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**POLITECNICO**  
**MILANO 1863**

**The impact of Minibond issuance on Italian firms access  
to financing**

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## 1. EXECUTIVE SUMMARY

According to the literature, Italian firms and in particular SMEs face some difficulties in having access to credit from the banking system. To tackle this problem, *Minibond* issuance has demonstrated to be a significant alternative to the traditional bank-firm relationship, allowing companies to find financing crucial for their economic growth. Several studies have been conducted on these securities over the years. However little space has been dedicated to the investigation, from a statistical perspective, of the differential effect that *Minibonds* have over two essential indicators: Long-term debt and Equity capital.

The aim of the following analysis is to demonstrate whether the issuance of *Minibonds* is an effective solution to overcome the general constraints limiting the financing, and consequently, growing opportunities of Italian firms.

In order to achieve such results, *Minibond* emissions data have been collected in collaboration with the *Osservatorio Minibond of Politecnico di Milano*. Later on, both qualitative and accounting data about all Italian firms that operated between 2009 and 2020 have been downloaded, and then two matching techniques have been used: Coarsened Exact Matching (CEM) and Propensity Score Matching (PSM). The aim has been to build a control sample of non-issuing firms as to correctly estimate the *Minibond* treatment effect.

Successively, several regression models have been run. Outcomes obtained show that firms relying on *Minibonds* are characterized by an increase in both Long-term debt and Equity capital that is significantly higher when compared to those of non-issuing firms. Furthermore, this differential availability appeared to be uncorrelated to the amount of emission itself.

Therefore, it is safe to assume that *Minibond* issuance brings some additional benefits to companies relying on them, that go behind the immediate financing obtained. In fact, the analysis provided bring as core understanding the fact that *Minibonds* may be a crucial step for those firms willing to increase their bargaining power toward banks through the

differentiation of financing sources, and to reduce the information asymmetry they are suffering.

In conclusion, this thesis is a solid proof of *Minibonds* as a strategic choice firms should consider in order to overcome their financing constraints and boost the economic growth.

## EXECUTIVE SUMMARY – ITALIAN VERSION

Come ampiamente documentato nella letteratura, le compagnie operanti sul territorio italiano spesso faticano ad avere accesso ai capitali messi a disposizione dal sistema bancario. Questo problema è particolarmente accentuato per le piccole e medie imprese – PMI. L'emissione di *Minibond*, tuttavia, ha dimostrato essere un'alternativa efficace al tradizionale rapporto di finanziamento impresa-banca, fornendo un aggiuntivo canale di raccolta di capitali che possa permettere alle compagnie di trovare i capitali necessari per perseguire obiettivi di crescita. Nonostante diversi studi siano stati condotti in merito a questi titoli di debito, un'analisi statistica puntuale relativa l'effetto differenziale che un'emissione di *Minibond* può avere nei confronti di Debito di lungo termine e Patrimonio netto offre nuovi e interessanti spunti di riflessione.

Lo scopo di questa analisi è quello di avvalorare la tesi secondo cui l'emissione di *Minibond* sia una soluzione efficace a contrastare i limiti che le imprese italiane soffrono nell'aver accesso a canali di finanziamento che compromettono le prospettive aziendali di crescita.

I risultati di seguito descritti sono stati ottenuti attraverso un'iniziale fase di raccolta dati in collaborazione con l'Osservatorio *Minibond del Politecnico di Milano* a cui hanno fatto seguito analisi sia qualitative che quantitative relative alle compagnie Italiane operanti durante il periodo 2009 e 2020. In seguito, due tecniche di matching sono state eseguite: Coarsened Exact Matching (CEM) e Propensity Score Matching (PSM), seguite successivamente da diverse regressioni. La conclusione del modello evidenzia una crescita di Debito di lungo termine e Patrimonio netto superiore per le imprese emittenti rispetto invece a quelle che decidono di non utilizzare i *Minibond*. È inoltre importante sottolineare la non correlazione tra l'ammontare dell'emissione e la crescita differenziale delle variabili sopra-citate.

Appare dunque corretto ipotizzare che l'emissione di *Minibond* fornisca alle imprese emittenti vantaggi che vadano oltre al semplice finanziamento. Difatti questa analisi presenta come nozione fondamentale la capacità che il *Minibond* offre alle emittenti di aumentare il proprio potere contrattuale nei confronti delle banche grazie alla

differenziazione delle fonti di finanziamento, e di ridurre l'asimmetria informativa che le caratterizza.

In conclusione, questa tesi fornisce una prova concreta di come i *Minibond* rappresentino un'importante scelta strategica per quelle compagnie che vogliono superare i tradizionali limiti di finanziamento e promuovere una significativa crescita economica.



## 2. INTRODUCTION

Following the financial crisis, Italian banks came across an increase in their cost of capital related to medium-long term investments and acted as last resort underwriters of the Italian Government bonds. Furthermore, the deep economic downturn increased the riskiness of banks' assets and losses on loans negatively impacted on the bank capital. To tackle such circumstances, the banking system performed a credit crunch on the economy and in particular on the SMEs' requests of funds.

Paradoxically, such circumstances have favored the expansion of alternative sources of financing firms can rely on. In particular, when it comes to corporate bonds in Italy in the past few years, volumes have increased considerably, reaching an annual average of about 30 billion of euros of gross issues, and several medium and large firms have accessed the bond market for the first time. This growth has also been fostered by a new and more favorable tax system for bonds issued by non-listed companies (so-called *Minibonds*) as well as, more recently, by the *Corporate Sector Purchase Programme* (CSPP) implemented by the Eurosystem in June 2016, and by the introduction of long-term individual saving plans <sup>1</sup>.

However, the scale of Italian corporate bond market is still small when compared to those of France, UK and US. This is explained by several factors such as the limited number of large and listed firms, the low propensity of national investors to bear liquidity and credit risk and the opaqueness of most companies.

In the following paragraphs a detailed description of *Minibonds* will be provided, highlighting their importance to further increase the reliance firms have toward the bond market as an alternative financing source with respect to the traditional banking system.

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<sup>1</sup> Missing investors in the Italian corporate bond market. Bank of Italy (2018)

This topic is particularly crucial in Italy, where the majority of firms are SMEs. With this term, we are referring to category of micro, small and medium-sized enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million<sup>2</sup>. Small and medium-sized enterprises (SMEs) are the backbone of Europe's economy. They represent 99% of all businesses in the EU. They employ around 100 million people, account for more than half of Europe's GDP and play a key role in adding value in every sector of the economy. SMEs bring innovative solutions to challenges like climate change, resource efficiency and social cohesion and help spread this innovation throughout Europe's regions. They are therefore central to the EU's twin transitions to a sustainable and digital economy, and are essential to Europe's competitiveness and prosperity, industrial ecosystems, economic and technological sovereignty, and resilience to external shocks<sup>3</sup>. Going more in detail and focusing the analysis over Italian SMEs, they account for 99.9% of all the enterprises, providing 78.5% of total employment and bringing 67.1% of total value added. In Italy, SMEs play a significant role in the non-financial business economy, in which manufacturing and services have a large stake.

According to the previous reasoning, it becomes clear why a focus on SMEs is crucial in this thesis. Moreover, these companies are generally more reliant on banks' lending than their bigger competitors. However, banks tend to limit the financing to SMEs practicing a credit crunch that narrows their potentiality to grow. In order to tackle this problem, firms need to diversify their financing sources, limiting the dependency on banks.

In this thesis, our aim is to provide some solid evidence that *Minibond* issuance is a fundamental instrument companies should adopt – in particular SMEs – in order to diversify their financing sources and increase their growth opportunity.

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<sup>2</sup> [smedefinitionguide\\_en.pdf \(europa.eu\)](#)

<sup>3</sup> [Entrepreneurship and Small and medium-sized enterprises \(SMEs\) | Internal Market, Industry, Entrepreneurship and SMEs \(europa.eu\)](#)

## 2.1 MINIBOND DEFINITION

In order to facilitate a better understanding of all the results that will be described in the following sections, it is crucial to provide a proper definition of the term *Minibond*. Following the interpretation adopted by the *Osservatorio Minibond of Politecnico di Milano*'s school of management, a *Minibond* is a debt security, either a bond (of any maturity) or a commercial paper (with maturity up to 36 months), issued by Italian companies – especially by small and medium enterprises, or SMEs – and subscribed by professional and qualified investors<sup>4</sup>. These securities offer a contractual defined remuneration through the payment of coupons.

In detail, the analysis provided considers only those emissions that respect certain requisites:

- The issuer is a limited liability company residing in Italy or being part of a group whose main focus is on Italy which is not under liquidation of failure proceeds;
- The issuer is not a bank, an insurance company or a financial intermediary, i.e. those characterized by the ATECO code K;
- The issuer is not a SPAC or a NEWCO created appositely for the acquisition of another firm;
- The emission is characterized by an amount lower than € 50 million;
- The security issued cannot be converted into shares of the issuing company.

These instruments are to be considered crucial for the growth and development of Italian firms since *Minibonds* appear as instruments that are able to teach companies to relate with institutional investors, the capital market, consultants and rating agencies as well as finding alternative financial resources to bank credit.

Instead of using short-term bank financing instruments, *Minibonds* allow for differentiating sources of funding and increasing the duration of the sources themselves, through a long-

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<sup>4</sup> Osservatorio Minibond Politecnico di Milano, 7° Report italiano sui Minibond

term consolidation of financing. The main purpose of these *Minibonds* is to make the financing system of the SME less bank-centric. In fact, it is known that the credit crunch imposed by the crisis has meant that a large part of the SME cannot access to bank credit.

With *Minibond* even investors are protected since the rules of regulated markets require a higher level of transparency and ensure the opportunity to take on “informed risks”. In particular, Borsa Italiana created in 2013 a new segment in ExtraMOT market that is called ExtraMOT PRO and is referred in particular to the trading of mini-bonds, accepting only professional investors <sup>5</sup>.

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<sup>5</sup> Financial policy of Italian SMEs: the impact of Minibond; Angelini, Gennaro, Giovannini

## 2.2 REGULATORY FRAMEWORK

### 2.2.1 DECRETO SVILUPPO AND DECRETO SVILUPPO BIS

Following the financial crisis of 2008, the Italian government introduced a series of innovation in the regulatory framework with the aim to provide companies, and in particular SMEs, alternative financing channels. In detail, in 2012 through the Decreto Sviluppo and Decreto Sviluppo bis two important changes in *Minibond* legislation have been introduced:

- Removal of the prohibition – established by art. 23412 c.c. – of issuing bond exceeding the double of the sum of share capital, legal reserve and available reserves values, resulting from the latest approved financial statements. However, this first change has been referred only to those instruments listed on regulated markets or on MTFs;
- Definition of the fiscal regime applicable to bonds of unlisted companies more favorable, bringing on the same fiscal plan both for bonds issued by banks or listed companies and bonds issued by unlisted ones. In particular, Decreto Sviluppo, favored the bond's fiscal regime with the possibility for unlisted companies to deduct interest expenses up to 30% of gross profit for IRES purposes (art. 96 TUIR).

### 2.2.2 DECRETO DESTINAZIONE ITALIA

In the following years, additional decrees were introduced to further promote and facilitate the access to debt capital markets by SMEs and thus increasing the possibility to raise funds through *Minibonds*. In particular, Decreto Destinazione Italia enacted in 2013 introduced the substitute tax equal to 0.25% of the amount of the secure *Minibonds*, up to that time exclusively reserved to long- and medium-term bank debts (art. 15 DPR 601/73). The Decree included also a particular warrant – Privilegio Speciale – for those *Minibonds* with a maturity higher than 18 months and directed to institutional investors. It involves the concession of medium/long term financing from banks, guaranteed by *Minibonds* or ABS.

Moreover, the Decreto Destinazione Italia extended law 130/1999, which deals with the securitization process to bonds, was introduced with the aim of promoting the emergence of funds investing in *Minibonds* as an additional support for the growth in the demand of such instruments.

An additional reform that such Decreto introduced was related to the possibility for insurance companies to consider mini-bonds – jointly with bonds, securitized instruments or mini-bond funds quotas – as assets to cover technical reserves.

The third reform refers to the removal of the withholding tax of 20% on interest expenses and incomes deriving from mini-bonds subscribed by funds, whose shares are held by professional investors and which capital is dedicated only to investments in *Minibonds*. Such reform enhanced the growth of Private Debt funds specialized in these instruments.

### 2.2.3 DECRETO COMPETITIVITA'

With the Law Decree no. 91/201410 – known as Decreto Competitività – Italian Government introduced several measures aimed both at improving the competitiveness of Italian firms at European level and at attracting foreign investors. Indeed, it led to a wider diffusion of *Minibonds* through the opening of the Italian *Minibond* Market to foreign investors.

In addition, in order to further increase the appeal of Italian firms – mainly SMEs – to foreign investors, the law eliminated the withholding tax on medium-long term loans granted by foreign insurance companies, securitization companies and investment funds.

Finally, the Decreto Competitività introduced two other measures which are linked with the *Minibonds* market: the removal of the 26% withholding tax on interest expenses and incomes of bonds for those securities not listed on Multilateral Trading Facilities – such as ExtraMOT PRO – as long as they are placed by institutional investors, and the extension of the substitute tax to the transfer of guaranteed receivables.

## 2.2.4 INDIVIDUAL SAVING PLAN – PIR

With the introduction of the Legge di Bilancio 2017, a new form of investment was introduced. Indeed, PIR (Piani individuali di risparmio) are intended to convey savings toward businesses. In particular, the main goal was to incentivize the investments toward shares and bonds of Italian SMEs and guarantee a great tax advantage to those who subscribe them. PIR are dedicated to small retail investors which, however, have to respect some conditions in order to benefit from the tax exemption on capital gain. Such conditions are:

- The investment must be held for at least five years;
- The investment must be composed by, at least, 70% of securities of Italian enterprises or with prevalent business activity in Italy;
- At least 30% of the previous 70% should consist of securities not listed in the FTSE MIB index.

## 2.2.5 DECRETO RILANCIO

An important innovation that positively impacted the *Minibond*'s industry is the introduction of the so-called 'PIR-alternativi' through the Decreto Legge 34/2020 (Decreto Rilancio). The main change with respect to the 'traditional' PIR is an additional plafond dedicated toward illiquid instruments and SMEs.

Moreover, additional requirements have been introduced:

- The maximum concentration limit must be equal to 20% for each instrument;

- Investors can subscribe no more than €300.000 per year with a cumulative investment value equal to €1.5 million <sup>6</sup>.

## 2.2.5 LEGGE DI BILANCIO 2019 – 2020 AND DECRETO FISCALE 2020

In order to modify the regulation on PIR, the law n. 145/2018<sup>10</sup> was introduced with the intention to define the minimum restrictions on investments in financial instruments issued by small and medium-sized companies and listed on multilateral trading facilities, i.e. AIM Italia and ExtraMOT PRO, and in shares or units of venture capital funds, in order to enjoy the tax exemption on income for savers. However, these constraints limited the collection of capital.

Therefore, to overcome such problems Decreto Fiscale 2020 (Law 157/2019) and the Legge di Bilancio 2020<sup>11</sup> (Law 160/2019) have been introduced. In detail, these new reforms imposed the duty for PIR operators to invest in small cap companies, by turning to a universe of companies listed on regulated (MTA or STAR) or non-regulated (AIM Italia) markets with a capitalization of less than € 500 million.

Another innovation proposed by the Legge di Bilancio 2019 was the opportunity for equity crowdfunding platforms authorized by Consob to place *Minibonds* issued by SMEs to professional investors and other particular investors in a dedicated section. According to this new change additional categories of investors were authorized to subscribe *Minibonds* emerged. In particular, the innovations refer to

- Investors who hold a financial instruments portfolio exceeding € 250,000;
- Investors who subscribe at least € 100,000 in offered securities, declaring to be aware of the investment risk;
- Retail investors, in the context of portfolio management or advisory services in investment matters.

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<sup>6</sup> Law Decree 104/2020



This reform confirms a substantial step forward in the legislation governing the direct online collection of capital which offers a new alternative way of accessing credit and facilitates the meeting between SMEs and direct investors.

On 31<sup>st</sup> December 2020, the crowdfunding platform authorized by Consob for the issuance of *Minibonds* were three: Crowdfundme, Fundera e Opstart. Table 1 reports in summary the main number for those markets up till the end of 2020.

