regressions results

Dependent variable	LIST	LIST	ISSUE	ISSUE
	(5)	(6)	(7)	(8)
abs_DA (lagged)	-1.522 (0.966)	-1.491 (1.029)	0.607 (0.545)	0.801 (0.548)
SIZE		0.0104 (0.0193)		0.0692*** (0.0119)
ROA		-0.122 (0.455)		-0.00831 (0.172)
LEV		0.00287 (0.00448)		-0.000567 (0.000725)
NOI		0.0151 (0.0831)		-0.00000220 (0.00000448)
Constant	-0.803*** (0.139)	-0.923*** (0.288)	-1.218*** (0.153)	-1.901*** (0.194)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
<i>N</i>	885	885	3762	3762
<i>Log-likelihood</i>	-360.02	-359.88	-1450.69	-1445.18

This table presents the results of probit regressions. Robust Standard Errors are presented in parentheses. *, **, *** indicate significance at 0.1, 0.05 and 0.01, respectively.

where the dependent variable is either the listing (Columns 1-2 and 5-6) or the issuance (Columns 3-4 and 7-8). Our results show that EM in $t-1$ does not influence the choice to list the minibond in t . Additionally, similar results are obtained in relation to the issuing process of the control group.

Appendix B

This appendix explores the possible issue related to the endogeneity of the control variables. Specifically, we lag the control variables used in Equation 3 by one year. Our findings remain qualitatively similar (Table 11).

Table 11 Regression results for the total sample of minibond firms and control group with lagged control variables

	(1)
ISSUE	0.0014 (0.0023)
ISSUExProceed	-0.0000 (0.0000)
LIST	0.0092* (0.0053)
LISTxProceed	-0.0477* (0.0279)
SIZE (lagged)	-0.0025 (0.0024)
ROA (lagged)	0.0223** (0.0091)
LEV (lagged)	-0.0000 (0.0000)
NOI (lagged)	-0.0000 (0.0000)
Constant	0.0670*** (0.0251)
Year FE	Yes
<i>N</i>	4633
R ²	0.0028

This table presents the results of the regression presented in Equation 3 estimated via Fixed Effects panel regression with lagged control variables. Robust Standard Errors are presented in parentheses. *, **, *** indicate significance at 0.1, 0.05 and 0.01, respectively.

Appendix C

This appendix explores the possibility that EM practices in one fiscal period may influence the practices in the subsequent period. To do this, we add to Equation 3 the lagged value of *abs_DA* as an additional independent variable. In line with theory (Baber et al. 2011), we show that EM practices in *t-1* are inversely correlated with EM practices in *t*. Overall, our results remain qualitatively similar, allowing us to confirm only H1 in this specific setting (Table 12).

Table 12 Regression results for testing EM practices influence between fiscal periods

	(1)	(2)
<i>abs_DA</i> (lagged)	-0.0674*** (0.0238)	-0.0775*** (0.0236)
ISSUE	0.0015 (0.00232)	0.0028 (0.00231)
ISSUExProceed	-0.0000 (0.0000)	-0.0000 (0.0000)
LIST	0.0087* (0.0051)	0.0102** (0.0051)
LISTxProceed	-0.0409 (0.0297)	-0.0413 (0.0313)
SIZE		-0.0162*** (0.0044)
ROA		-0.0143 (0.0117)
LEV		-0.0000 (0.0000)
NOI		0.0000 (0.0000)
Constant	0.0507*** (0.0051)	0.213*** (0.0442)
Year FE	Yes	Yes
<i>N</i>	4623	4623
R2	0.0090	0.0228

This table presents the results of the regression presented in Equation 3 estimated via Fixed Effects panel regression with lagged *abs_DA* as an additional control variable. Robust Standard Errors are presented in parentheses. *, **, *** indicate significance at 0.1, 0.05 and 0.01, respectively.

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Data Availability Data presented in this study are available on request from the corresponding author: these data are not publicly available and were sourced from AIDA Bureau Van Dijk database. Publicly available datasets were also analysed: these data were sourced from Borsa Italiana (<https://www.borsaitalia.it/homepage/homepage.htm>).

Declarations

Conflicts of interest The authors have no relevant financial or non-financial interests to disclose.

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Authors and Affiliations

Federico Bertacchini¹  · Alessandro Giovanni Grasso¹  · Ennio Lugli¹  ·
Ivan Russo² 

✉ Federico Bertacchini
federico.bertacchini@unimore.it

Alessandro Giovanni Grasso
alessandrogiovanni.grasso@unimore.it

Ennio Lugli
ennio.lugli@unimore.it

Ivan Russo
ivan.russo@unimib.it

¹ Department of Economics Marco Biagi, University of Modena and Reggio Emilia, Via Jacopo Berengario 51, 41121 Modena, MO, Italy

² Department of Business and Law, University of Milano-Bicocca, Via Bicocca degli Arcimboldi 8, 20126 Milan, MI, Italy