<b>Platform</b>	<b>Offerings published</b>	<b>Total amount collected</b>
Fundera.it	19 (closed) + 5 (in placement)	€ 12.390.000
Crowdfundme.it	2 (closed)	€ 2.290.000
Opstart.it	1 (in placement)	

*Table 1 - Crowdfunding platforms*

Table 2 represents a summary of all the legislation described in the section above, highlighting the main innovations that each Decree introduced.

<b>Decree</b>	<b>Main innovations</b>
D.L. 83/2012 ‘Sviluppo’ and D.L.179/2012 ‘Sviluppo-bis’	Abolition of the maximum quantitative limits provided for by art. 2412 of the Code Civil for bonds
	Extension to unlisted companies of the deductibility of interest expense, for securities listed on multilateral trading facilities and subscribed by qualified investors who do not hold more than 2% of the share capital
	Deductibility of issue costs for unlisted companies

	Exemption from withholding tax on proceeds from listed securities multilateral trading facilities of EU member states or countries in "White List"
D.L.145/2013 'Destinazione Italia	Simplification of securitization procedures and greater investor protection
	Bonds, securitized securities, eligible Minibond fund units as assets to cover the insurance technical reserves
	Possible guarantee of collateralised securities issued by banks, including corporate securities and loans to SMEs
	Extension of the activity of the Central Guarantee Fund also to funds for investments in single issues and portfolios
D.L. 91/2014 'Competitività	Direct credit to businesses by insurance companies and companies securitization
	Elimination of withholding tax on medium-long term loans term granted by foreign funds and insurance companies
	Elimination of withholding tax on interest and income from bonds also not listed in multilateral systems, as long as they are placed by institutional investors
	Extension of the substitute tax to the assignment of secured credits
Legge 145/2018 ('Legge di Bilancio 2019')	Amendment of the PIR legislation
	Amendment of Law 130/99 on securitizations
	Faculty for equity crowdfunding platforms authorized by Consob to place Minibonds to professional investors in a dedicated section

Legge 157/2019 ('Decreto Fiscale 2020') and Legge 160/2019 ('Legge di Bilancio 2020')	Further changes to the PIR legislation
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*Table 2 - Italian Decrees, overview*

## 2.3 ITALIAN MARKETS

In Italy, the main market for *Minibond*'s issuance is Borsa Italiana's ExtraMOT PRO market, which was instituted in February 2013 as a professional segment of the already functioning ExtraMOT. Moreover, from the 16<sup>th</sup> of September 2019 the ExtraMOT market saw the introduction of the ExtraMOT PRO<sup>3</sup> dedicated to the emissions of bonds and debt securities issued by companies non-listed in regulated markets, SMEs or securities having an emission value lower than €50 million. This innovation was mainly adopted in order to facilitate the issuance of financial instruments by small and medium size enterprises with a high growth potential.

An additional advantage brought by the introduction of this new market is the increased visibility enjoyed by the companies, that may be able to reduce their cost of capital and be favored by additional sources of funding.

It has to be highlight the presence of ExtraMOT PROLinK, a centralized platform hosted by Borsa Italiana used by both investors and firms to have access to all the required information useful for eventual transactions. Moreover, from 2016 Borsa Italiana gives the possibility to *Minibond* issuers to directly sell the security on the platform. In this way the issuer has access to an ample network of investors.

Figure 1 shows the positioning of the ExtraMOT PRO<sup>3</sup> with respect to the bond's markets managed by Borsa Italiana

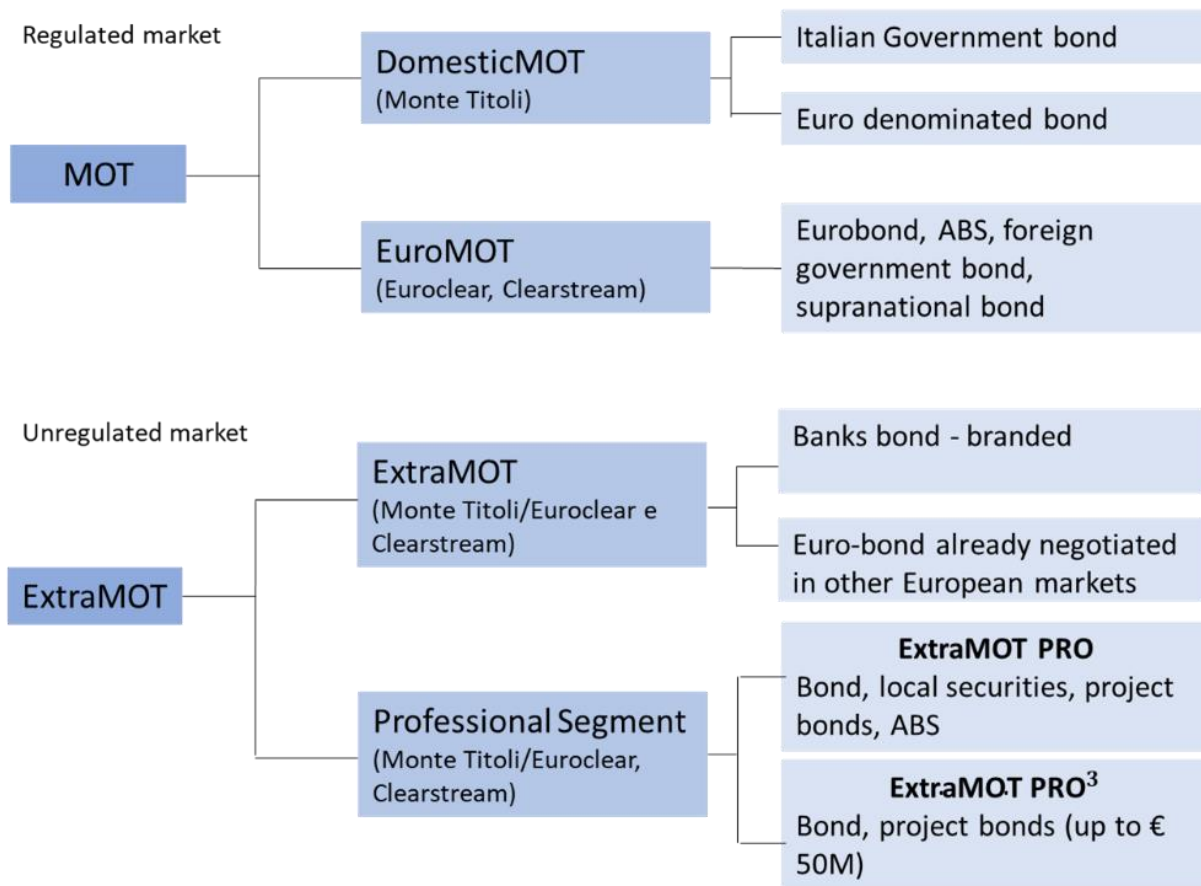


Figure 1 - ExtraMOT PRO3 and the Italian bond markets regulated by Borsa Italiana

## 3 LITERATURE REVIEW

### 3.1 ACCESS TO FINANCING

Financing is an essential part for the operations of any business. Without adequate access to financing, the competitive power of the business and its potential for growth are jeopardized.

If all firms have equal access to capital markets, the financial structure is irrelevant in financing companies' growth because external funds provide a perfect substitute for internal capital. In reality, however, firms have uneven access to capital markets, and internal and external funds are not perfect substitutes for reasons such as transaction costs, tax advantages, agency problems, costs of financial distress, and asymmetric information. In particular, for small and medium-sized businesses, obtaining financing and other banking services at affordable rates and fair terms has never been easy (Rahaman, 2009).

Consequently, it can be affirmed that Modigliani and Miller's theorem (1958 and 1963), according to which the capital structure of the firm has no impact over the company's value, is not verified in the real world. While Modigliani and Miller posed their assumption on the basis of the presence of frictionless (or perfect) markets, we know that they are indeed imperfect. Such imperfections include bankruptcy costs (Baxter, 1967, Kraus and Litzenberger, 1982; and Kim, 1998), agency cost (Jensen and Meckling, 1976), gains from leverage-induced tax shields (De Angelo and Masulis, 1980) and information asymmetry (Myers, 1984).

### 3.1.1 MARKET IMPERFECTIONS

The term “*information asymmetry*” is used when one party of an economic transaction possesses greater knowledge than the other party. Such definition can be applied during different phases of the transaction. According to that, different consequences may arise.

In case of ex-ante information asymmetries, the consequence is the adverse selection, which consists in incomplete information over the quality of a certain good to be purchased. In this case Akerlof (1970), through his “Market for lemon” model describes how high quality goods tend to be excluded from the market and replaced by bad quality ones under adverse selection. Going more in detail, the model assumes there are two goods to be sold on the market: the first is a good quality product, while the second instead is a low quality one (the lemon). The seller knows the quality of the good he is selling, while the buyer instead is ‘blind’ when it comes to assess the quality of what he/she is buying. According to this consideration, buyers would apply an average price for all the goods on the market independently from their real quality. Therefore, it will be in the sellers’ interest not to propose high quality product but instead to sell only lemons. Eventually this move will cause an exit of good quality goods from the market.

These considerations acquire significant importance when it comes to credit lending that banks authorize to borrowers. In fact, according to Stiglitz and Weiss (1981) in their ‘Credit rationing with imperfect information’ model, they demonstrate how adverse selection has a particular and negative effect over the bank’s profit maximization. Going more in detail, Stiglitz and Weiss suggest that banks have to choose a specific maximum value for the interest rate to be charged otherwise only risky investors (i.e. the ‘lemons’ in Akerlof model) will ask for a loan. Consequently, if the pool of borrowers is only composed by risky investors, the bank’s expected return will diminish significantly.

An important solution for this problem to be reduced has been found in the practice of screening. It consists in reducing the information asymmetries by taking into account several data from the counterparty you have a contract with. However, asymmetric information problems are more likely to occur when banks deal with small and medium sized enterprises,

due to the high opacity of the latter (Berger et al., 2001; Beck et al., 2004). As Bester (1985) showed, banks can offer a menu of contracts, with a range of both collateral requirements and the rate of interest, to discriminate among borrowers. Therefore, SMEs firms are necessarily more exposed to adverse selection problem because of the general lack of collateral with respect to bigger companies.

Another significant solution is provided by the signaling theory. In literature this is defined as the idea that one party (termed the agent) credibly conveys some information about itself to another party (the principal) in order to affect the perception the principal has over the agent. It has to be highlighted that a signal is generally recognized as a costly action that only high-quality actors are able to implement. In this way the agent, which are assumed to be the high-quality borrower, is able to differentiate himself from low-quality actors. Therefore, those firms capable of effectively signal their quality are more likely to receive a loan since they differentiate themselves from the ‘lemons’.

However, being signaling a costly action, SMEs are once more underprivileged with respect to bigger companies.

Considering now the case of ex-post information asymmetries, the possible outcome is defined as the moral hazard problem, which gives rise to agency costs. In particular, we know from the literature that Agency theory is chiefly interested in the design of alternative governance structures to mitigate the agency conflict arising from the possible divergence of interests between shareholders (principals) and managers (agents) (Berle and Means, 1932; Jensen and Meckling, 1976). Managers have incentives to pursue strategies that reduce their employment risk (Amihud and Lev, 1981), or increase firm size resulting in greater compensation (Baker, Jensen, and Murphy, 1988; Donaldson, 1984). Consequently, they may adopt non optimal investments even though the outcome is likely to be a loss for shareholders in order to maximize their own compensations.

An important result the agency theory reports is related to the presence of debt as a governance device useful in reducing the conflict (Jensen, 1986). The creation of debt reduces the agency costs of free cash flow by reducing the amount available to managers.



That is explained by the fact that by reducing the amount to be used by managers, you are reducing the possibilities to implement opportunistic behaviors that may not be aligned with shareholders' goals.

An additional market imperfection to be described refers to transaction costs, which can be defined as those arising from the setup and running costs of the governance structures, as well as other costs, such as those due to renegotiation, that emerge from a shift in the alignment.

Transaction cost economics is concerned with the governance of contractual relations in transactions between two parties (Coase, 1937; Williamson, 1975, 1985). Governance structures can be matched to transactions in a manner that leads to lowered costs of exchange (Williamson, 1979)

According to Williamson (1975, 1985), transaction costs are used to explain the configuration of organizational form and a range of strategic phenomena, including diversification, vertical integration, foreign direct investment, joint ventures, and business-level strategy.

The notion of opportunism and self-interest is a common dominant assumption (Eisenhardt, 1989; Oviatt, 1988; Williamson, 1988). This behavioral feature, in the presence of uncertainty, leads to conflicts arising from a divergence of goals between contracting parties (Jensen, 1983; Jensen and Smith, 1985; Yarbrough and Yarbrough, 1988). Thus, the focus must be on the incentive systems and governance mechanisms that work towards economic efficiency in the presence of this conflict. The result is the setup of an efficient contracting mechanism that serves to minimize transaction costs.

As pointed out by (Jensen and Smith, 1985), an increase in bonds' transparency is a useful driver to reduce transaction costs. They also posed that the bond markets might benefit from some of the market-driven technological innovations in order to further increase

transparency, that is likely to encourage the creation of more efficient market structures and innovative dealing strategies which consequently can further reduce transaction costs. According to these considerations, *Minibonds* appear to be a substantial solution for those firms willing to take advantage from the corporate bond market without suffering excessive costs for the securities issuance. In fact, *Minibonds* issuer are subject to considerable costs reduction for both the phases of emission and eventual quotation of the *Minibond*. These costs are about 1%/2,5% of the whole amount <sup>7</sup>.

It is important to stress that there are additional variables to take into consideration when analyzing the financing firms have access to. In fact, according to Chittenden et al (1996) which analyzed a sample of listed and unlisted small firms, they found that profitability, asset structure, size (total assets), age, and access to the capital market is related to the financial structure of a small firm.

In addition, the importance of borrower net worth for obtaining external finance is stressed in Leland and Pyle (1977), Myers and Majluf (1984), Calomiris and Hubbard (1986), and Bernanke and Gertler (1987).

### 3.1.2 PECKING ORDER THEORY

According to the literature, firms have to properly choose the optimal mix between debt and equity. Overall, the choice between this two forms of financing aims at finding the right capital structure that will maximize stockholders' wealth.

Traditional corporate finance literature based on the pecking order theory (Myers and Majluf, 1984) has highlighted the role of asymmetric information between the firm and its investors: since the cost of finance increases with asymmetric information, companies would first use internal financing; then, if external financing is required, they would prefer

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<sup>7</sup> Borsa Italiana

to issue debt rather than equity, both to avoid the dilution of the existing shares and because investors would perceive debt as less risky than equity due the claim priority.

In order to better clarify the above statement, suppose that there are three sources of funding available to firms: retained earnings, debt, and equity. The former have no adverse selection problem. Equity is subject to serious adverse selection problems while debt suffers only a minor one. From the point of view of an outside investor, equity is strictly riskier than debt. However, they both have an adverse selection risk premium even if it is larger on equity. Therefore, an outside investor will demand a higher rate of return on equity than on debt.

From the perspective of those inside the firm, retained earnings are a better source of funds than debt, which on the other hand is a better deal than equity financing. Accordingly, the firm will fund all projects using retained earnings if possible. If there is an inadequate amount of retained earnings, then debt financing will be used.

Thus, for a healthy firm, equity will not be used and the financing deficit will match the net debt issues.

Additional support to this theory come from Myers (2001), which reports that external finance covers only a small proportion of capital and that equity issues are minor, with the bulk of external finance being debt.

An important aspect to consider regarding debt is that in addition to principal and interest payment, it may also carry restrictive covenants that the borrower must satisfy to prevent default (Jane, Malonis and Cengage, 2000). Thus, a major cost of issuing debt is the possibility of financial distress (Jane Malonis and Cengage, 2000).

Considering now the final optimal choice between debt and equity, according to Ehrhard and Bringham (2003), the value of a business can be summarized through the present value of all the expected future cash flows to be generated by the assets, discounted at the company's weighted average cost of capital (WACC). From this, it can be seen that the WACC has a direct impact on the value of a business (Johannes and Dhanraj, 2007). In

particular, its minimization contributes to firm's own value maximization (Messbacher, 2004).

It has to be highlighted that, according to Leland and Pyle (1977), debt to equity ratio can be considered as a signal for a company's health since a high leverage implies higher bankruptcy risk (and costs) for low quality firms.

For this specific reason it is crucial that managers correctly define and manage this ratio in order to encourage the perception of their firm as a high quality one.

An important aspect that needs to be considered, in particular when referring to the Italian market, is the hurdle that some firms face when trying to have access to financing. Such problem may be due to credit constraints or inability to borrow, inability to issue equity, dependence on bank loans or illiquidity of assets (Lamont et al. 2001). Literature has highlighted that pursuing ways to alleviate capital constraints is essential to firm-level survival and growth, industry-level expansion and even country-level development.

The difficulties Italian firms face in collecting financing described above are suffered by SMEs to a greater extent. Several studies have discussed that SMEs are financially more constrained than large firms and are less likely to have access to formal finance. Indeed, SMEs are generally more prone to being constrained and experiencing difficulties in accessing bank credit and more broadly, external finance. The body of literature investigating the existence and the determinants of financing constraints is already very large and based on two main theoretical considerations: asymmetric information and agency costs. Such problems are more significant for SMEs: first, their smaller size may affect the quality and the quantity of information available on their investment project and the quality of collateral. Smaller firms are often perceived to be more opaque than larger firms and monitoring costs weight more heavily on smaller-scale projects (Devereux and

Schiantarelli, 1989; Gilchrist and Himmelberg, 1991; Beck et al. 2005). Moreover, small firms are often young and have not had time to build up a track record and a reputation.

Finally, SMEs are much more bank-dependent than larger enterprises. They do not normally issue traded securities that are continuously priced in public markets, which would provide relevant and more transparent information to potential lenders.

The following sections will focus on the different sources that are available to firms to finance their business.

### 3.2 DEBT – BANK LOANS

It has to be highlighted that generally for the majority of the companies bank loans were the only source of external funding they had access to before the introduction of *Minibonds*. In fact, in the economic system, banks have a crucial role: through their function of capital management and savings allocation, credit institutions are the primary source of external financing for entrepreneurial activity, in Italy as well as in the other countries, even where capital markets are more organized and developed (Signorini, 2012).

Nevertheless, the role of information asymmetries plays a crucial role when it comes to decide whether a bank will provide a loan and this problem is even amplified as the dimension of the borrowing firm decreases.

In particular, Stiglitz & Weiss (1981) suggest that banks decide to ration credit because of economic motives as their profit maximization is directly affected by the interest rate they charge to potential borrowers. In particular, if the interest required is above a certain threshold the final effect is to spur adverse selection and moral hazard, affecting the quality of the pool of borrowers which will be composed by only risky firms raising fund to finance risky investments. However the higher is the risk, the lower is the potential return for the bank.

For this specific reason, banks fix a threshold on the interest rates to be charged in order to screen potential borrowers and gather valuable information about the economic prospects of corporations through a monitoring activity, which contributes to reduce borrowers' moral hazard (Diamond 1984).

Therefore, there are cases in which banks are not willing to provide loans to firms even if they could accept a higher interest rate. Such a drawback is particularly crucial for SMEs, since they are characterized by a higher level of information asymmetries.

An important theory to consider is related to the amount of financing a firm decides to borrow. In fact, as posed by Gilchrist and Zakrajsek (1995), because of information asymmetry the cost of funds increases with the quantity borrowed, drafting the supply line downwards. As a consequence, the borrower is somehow forced to invest less than required due to the additional costs to be sustained. The logical consequence of this shortcoming is a lower investment power for borrowing firms, which directly affects their growth opportunities. Once again, being SMEs more prone from suffering information asymmetry problems, this constraint significantly affect their growing expectations.

This whole consideration leads to one of the main problem that Italy has been facing in the past years: the credit crunch, which is defined by the literature as “a significant contraction in the supply of credit reflected in a tightening of credit conditions” (Udell, 2009) or “a significant leftward shift in the supply curve for bank loans, holding constant both the safe real interest rate and the quality of potential borrowers” (Bernanke & Lown, 1991).

In the years following the latest financial crisis, the credit transmission channel has been damaged as regards to the quantity, price, and distribution of credit. This is a major problem for SMEs, which have also suffered from bank regulatory concerns of capital adequacy, heightened emphasis on default risk of bank counterparties and the general mal-functioning of credit extension and private sector growth (Altman, Esentato & Sabato, 2020).

A large body of research points to the importance of collaterals to debt finance. Bester (1985, 1987) shows that collaterals can be used as a signaling device to separate high-risk from low-risk borrowers and as an incentive device to face moral hazard concerns. Boot et al. (1991) provided a theoretical model, together with empirical evidence, showing that collaterals can be a powerful instrument for dealing with moral hazard.

Therefore, collateral is an essential issue in elucidating the limited access that companies and in particular SMEs have in collecting adequate funding. For lenders, higher/proper collaterals decrease agency costs and information asymmetries, limiting potential legal complaints and shaping the debtors' future behaviors. For SMEs, insufficient collateral is

probably one of most crucial difficulties in accessing a credit, and a clear way to evaluate the depth and severity of financial gap.

Some studies have showed that the most effective variables determining the bank's perspective on the collaterals required in loan contracts are the length of the banking relationship and the prompt repayments. In particular, companies with long-term relationship with a bank are available to provide more guarantees than those firms that count on trust relationship (Badulescu, Simut, Filip, 2016). Going more in detail, a long credit relationship decreases collateral requirements (Boot & Thakor, 1994) and lowers interest rates (Berger & Udell, 1995).

Additional factors to exploit in order to reduce the overall amount of collaterals required are the quality of the borrower and the provision of valuable guarantees (Bharath, et al., 2011).

In order to be perceived as a high quality borrower, firms should implement costly actions that will differentiate them with respect to low-quality companies that instead are unable to pursue such actions (signaling theory).

Another crucial aspect to consider is that nowadays banks do not observe only economic factors when it comes to deciding whether to lend money and at which conditions. In fact, additional aspects like ethics, managers integrity and trustworthiness are relevant (Howorth and Moro, 2012). In addition, Vander Bauwhede et al. (2015) found that another important driver affecting accessibility to debt is the financial reporting quality. In particular, there is a negative correlation between cost of debt and the accuracy of a firm's financial reports.

For instance, looking at the composition of financial liabilities, Mantovani (2015) demonstrates that more transparent (and better performing) companies tend to have longer maturities inside their balance sheet.

When it comes to the relation between the size of the company and its debt maturity structure, literature offers several studies to be analyzed. Ozkan (2000), provides an



empirical analysis of the determinants of a firm's debt maturity structure for a sample of 429 UK firms. Results show that larger firms have more long-term debt.

Even Hoven-Stohs and Mauer (1996) find that larger companies with less risky and longer maturity assets prefer use more long-term debt than others.

The choice among longer or shorter maturities is affected also by the presence of information asymmetry and its consequences. If adverse selection, for example, is taken into account, Goswami (2000) shows that it may induce some mismatching of debt maturity and asset maturity when transaction costs are significant. When firms have private information regarding the maturity of their assets, the choice of long-term debt is the dominant financing mode to dilute the impact of transaction costs. Berger et al. (2006) demonstrated that debt maturities tend to increase significantly when informational asymmetries are reduced.

Focusing on the Italian market, Magri (2006) tests different theories concerning debt maturity. The equilibrium share of debt maturity is positively influenced by firm size, tangible assets and age.

### 3.3 DEBT – BONDS AND MINIBONDS

Focusing now on an alternative source of funds, corporate bond issuance in Italy saw a decisive increase in volumes during the last years.

It has to be highlight that Italian firms' recourse to the market depends essentially on reputation, transparency towards investors, a sound economic and balance sheet condition, and firms' need to finance new investment (Accornero et al. 2015).

Even in this case, the presence of information asymmetries plays a crucial role. In fact, incomplete accounting information contributes to an imprecise knowledge of firm value, leading to different predictions for the shape of the yield spread term structure, which causes a lower propensity in relying on this form of funding (Duffie & Lando, 2001).

As stated above, this problem is particularly pronounced for SMEs, which face difficulties in obtaining market-based funding because of the higher costs they face due to their opaqueness that increase the informational asymmetries between investors and issuers. Moreover, the recourse to capital markets by Italian SMEs may have been hampered by the limited presence of specialized domestic investors, interested in investing in corporate debt instruments (Accornero, Finaldi Russo, Guazzarotti and Nigro, 2018 and 2015).

Overall, one of the most common and most salient result of the 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 (Calomiris et al., 1995; Cantillo & Wright, 2000; Dennis & Mihov, 2003; Mizen & Tsoukas, 2013).

In order to improve their quality, firms have an incentive to use *Minibonds*. Going more in details, companies find particular beneficial the presence of *Minibond* underpricing (Mietzner, Proelss, Schweizer, 2018). Their data highlight that, according to information-

based corporate finance theory, higher underpricing is correlated with higher quality *Minibond* issuer and lower early default rates.

The overall conclusion of the study identifies underpricing as an effective signaling mechanism in the *Minibond* market, where information asymmetry is particularly pronounced given the heterogenous nature of bond issuers. These results are consistent with the notion that high-quality firms use underpricing as a credible but costly signal to differentiate themselves from low-quality firms.

An important observation related to loans and bond issuance is provided by Diamond (1991), who stated that new borrowers take initially bank loans but may later issue debt directly, if the positive credit record obtained while monitored generates reputation effects. Therefore, borrowers with higher credit ratings can obtain funding at lower costs from bond issuance, while borrowers with lower credit ratings are subject to bank monitoring.

Moreover, Darmouni and Papoutsis (2020) show that firms facing a rating downgrade revert to more bank financing.

Following the consideration above, Santos and Winton (2008) demonstrated that the spread paid on loans was higher the longer the time passed since the last public bond issuance, thus confirming the informational value of public issuance for the perception of corporate creditworthiness.

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. Chemmanur and Fulghieri (1994), 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.

Overall, we can say that the *Minibond* issuance is an important step firms carry out in order to benefit from reputation effects and consequently reduce funding costs. One of the main indicator the market considers when assessing the credit worthiness of a company is the rating, which is simply a grade that measure the solvency capability of the borrower. The higher the rating, the higher the solvency capability of the company and consequently the lower the costs to be sustained when asking for funds.

Similarly, according to Holmstrom and Tirole (1997), only firms with sufficiently high net worth would be able to issue bonds, while firms with intermediate capitalization would have to borrow from intermediaries, and undercapitalized firms would not be able to invest. Consistently with this theory, also Hoshi, Kashyap and Scharfstein (1993) found that firms having ex-ante higher net worth and investment opportunities were more prone to reduce their reliance on bank debt and issue public debt.

A study published by the Bank of Italy named “Bank credit and market-based finance for corporations: the effects of *Minibond* issuances” (Ongena, Pinoli, Rossi, Scopelliti, 2021) shows that *Minibond* issuance helps firms in reducing their dependency over bank debt while increasing the overall amount of financial debt, suggesting that the issuances led to a partial substitution between bank loans and capital markets funding. These results support the argument that the diversification of funding sources allows firms to reduce the hold-up effect of firm-bank relationships and to increase their bargaining power with banks. It may be partially due to the changes in debt composition in favor of long-term debt due to the *Minibond* issuance, which might have enhanced the debt sustainability of issuer firms, in line with evidence that shows how bond issuances are used to reduce maturity mismatches between assets and liabilities (Accornero et al., 2015). Additional confirmation of the reliance on *Minibonds* as an instrument to rebalance the maturity mismatch between asset and liabilities come from the occasional paper published by Bank of Italy, ‘First-time corporate bond issuers in Italy’ (Accornero, Russo, Guazzarotti, Nigro, 2015). This study suggests that firms with an unbalanced financial structure – high shares of short-term debt and high fixed capital - are more likely to issue bond. Such a motivation is mainly supported

by small firms, while medium and large companies rely on bond issuance to finance investment and growth primarily.

### 3.4 EQUITY

We know that equity capital is critical to the growth of firms and the development of small IPO markets could incentivize investment in SMEs and, together with securitization and other non-bank debt financing instruments, encourage an enhanced allocation of risk and risk taking, and thus support growth. However, the share of SMEs' financing provided through equity market is currently small <sup>8</sup>.

A possible explanation is given by the fact that equity issues are generally associated with negative reactions by the markets. This is due to a market inefficiency that links the capital issuing with a signal of an overvaluation of the company (Meyers & Majluf, 1984).

In particular, following the models of Ross (1977), Myers and Majluf (1984), Miller and Rock (1985) which all explain the role of information asymmetries, the response to a change in the capital structure of the company is accompanied by a negative drop in the market value of the company itself.

Literature disclosed the cross-sectional variations in the drop in stock price observed at the equity issue announcement (Bover & Hansen, 1985)

When it comes to equity, firms poses relevant attention toward the cost of equity, which represents the cost that company have to sustain when they want to issue new equity. From the investor point of view, the cost of equity capital is the return he expects from a share of the stock he keeps in his portfolio.

The variations of the cost of equity capital should be usually interpreted in terms of a reversed relation, that is, decisions aiming to improve the company image towards the stakeholders, and to supply a better information to the investors, lead to a benefit by decreasing the cost of equity capital.

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<sup>8</sup> Opportunities and limitations of public equity markets for SMEs, OECD journal

Literature widely suggest that an increased disclosure from firms should lead to a decrease in the cost of equity capital through the reduction of the existing information asymmetry both between companies and investors, and between buyers and sellers of stocks.

As a confirmation, Botosan 1997; Chen et al. 2009 showed that effective corporate governance, and in particular stricter disclosure standards, lowers firms' cost of equity capital through a reduction in agency and information asymmetry problems

Additional relevant elements favoring the reduction of the cost of capital are provided by the capital market equilibrium model of Merton (1987) which implies that increasing the relative size of a firm's investor base results in firm's lower cost of capital and higher market value. So, once again SMEs are negatively affected by such a result deriving from the presence of information asymmetries.

## 4. STATISTICS ABOUT MINIBOND EMISSIONS – 2020

### 4.1 ISSUERS

In this paragraph the characteristics of companies issuing Minibonds will be described, and eventual trends that have become meaningful with respect to the previous years will be identified. The source of the following numbers is the 2021 Minibond report published by the *Osservatorio Minibond of Politecnico di Milano*.

In detail, during 2020 176 firms have issued *Minibonds* on the Italian market, and 131 of them are to be considered as first issuer. The first result, when compared to the overall number of issuers in 2019 (183) is lower, thus showing a slighter reduction in the emissions.

Considering now the characteristics of the companies analyzed, the 2020 sample shows the following clusters:

- 108 *S.p.A.* equal to the 61.3% of the total. This result is significantly lower than what observed in 2019;
- 64 *S.r.l.* equal to 36.4% of the total. This result is instead higher than the previous year;
- 4 cooperatives, equal to 2.3% of the total. This result confirms the numbers obtained in 2019.



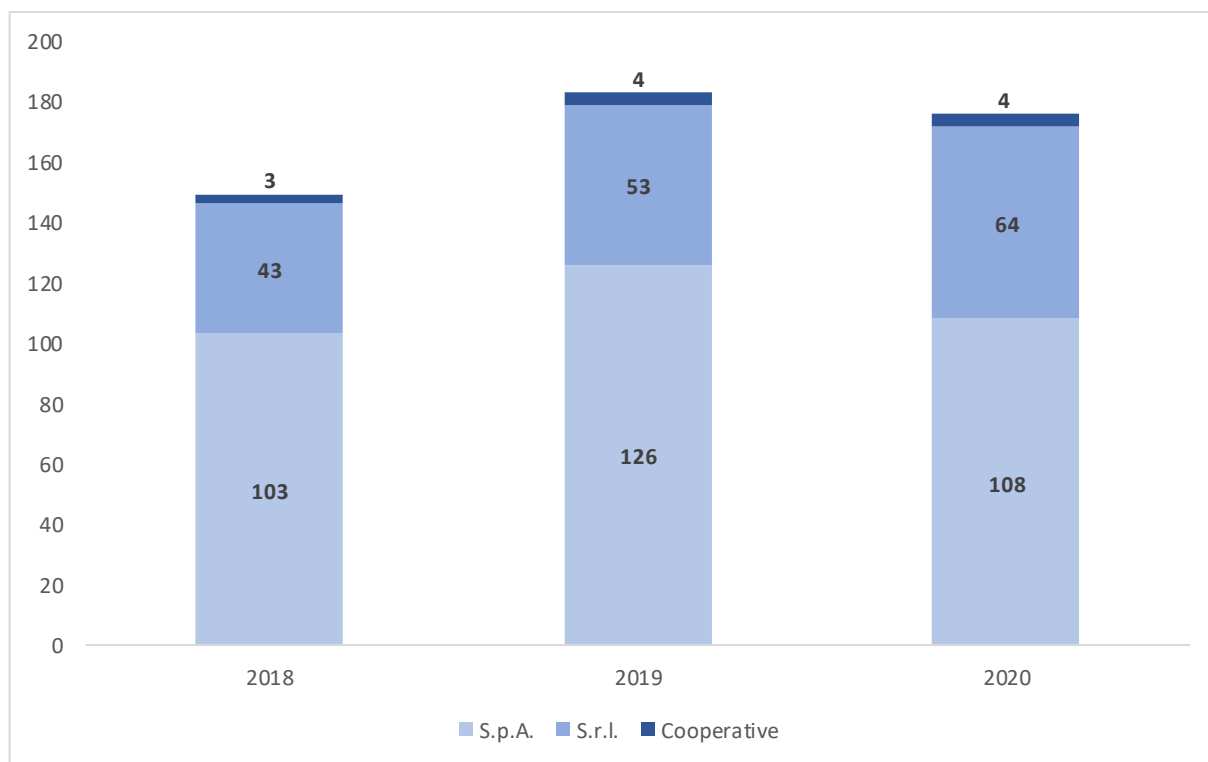


Figure 2 - Issuer characteristics for Minibond issuance below € 50M

An important consideration about the dimension of issuing firms should be done. The majority of firms relying on *Minibonds* during 2020 is represented by SMEs. In particular, 129 out of 176 respect the necessary requisites to be considered a SME. The percentage, equal to 73.3%, is the highest ever recorded. Extending instead this consideration to the whole sample of companies from 2012 to 2020, the fraction of SMEs over the total is equal to 61%, still a significant result.

Another important classification is related to the Revenues of issuing firms, depicted in Figure 3. Two relevant classes may be observed from the Figure:

- Revenues between € 10 million and € 25 million, equal to 131 observations (20% out of the total);
- Revenues between € 100 million and € 500 million, equal to 108 cases (16% out of the total).

The remaining firms (35) had no financial statements.

Overall, 2020 has shown an increased number of issuing firms whose revenues are between € 2 million and € 50 million, while for the cluster € 100 million and € 500 million the numbers have decreased.

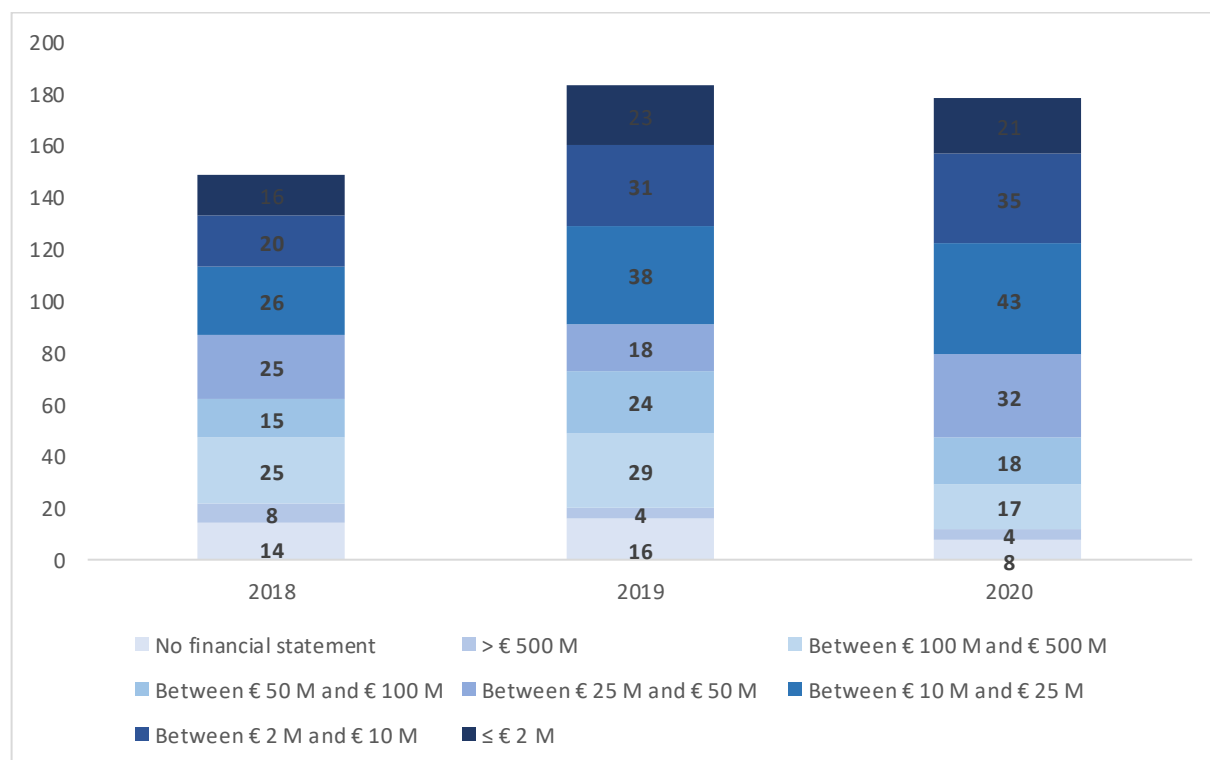


Figure 3 – Issuers' classification based on their Revenues

Another aspect to highlight is the division between listed and non-listed firms at the moment of the issuance. In detail, only 5.7% of the companies are already listed when they decide to rely on *Minibonds* to collect debt capital.

Focusing now on the classification of the issuers according to the economic activities they run, the NACE<sup>9</sup> code has been used. Before showing how the whole sample is divided is important to remind that all companies characterized by a NACE code K have not been considered in the analysis, since being a financial firm involves the exclusion from the sample. According to that, Figure 4 shows how the most represented sector is the manufacturing one (NACE code C) in 43% of the cases with 290 cases, followed by

<sup>9</sup> Nomenclature of Economic Activities. European statistical classification of economic activities.

professional activities (NACE code M) and wholesale and retail trade (NACE code G) ex aequo with both 59 issuers.

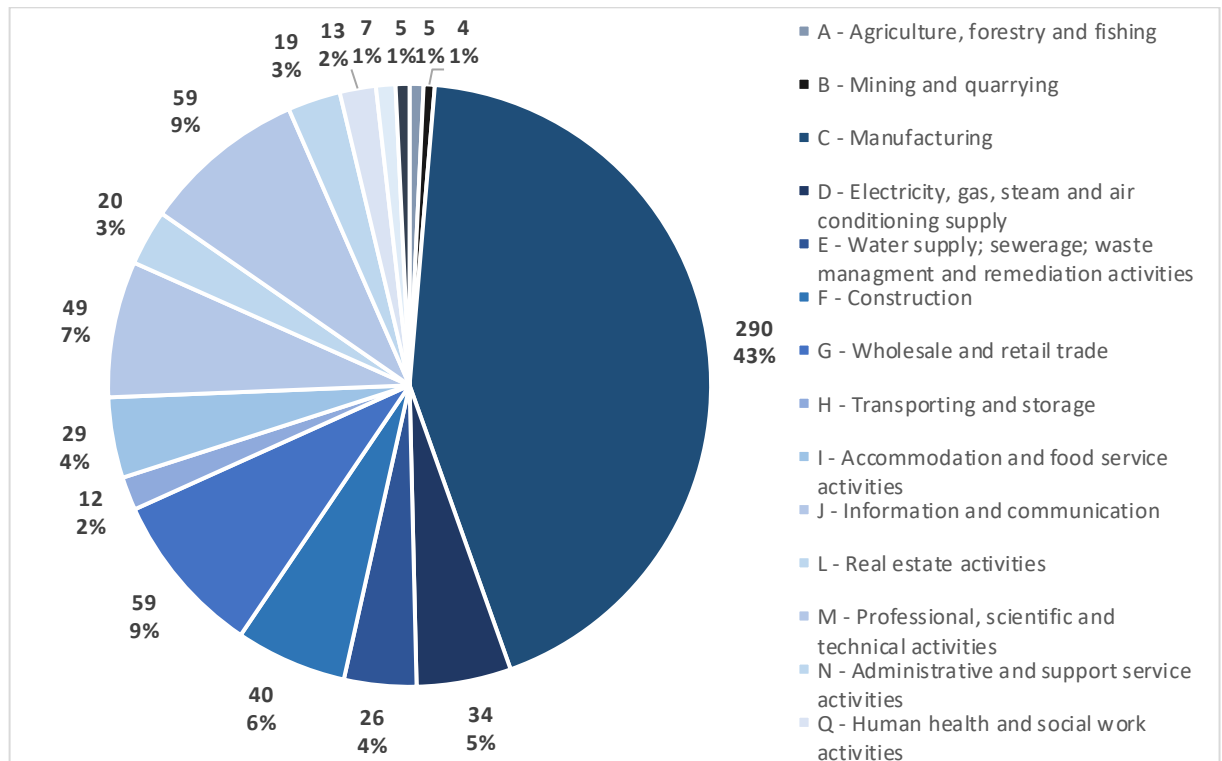


Figure 4 - Issuers division according to the NACE code

Considering now the classification for SMEs only, the leading sectors, out of NACE C, are: electricity, gas, steam and air conditioning supply (NACE code E), construction (NACE code F), accommodation and food service activities (NACE code I) and real estate activities (NACE code L). Bigger companies instead are more focused on sectors like wholesale and retail trade (NACE code G), mining and quarrying (NACE code B), transporting and storage (NACE code H) and information and communication (NACE code J).

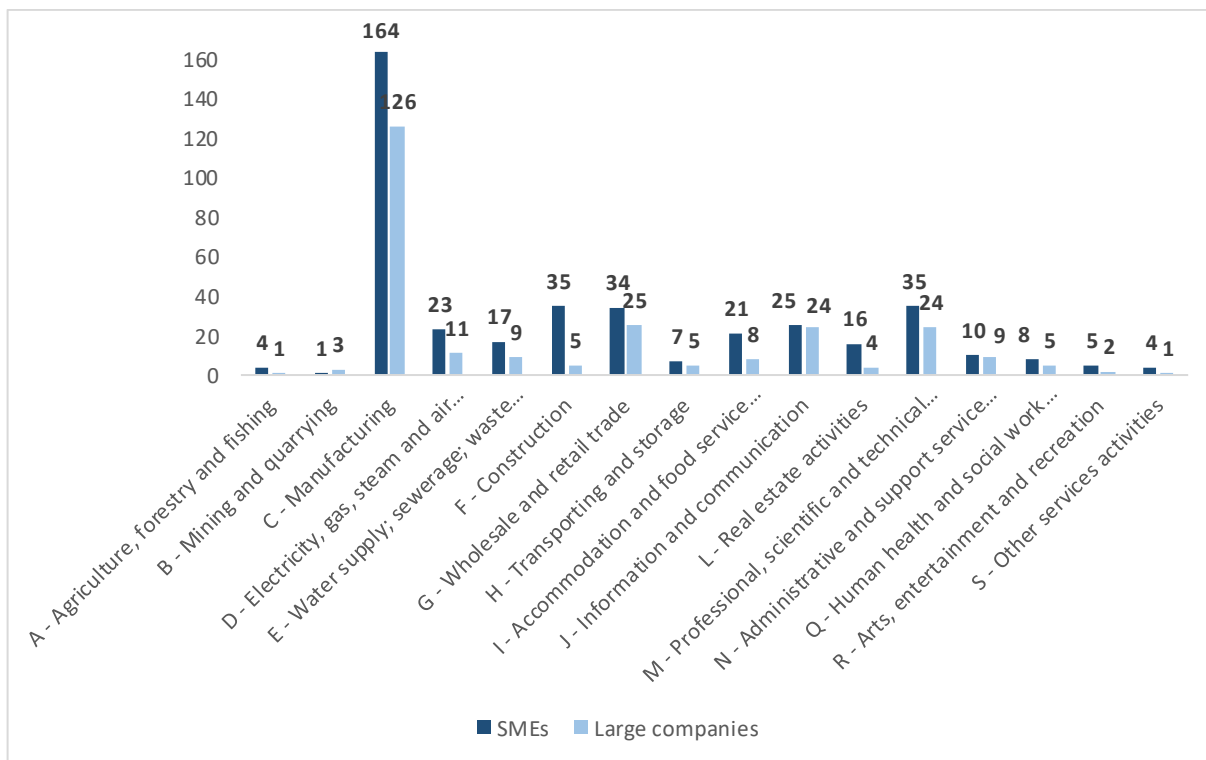


Figure 5 - NACE classification. Comparison between SMEs and large companies

An additional matter to be analyzed in this section refers to the geographical distribution of the companies in the sample. In particular, even in 2020 a confirmation of the leading role of the North with respect to the other regions may be observed. However, during the past year, the overall weight of Isles, Center and South together has reached the 30% for the first time ever. Going more in detail, in Lombardia are located 170 issuers, equal to 25.3% of the whole sample. The second place sees Veneto with 102 companies weighting 15.2% and third Trentino Alto Adige with 60 firms equal to 8.9% of the total. Moving to the Center of Italy, the leading role is taken by Lazio with 36 firms (5.4%), while at the south it is Campania with 70 issuers.

Even considering SMEs only, Lombardia is still driving the 'ranking' with 100 firms, followed by Veneto (29) and Puglia (13).

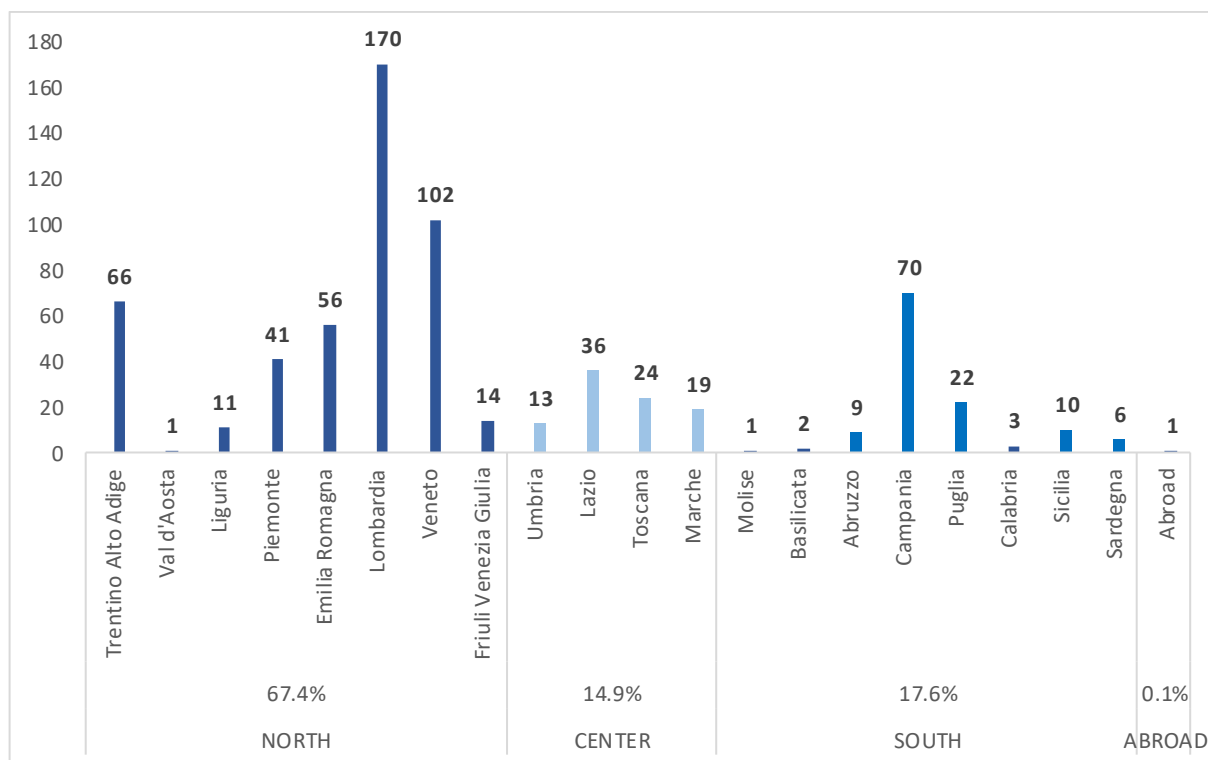


Figure 6 - Issuers geographical distribution

Continuing with the analysis of issuing firms, this section refers to the motivation at the basis of *Minibonds* emissions. Data collected come from the declared intention of the firm issuing the security and can be grouped into the following groups:

- Internal growth: funds are collected with the purpose of spur firm's internal growth, thus investing in R&D, new products and in opening new markets (often with the aim of internationalization). Specifically, common kind of investments are, for example: industrial plants, machineries, properties, patents.
- External growth: the main emission purpose is about financing external growth, thus mainly supporting M&A operations.
- Debt restructuring: new funds are used to pay back expiring debts (it may be the case of bank loans, other *Minibonds* etc.), with the aim of rebalancing third-parties financing mix.

- Cash cycle financing: in this case, *Minibond* aims at facing liquidity needs in the short term, in order to grant the balance between credits collection and debt payments.

According to the samples collected during the period of analysis, the main determinant of an issuance is internal growth, which refers to 60.5% of the total. Follow: debt restructuring (10.4%), financing the cash flow (6.3%) and external growth (5.7%).

Focusing on SMEs only, again the main motive for a *Minibond* emission is to finance the internal growth. In particular, SMEs resort to *Minibonds* to finance short term needs, making it reasonable to believe they have more difficulties than bigger companies to receive credit from banks.

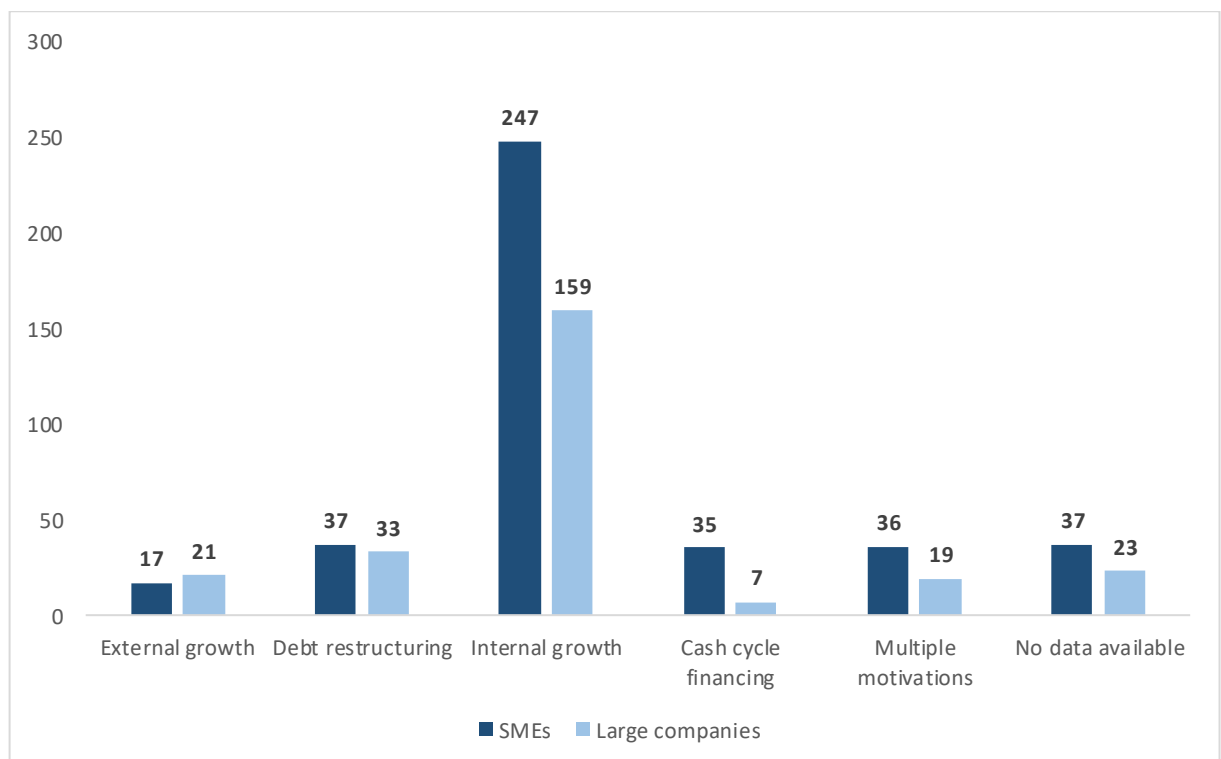


Figure 7 - Motivation at the basis of the emission. Comparison between SMEs and large companies

Concluding the analysis, a focus on the operative results that companies show before and after the emission is presented. Starting from profitability indicators, ROA and ROE point out a slight decrease after the *Minibond* emission.

Regarding instead the operative margins, the ratio EBITDA over Sales has been used. Median results show a slight increase of marginality before the issuance. As liquidity indicator instead, the quick ratio has been adopted: it represents the ability of the firm in covering its short-term expenses through high liquid assets. Results show that companies at the moment of the emission are not suffering from difficulties in their financials. This is coherent with the statement of entrepreneurs, who sees *Minibonds* as a complementary instrument to have access to financing.

Another indicator used is the financial leverage as a parameter to evaluate insolvency risks and patrimonial stability. Data collected show stable or even diminishing results during the years prior the emission, testifying a stable financial situation. When after-emission data are available, they report a further decrease of the financial leverage. Both the previous statements explain the fact that often firms rely on *Minibonds* to replace existing debt.

<b>Issuers 2013 - 2016</b>	<b>Year -3</b>	<b>Year -2</b>	<b>Year -1</b>	<b>Year 0</b>	<b>Year +1</b>
ROE	3,9% (2,8%)	9,9% (4,3%)	5,7% (4,0%)	1,7% (3,7%)	-0,9% (3,8%)
ROA	0,1% (2,2%)	2,9% (2,8%)	1,7% (3,6%)	1,7% (3,0%)	2,2% (2,4%)
EBITDA/Sales	-3,7% (10,2%)	10,4% (9,8%)	2,2% (11,0%)	14,8% (11,2%)	13,2% (10,0%)
Acid Test	0,94 (0,72)	1,03 (0,80)	0,88 (0,77)	1,23 (0,98)	1,34 (0,94)
<i>Leverage</i>	2,72 (1,38)	1,95 (1,38)	1,99 (1,36)	1,67 (0,92)	3,58 (0,74)
<b>Issuers 2017</b>	<b>Year -3</b>	<b>Year -2</b>	<b>Year -1</b>	<b>Year 0</b>	<b>Year +1</b>
ROE	5,3% (5,9%)	4,1% (7,2%)	9,1% (8,1%)	10,3% (8,5%)	8,6% (11,0%)
ROA	3,5% (3,6%)	4,5% (4,5%)	4,8% (4,4%)	-6,6% (3,9%)	3,3% (4,4%)
EBITDA/Sales	8,8% (8,1%)	11,9% (11,0%)	16,0% (10,8%)	19,2% (12,2%)	-17,1% (10,4%)
Acid Test	0,95 (0,80)	0,91 (0,76)	1,11 (0,74)	1,33 (1,05)	1,15 (0,96)
<i>Leverage</i>	1,57 (1,38)	1,75 (1,56)	1,85 (1,71)	1,63 (1,23)	1,6 (0,81)
<b>Issuers 2018</b>	<b>Year -3</b>	<b>Year -2</b>	<b>Year -1</b>	<b>Year 0</b>	<b>Year +1</b>
ROE	9,65% (5%)	7,43% (6,43%)	9,29% (6,95%)	8,03% (5,86%)	6,18% (6,25%)
ROA	2,95% (3,49%)	2,99% (3,49%)	3,97% (3,41%)	2,63% (2,97%)	2,07% (2,71%)
EBITDA/Sales	-1,56% (7,39%)	-2,13% (7,54%)	2,25% (7,59%)	-2,78% (7,81%)	-2,85% (7,04%)
Acid Test	0,89 (0,85)	1,06 (0,80)	0,98 (0,77)	1,27 (0,85)	1,09 (0,84)
<i>Leverage</i>	7,68 (4,38)	7,44 (4,08)	9,38 (3,89)	10,86 (4,0)	9,05 (4,08)
<b>Issuers 2019</b>	<b>Year -3</b>	<b>Year -2</b>	<b>Year -1</b>	<b>Year 0</b>	<b>Year +1</b>
ROE	5,79% (6,39%)	9,14% (6,97%)	9,49% (7,63%)	6,3% (5,86%)	
ROA	1,57% (3,4%)	4,18% (3,35%)	4,16% (3,2%)	3,12% (2,76%)	
EBITDA/Sales	-1,19% (8,17%)	5,69% (9,49%)	8,23% (8,85%)	3,99% (8,36%)	
Acid Test	1,03 (0,76)	0,99 (0,78)	0,88 (0,75)	1,11 (0,79)	
<i>Leverage</i>	5,55 (4,11)	7,6 (4,16)	8,94 (3,93)	9,05 (4,19)	
<b>Issuers 2020</b>	<b>Year -3</b>	<b>Year -2</b>	<b>Year -1</b>	<b>Year 0</b>	<b>Year +1</b>
ROE	7,13% (6,04%)	11,16% (8,77%)	9,71% (7,27%)		
ROA	4,11% (3,89%)	0,80% (4,1%)	4,73% (4,03%)		
EBITDA/Sales	7,95% (8,33%)	10,24% (8,66%)	1,91% (8,65%)		
Acid Test	1,01 (0,88)	1,09 (0,88)	1,06 (0,87)		
<i>Leverage</i>	5,46 (4,46)	7,49 (4,45)	8,4 (4,12)		

Table 3 - Financial indicators. Comparison before and after the emission.



Apart from the quantitative results exposed above, issuing *Minibond* is also a decision moved by more qualitative reasons. The advantages that are more frequently cited in relation to the emission are:

- Acquisition of complementary competences about the function of capital markets;
- Higher contractual power toward banks and the possibility to diversify the financing sources;
- Achievement of a marketing effect linked to the information disclosure about the company's characteristics;
- Acquisition of the necessary experience to maximize the results that one could then obtain in more complex operation on the market, like private equity and listing.

## 4.2 EMISSIONS

After the analysis on issuing firms, this section is dedicated to the characteristics of the emissions themselves. During 2020, the overall number of *Minibond* emissions is equal to 194, slightly lower than the amount reached in 2019, equal to 205. It must be highlighted that the difference is mainly related to the first semester of 2020, which has been characterized by intense limitations in the economic activities. Considering the overall number of emissions from 2012 to 2020, data show 1005 issuances.

The graph below shows the cumulative amount of emissions during the different years of the analysis. It also reports the annual equivalent amount, which stresses how the amount collected in 2020 is the lowest since 2016. Instead, a different consideration has to be done for SMEs: during the last year the overall amount is one of the highest, with the exception of 2017.

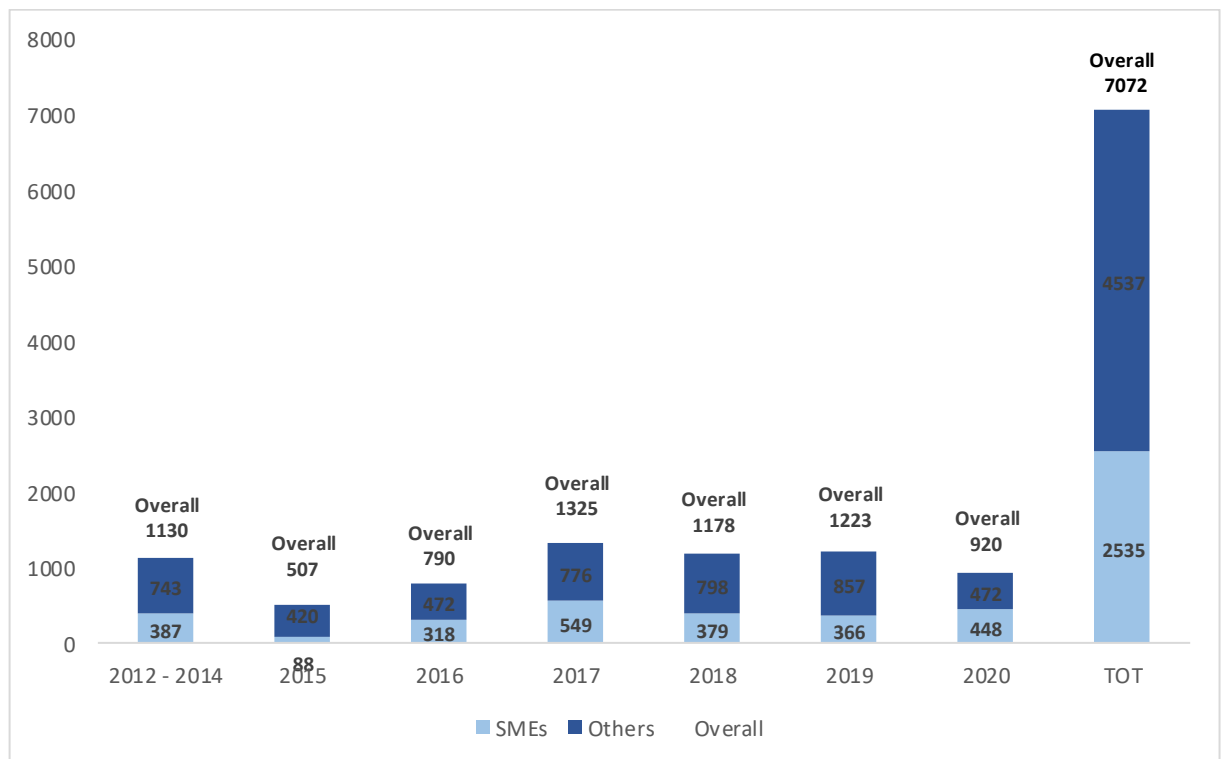


Figure 8 – Minibond's values over the years [M€]

Analyzing now the average amount per emission, data shows in 2020 an average between € 4.5 and € 5 million. In particular, during the second semester the amount has reached the lowest value ever.

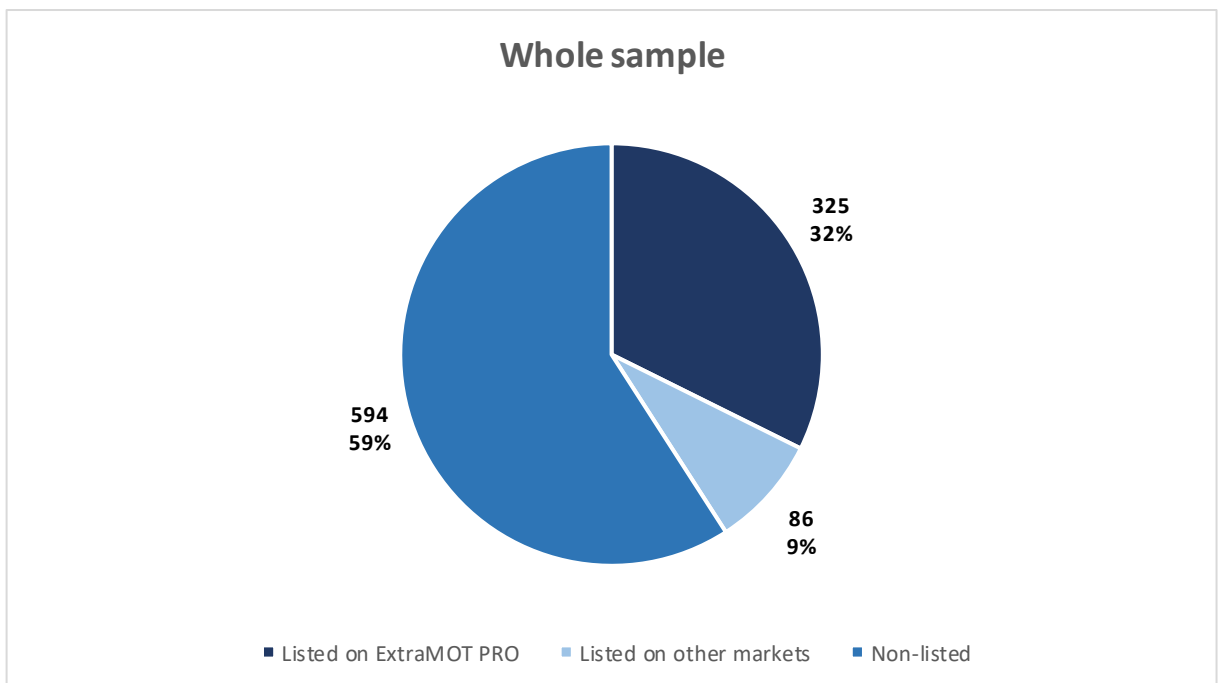
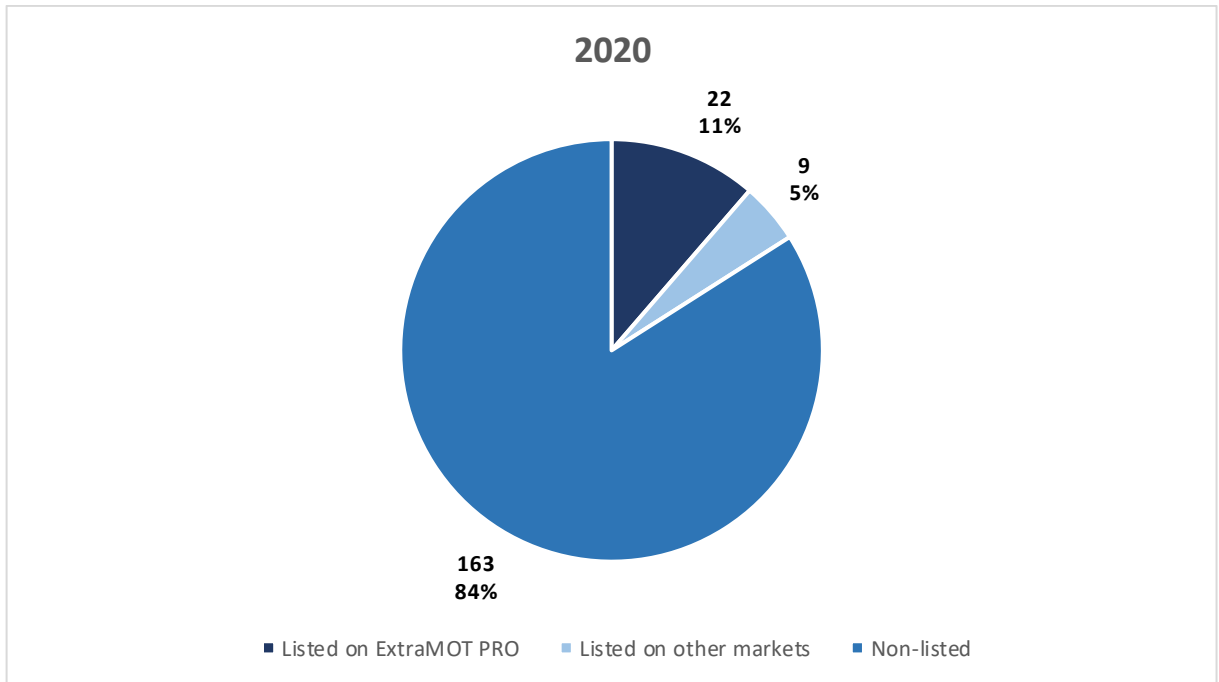
If consider the average value for SMEs is considered, it is equal to € 4.27 million, while for big companies it increases to € 11.4 million.

Overall, the emissions from SMEs are 594 (59.1%) against 411 (40.9%) issued by big companies. Focusing again on 2020, the fraction of emissions from SMEs goes to 74.2%. This increase might be related to the application of public guarantees that help SMEs particularly.

Going more in detail regarding the amount of the emissions, 38% of *Minibonds* emission is lower or equal to € 2 million, while 27% shows values between € 2 million and € 5 million. Focusing on 2020 only, the values change into 44% and 32% respectively.

Another statistic analysis refers to whether *Minibonds* are listed or not. In particular, 593 emissions (59%) are not listed, while 325 (32%) are listed on the Borsa Italiana segment ExtraMOT PRO or ExtraMOT PRO<sup>3</sup>. The remaining 86 (9%) are instead listed on foreign markets.

2020 data show that the non-listed emissions are equal to 84%, a significant increase with respect to 2019, confirming a trend that firms prefer not to list their securities.



*Figure 9 - Minibond listing. Comparison between the whole sample and 2020*

Focusing now on the maturity of the emissions, the majority of *Minibonds* has a maturity longer than 7 years: 282 cases, equal to 28%. The explanation of this result may be found in the longer maturity of some of the 2020 emissions, intended to finance infrastructural

projects. Continuing with the maturities, there are 227 emissions (23%) with expiration between 5 and 6 years, while those between 1 and 4 years are the less frequent. Anyway, the overall average value is equal to 5.47 years.

During 2020 there has been a significant reduction of the emission with maturity 5-6 years with a slight increase of those between 6 and 7 years. The explanation for the longer average maturity (6.34 years against 5.04 for 2019) can be found in a strategy firms decided to implement to face the pandemic crisis and the uncertainty it brought.

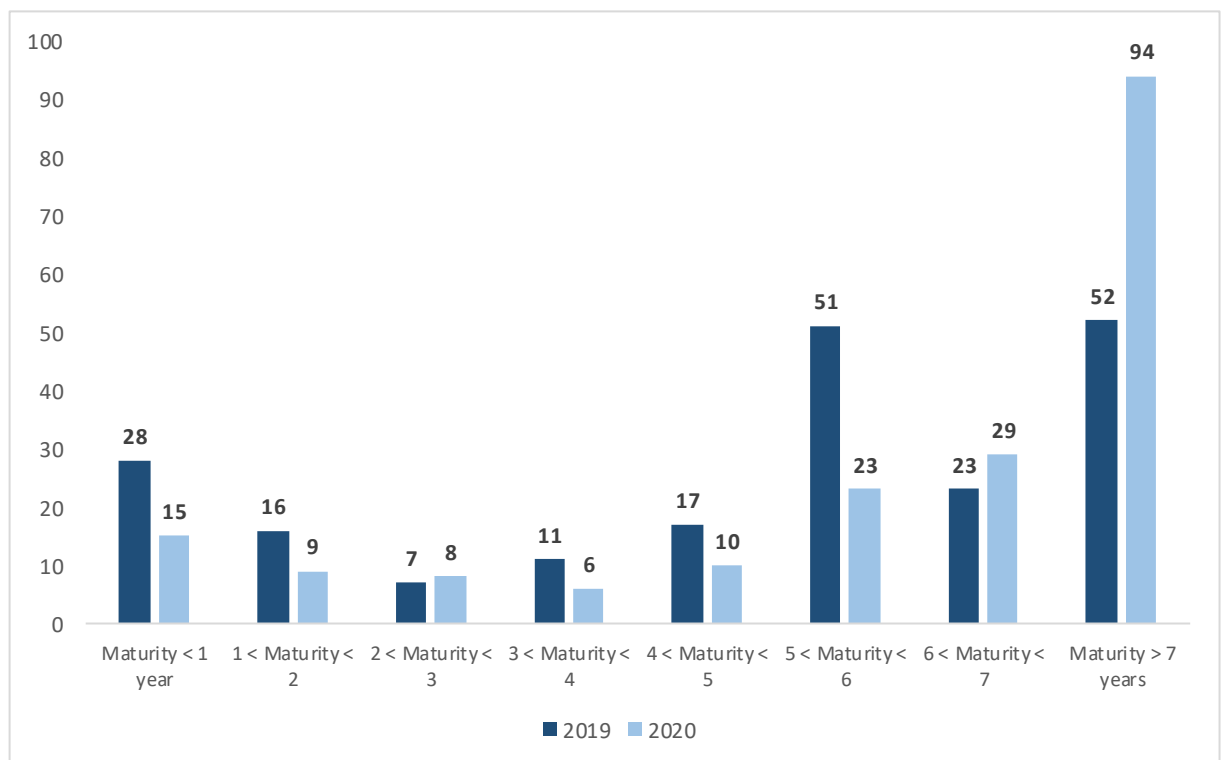


Figure 10 - Minibond maturities

Considering now SMEs, the average maturity is generally lower than the overall values reported above and it is equal to 5.3 years. In particular, the majority of *Minibond* with a maturity lower than 12 months are issued specifically by SMEs. Regarding bigger companies instead, the average maturity is equal to 5.72 years.

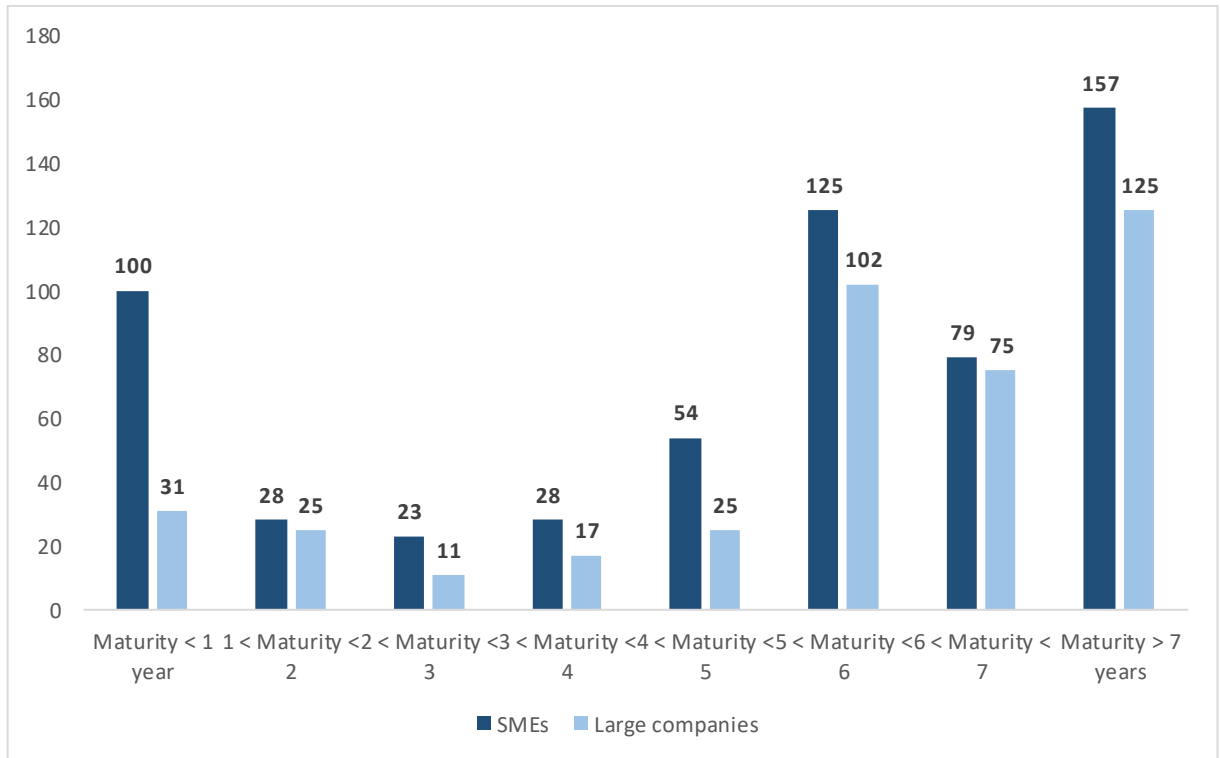


Figure 11 - Minibond maturities, division between SMEs and large companies

One of the key variables to consider when discussing about *Minibond* is the remuneration: it takes place through the payment of a periodic coupon defined as a percentage of the nominal value of the bond itself. The coupon can be either fixed and constant during the whole length of the contract or variable and then indexed with respect to a market parameter (e.g. Euribor).

The sample of emissions collected shows that the coupon is mainly fixed, while just the 15.6% of the cases present a variable coupon. There are also 8 emissions out of the total characterized by a zero-coupon. The average value of the coupon is 4.48%.

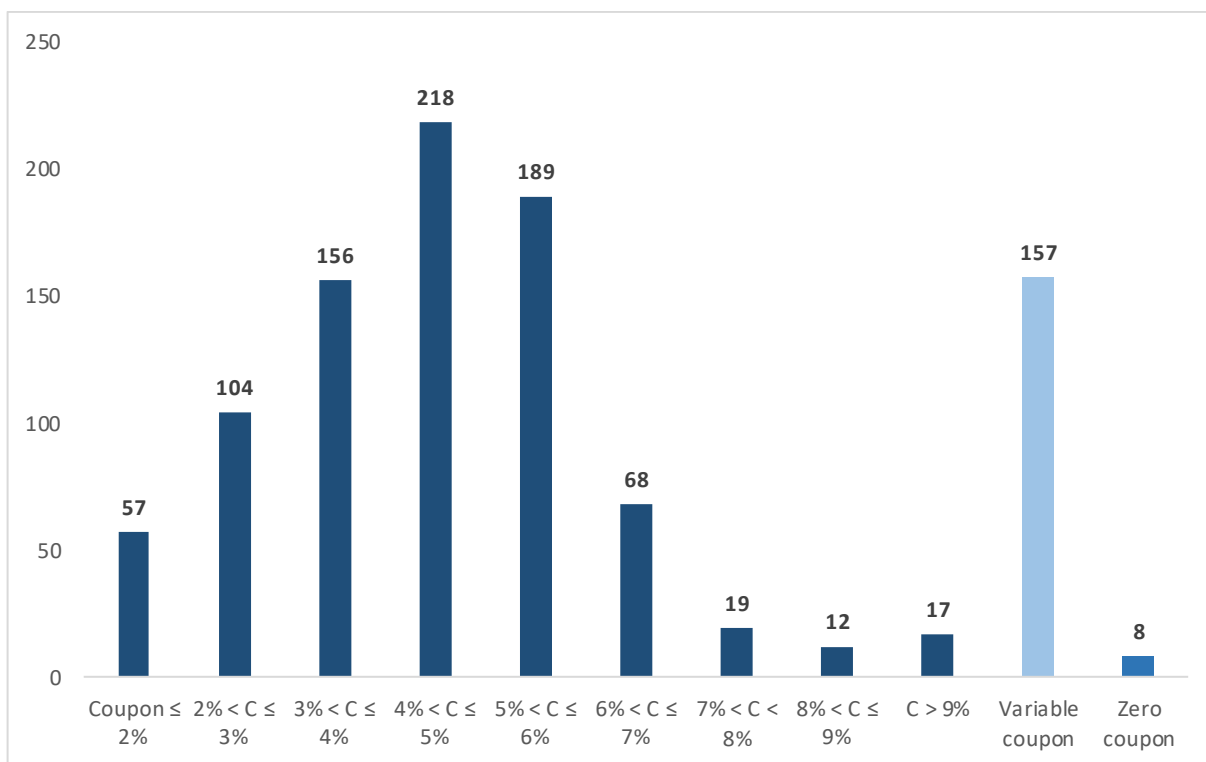


Figure 12 - Coupon distribution

The specific amount of the coupon is influenced by several factors, the most important are:

- The maturity of the bond: the longer it is, the higher the coupon ;
- The insolvency risk of the issuer: the higher the perceived risk, the higher the coupon.

Through the presence of Fondo di Garanzia and Consorzi Fidi the State is allowed to guarantee part of the emission's value in case of insolvency. This helps explaining why there are 57 *Minibond* which coupon is lower than 2%.

During 2020 there has been a slight reduction of the average coupon, whose value diminished below 4% for the first time. Again, public guarantees have played a crucial role in achieving such result.

In detail, there are 53 emissions with a coupon between 2% and 3% and almost double those between 3% and 4%. The average value in the past year has been 3.61% against a 4.34% during 2019.

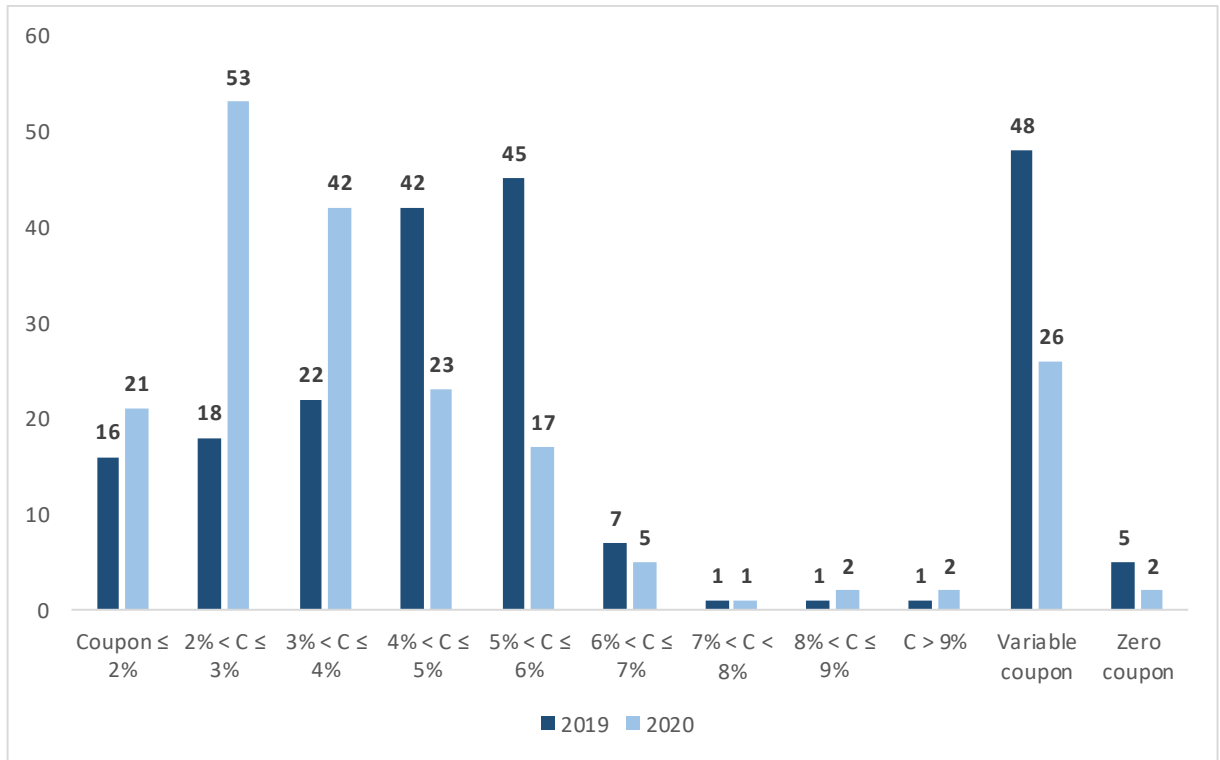


Figure 13 - Coupon distribution. Comparison between 2019 and 2020

Making the usual distinction between SMEs and bigger companies, this time the average results between the two is similar, despite big companies tend to prefer variable coupon with respect to fixed ones. The average value for SMEs is 4.49% when it comes to fixed coupon. This value slightly changes to 4.59% for big companies.



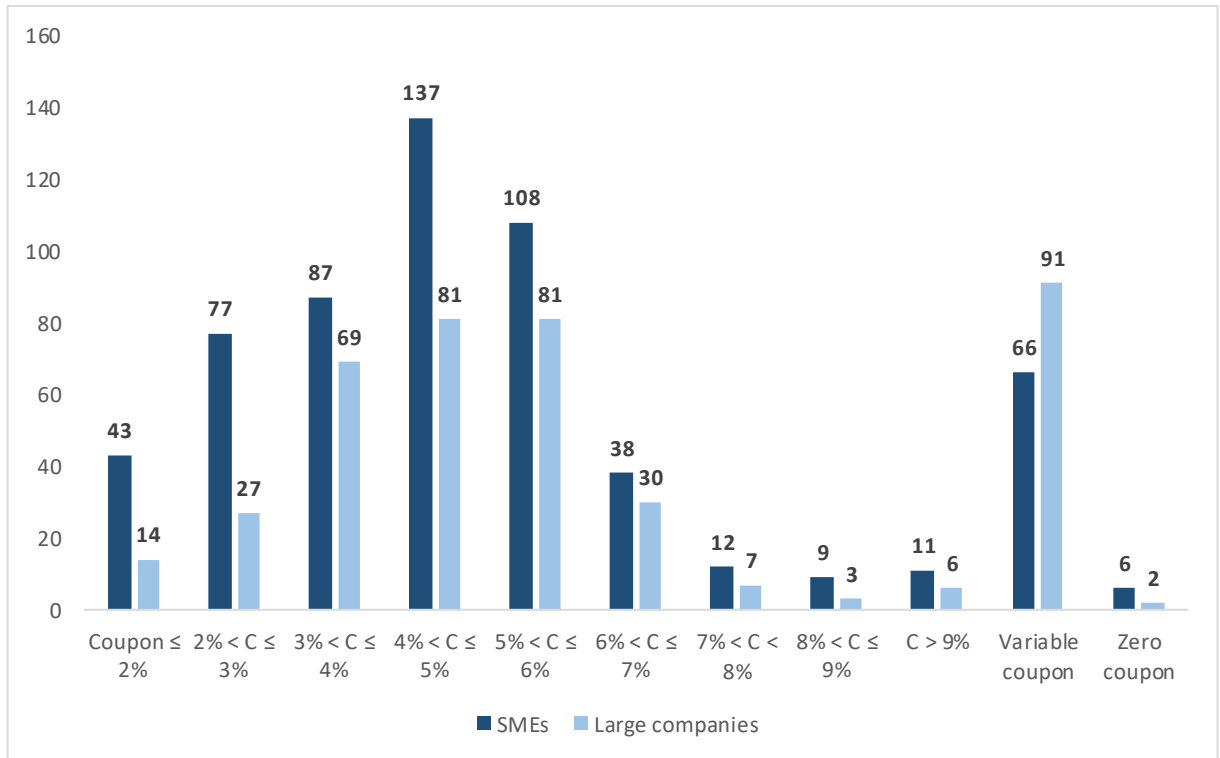


Figure 14 - Coupon distribution. Comparison between SMEs and large companies

Table 15 shows the difference in average coupon's value between SMEs and big companies. it refers to a sample of 840 emissions.

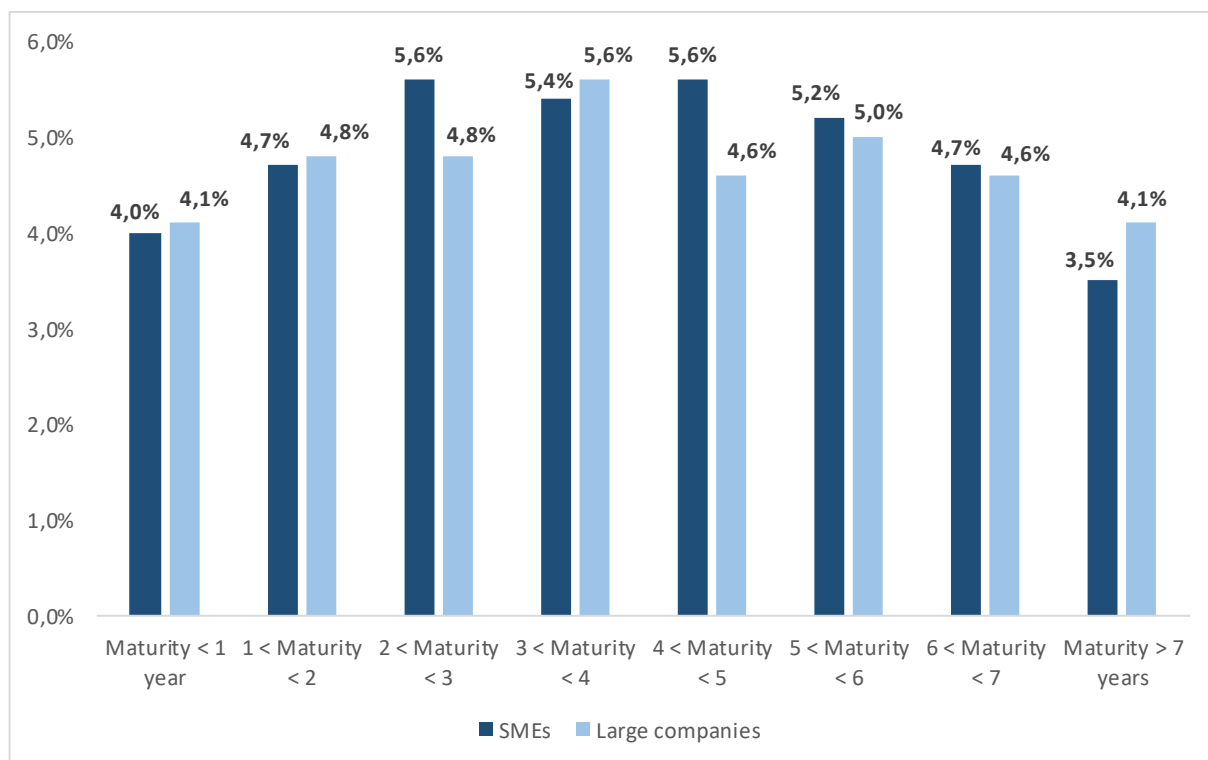


Figure 15 - Average coupon value according to Minibond maturities. Comparison between SMEs and large companies.

The main information the market has about the riskiness of a counterparty is the rating. In fact, it is fundamental in assessing the insolvency capability of the issuer in terms of coupon and principal payment. In case of *Minibond*, the presence of a rating is not mandatory, and it is possible to differentiate between disclosed and undisclosed rating. In the first case, the repayment capability assessment is publicly available, while in the second it is kept reserved.

Going more in detail, 772 (77%) of the emissions do not have any rating associated, 91 (9%) instead are ‘investment grade’ – rating higher than BBB – 32 (3%) with a rating ‘speculative grade’ and 110 (11%) emissions with undisclosed rating.

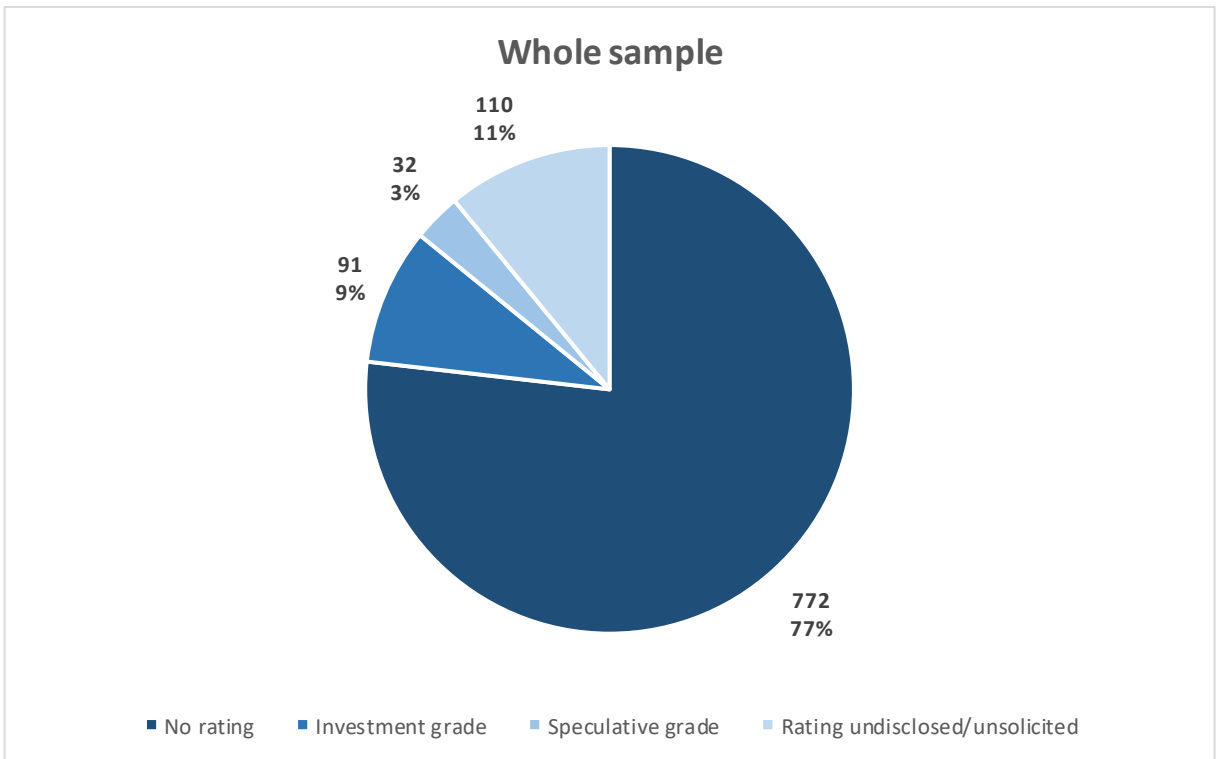
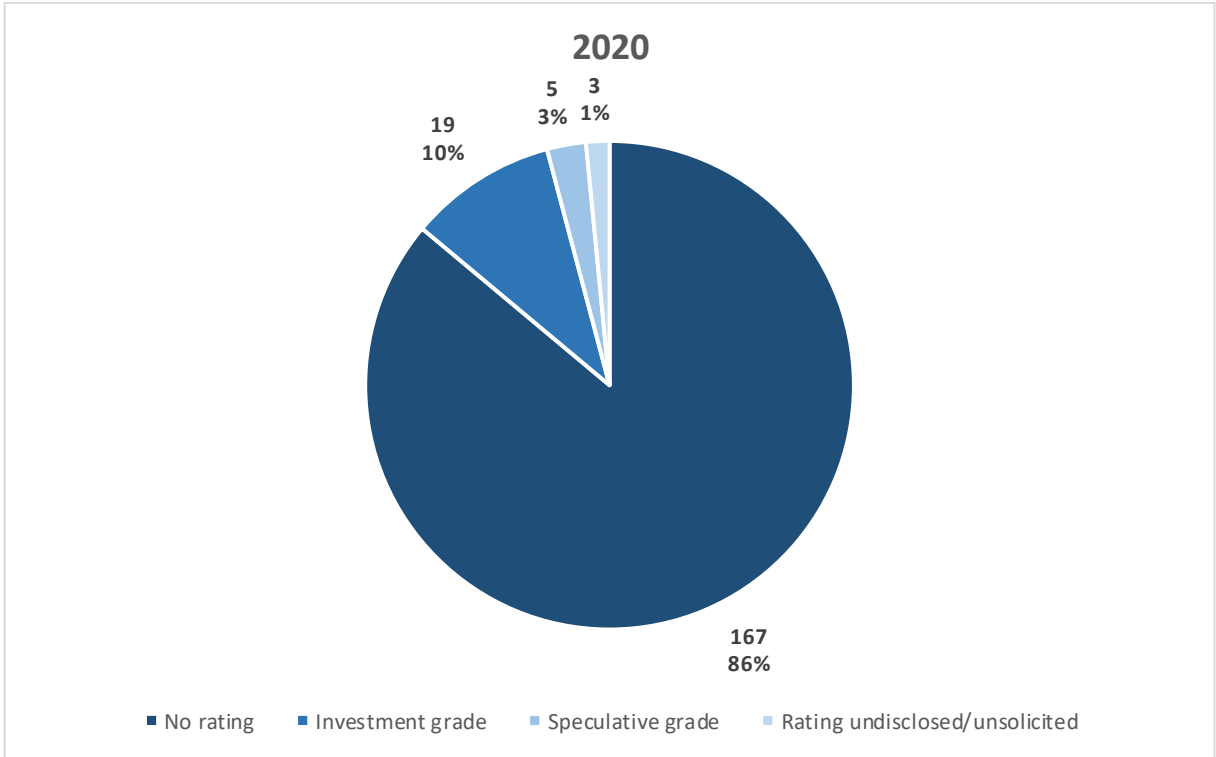


Figure 16 - Rating presence

Figure 16 details how during 2020 there has been a tendency not to rely on rating in 86% of the cases.

Table 4 provides a detailed summary of the rating attribution depending on some characteristics of both the issuing firm and the *Minibond*.

Rating attribution	No rating	Investment grade	Speculative grade	Undisclosed/Unsolicited
Whole sample	76,8%	9,1%	3,2%	10,9%
SMEs	82,8%	5,7%	4,3%	7,2%
Big companies	68,1%	13,9%	1,7%	16,3%
Listed companies	68,2%	15,9%	2,3%	13,6%
Non-listed companies	77,6%	8,4%	3,3%	10,7%
Maturity < 5 years	88,6%	4,7%	1,8%	5,0%
Maturity ≥ 5 years	70,7%	11,3%	3,9%	14,0%

Table 4 - Rating attribution

An important consideration related to the preference for SMEs to not rely on ratings takes into account the trade-off between costs and benefits for this category of firms. In fact, SMEs may find too onerous the cost linked to a rating and therefore decide to avoid it.

The last aspect to consider in this section refers to guarantees. As stated above, they work as a protection for investors against the company's probability of default. If the *Minibond* issued is covered by a collateral, then the security is classified as 'secured', 'unsecured' otherwise.

Out of the 1005 emissions recorded over the years, the presence of the guarantee covers 391 cases (38.9%). Generally, these guarantees come directly from the Government or public entities.

During 2020 there has been a significant increase of guaranteed *Minibond*, covering the 58% of the emissions. The main guarantee is the one emitted by the Regions (26%),

followed by Fondo di Garanzia (21%). In 7% of the cases, the guarantee was emitted directly from the company. Another form of guarantee is by SACE (2%).

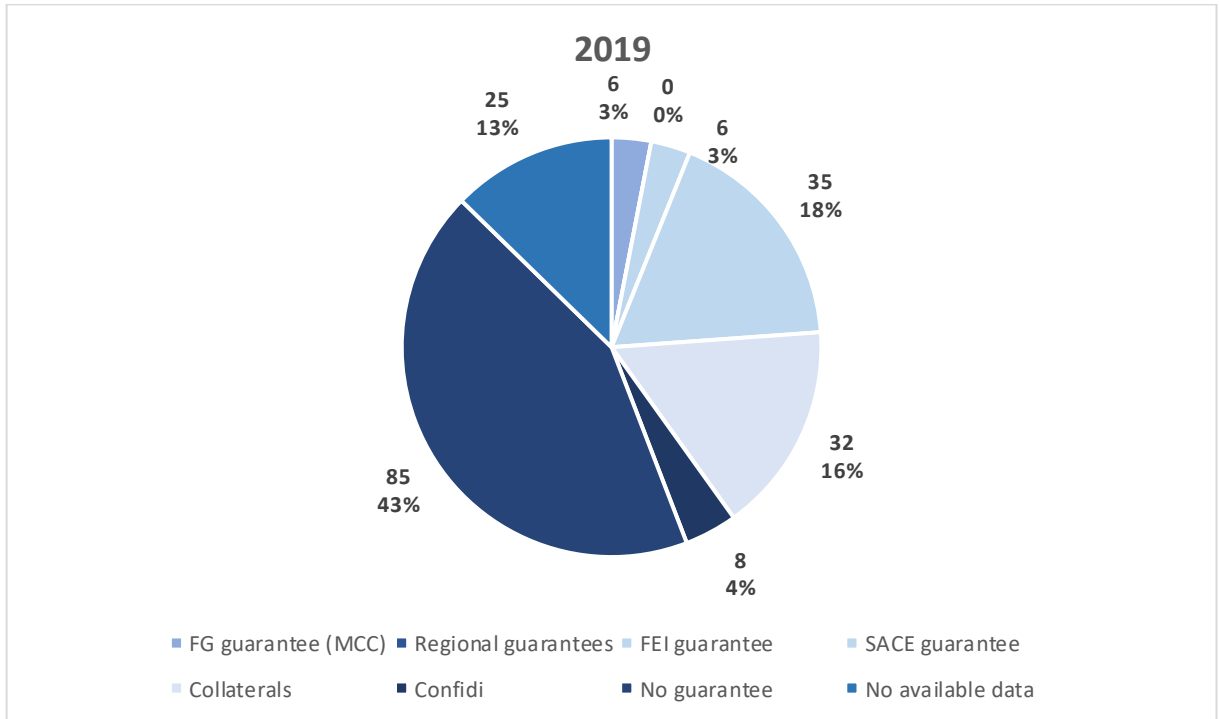


Figure 17 - Guarantees in 2019

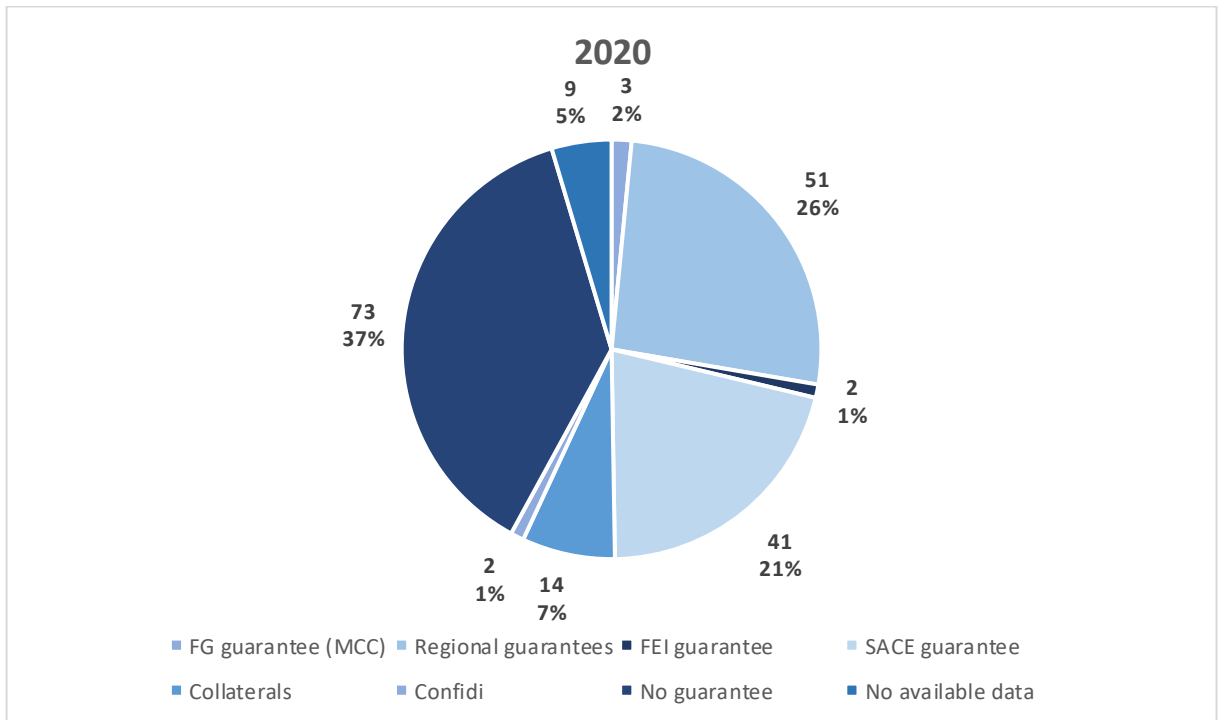


Figure 18 - Guarantees in 2020

## 5. ANALYSIS AND RESULTS

### 5.1 INTRODUCTION

The analysis presented in the following paragraphs aims at analyzing the differential impact that *Minibond* emissions have on issuers' credit capacity in the years after the security issuance.

*Minibond* reform works toward incentivizing firms to enter the bond market through a reduction of fixed costs related to the issue and through a simplified information disclosure. Thus, it may be assumed that *Minibond* issuers could leverage two different kinds of post-issue advantages, if compared to non-issuer firms:

- Lower information asymmetry, thanks to the disclosure related to the emission itself;
- Higher bargaining power towards bank through the differentiation of funds sources.

Therefore, this analysis will investigate the differential benefits of issuer firms with respect to the control group, trying to find proofs that such treatment effect depends on the factors described above.

To reach such results, two matching techniques and different regression models have been run, with the introduction of different moderation variables to analyze several aspects related to issuers and emissions' characteristics.

The following paragraphs will show initially the methodology that has been used to perform the analysis. Successively, an examination of the restricted pool of companies included in the regression models has been depicted. Finally, the regression model has been showed, and results have been presented with a discussion about the assumed hypothesis.

## 5.2 METHODOLOGY

In this paragraph, the steps adopted to perform the analysis will be described in detail.

Initially, data collection has been performed. Information about *Minibond* emissions have been obtained from the database of *Osservatorio Minibond of Politecnico di Milano*. For each emission, several information has been considered: Bureau Van Dijk ID, name of the company, amount of emission, maturity, yearly interest rate, motivation at the basis of the emission, presence of a guarantee and presence of a rating.

Successively, *Orbis* database has been leveraged to download a wide set of accounting and qualitative data about all Italian firms that existed for at least a year in the period between 2009 and 2020. Thus, even issuers information has been downloaded. At the end of this step, all necessary data (financial figures, size classification, region, age, industry) about a pool of over 1M companies in the time window between 2009 and 2020 were available in a single database. In order to use it to run the analysis, it has been converted into a Stata file.

Companies have been divided into single observations for each year in which they were present in the database.

In order to analyze *Minibonds'* impact on the accounting data of reference, multiple *Minibonds* issued in the same year by the same company have been considered as a joint emission. In particular, the following operations have been made:

- Amount of emission has been computed as the sum of all emissions' amount in the year;
- Maturity has been computed as the average of all emissions' maturity in the year, weighted through the amount of emission;
- Yearly interest rate has been computed as the average of all emissions' yearly interest rates in the year, weighted through the amount of emission;

- Motivation at the basis of the emission has been considered as the motivation of the emission with the highest amount of the year. Nevertheless, in most cases emissions occurred in the same year presented the same motivation;
- A *Minibond* was considered guaranteed if at least one of the emissions of the year was secured;
- Issuers were considered with a rating whenever at least one of the emissions of the year was issued with a rating attached.

To have a first classification of the companies of the database, the sample has been stratified according to certain general characteristics, properly divided into classes:

- Age: five categories have been created to divide companies accordingly to the quantiles of the distribution of their age. The categories selected are:
  - -100 years: companies with age 0, and thus with age data not available;
  - 1 year: companies with age between 1 and 5 years;
  - 6 years: companies with age between 6 and 14 years;
  - 15 years: companies with age between 15 and 29 years;
  - 30 years: companies with age equal or higher than 30 years.
- Industry: 18 categories have been created taking into account the NACE classification, a four-digit classification providing the framework for collecting and presenting a large range of statistical data according to the economic activity in the fields of economic statistics. In particular, clusters have been considered basing on the letter (and more general) classification:
  - A (Agriculture, forestry and fishing);
  - B (Mining and quarrying);
  - C (Manufacturing);
  - D (Electricity, gas, steam and air conditioning supply);
  - E (Water supply, sewerage, waste management and remediation activities);
  - F (Construction);
  - G (Wholesale and retail trade, repair of motor vehicles and motorcycles);
  - H (Transporting and storage);
  - I (Accommodation and food service activities);



- J (Information and communication);
- K (Financial and insurance activities);
- L (Real estate activities);
- M (Professional, scientific and technical activities);
- N (Administrative and support service activities);
- O (Public administration and defense, compulsory social security);
- P (Education);
- Q (Human health and social work activities);
- R (Arts, entertainment and recreation);
- S (Other services activities).

Later on, macroindustry categories have been created grouping codes A and B, H and I, P and Q and R and S;

- Region: companies have been classified according to the region of their legal address, distinguishing between all the 20 Italian regions.

Treated observations (issuers) have been distinguished through a time-invariant dummy, *MiniB*, equal to 1 if the company has issued a *Minibond* in the years under analysis, while it was valued 0 for non-issuer companies that will instead compose the control group. In a comparative experiment, a control group is a pool of observations that does not receive the treatment under analysis – i.e. do not issue *Minibonds*. In this way, differences between treated and control groups may be compared in order to determine if any treatment effect actually exists.

Then, the pool has been stratified according to the categories presented, and several clusters have been created. For each group in which at least one *Minibond* issuer observation in the year of emission was present, a casual selection internal to the cluster has been performed with a ratio of 1:50. It means that for each issuer observation in the year of emission, 50 control companies have been selected. In this way, the pool of companies was significantly reduced, reaching a reasonable size to carry on further steps.

Companies selected by this first stratification have been marked through the dummy *SampleMatch*, equal to 1 if the observation has been selected by the stratification itself.

The next step consisted in performing a matching between treated (companies that issued *Minibonds*, in the year of emission) and control (all other firms selected) observations.

Matching is a statistical technique used to evaluate differential effects between two groups of observations – treated and non-treated, or control – in order to compare treatment effects. Matching goal is to reduce bias for treatment effect analyzed by finding, for each treated observation, one or more control observations with similar characteristics. Consequently, comparisons result to be more reliable.

Two matching techniques have been used in this analysis: Coarsened Exact Matching (CEM) and Propensity Score Matching (PSM).

A Coarsened Exact Matching is a technique that allows the matching between two populations (treated and control). In order to match members, a set of properties that could effectively represent the two populations must be selected. Consequently, archetypes are created crossing each possible properties combination. As it may be noticed, the selection of appropriate characteristics is key to the goodness of the model, since archetypes must be based on a classification which is significant to the sample analyzed and to the aim of the study. Treated and control observations are matched if they belong exactly to the same archetype. If no treated observations are part of a specific archetype, all control observations of this archetype will obviously not be matched. It is likely to have an imbalance between the number of treated and control observations within a certain archetype: this variance in distribution will be normalized using CEM weights. In particular:

- All unmatched observations will get a weight of 0, thus are excluded by the analysis;
- Matched treated observations will get a weight of 1;
- Matched control observations will get a weight equal or higher than 1.

A Propensity Score Matching is a method used to create through statistical techniques an artificial control group. The aim of this quasi-experimental method is to match each treated

firm with a non-treated company of similar characteristics. A key observation to underline refers to the necessity for the treatment to be fully randomized in order to allow a proper comparison between treated and non-treated companies. Moreover, PSM estimation presents good results conditional to the accuracy through which characteristics used for the matching are chosen. The main steps of a PSM technique are the following:

1. Collect data about both treated and control companies, including characteristics that are relevant to analyze the treatment effect;
2. Estimate propensity scores through a statistical model (i.e. logit, probit). Covariates should be baseline characteristics that are not affected by the treatment;
3. Implement a matching algorithm to match treated and control observations.

In order to perform the matching, firstly the CEM technique and secondly the PSM technique have been applied on companies selected after the first stratification, thus having the variable *SampleMatch* equal to 1.

CEM has been applied using the following properties: age class, region of origin, macroindustry, year. Successively, CEM weights have been saved and a variable – *keptbyCEM* – has been created to identify observations matched through the CEM technique.

PSM has been run using both CEM variables and other accounting figures – resulting more restrictive than the previous application: region of origin, macroindustry, year,  $\ln(\text{age} + 1)$ ,  $\ln(\text{total assets} + 1)$ , total asset growth (computed as growth on total assets with respect to the previous year). Logarithms have been used in order to increase comparability of firms with different sizes. As it could be noticed, size of the companies has been taken into account in this matching technique through the total assets variable. A probit model on firms marked by both *SampleMatch* and *KeptbyCEM* equal to 1 has been carried out to estimate propensity scores. Thus, this second matching approach has been applied just on observations that had been already selected by the CEM.

At the end of the process, 5181 treated observations have been matched with 8651 control observation, with a ratio equal to 1:1,67. Every observation of a company selected by the full matching methodology have been marked through the dummy *PSMCEMacted*.

After this step, the selection of companies and observations to be employed in the regression model analysis has been completed. Further steps, like t-test analysis and regression models run, will be described in Section 5.4 – Analysis.

## 5.3 SAMPLE ANALYSIS

Once the methodological steps have been depicted, it is important to understand the size of the sample pool, and the kind of companies it is composed by. For this reason, before examining the main results of the analysis, the sample pool will be described according to different classifications and focal data.

### 5.3.1 DESCRIPTION OF THE SAMPLE POOL

The stratification and matching techniques provided the final selection of the sample pool actually involved in the regression models. It consists in 1240 firms, 485 of which are issuers, responsible for 624 emissions (72,4% of the overall issuers and 71,1 % of the total emissions present in the *Osservatorio Minibond's* database). The total number of observations is equal to 13832, thus each firm is observed – on average – in 11,15 years.

It must be underlined that, in order to perform the analysis, all emissions occurred by the same issuer in the same year have been merged. Thus, the term “*emission*” will be referred to the whole pool of *Minibonds* a company issued in a certain year. The number of emissions and issuers described above refer to this denomination.

Observations for the sample are available from year 2009 to 2020. Nevertheless, treated and control firms have been matched only since *Minibonds* program was created, thus from year 2012. The detailed distributions of observations and matchings over years are described in Figure 19 and 20.

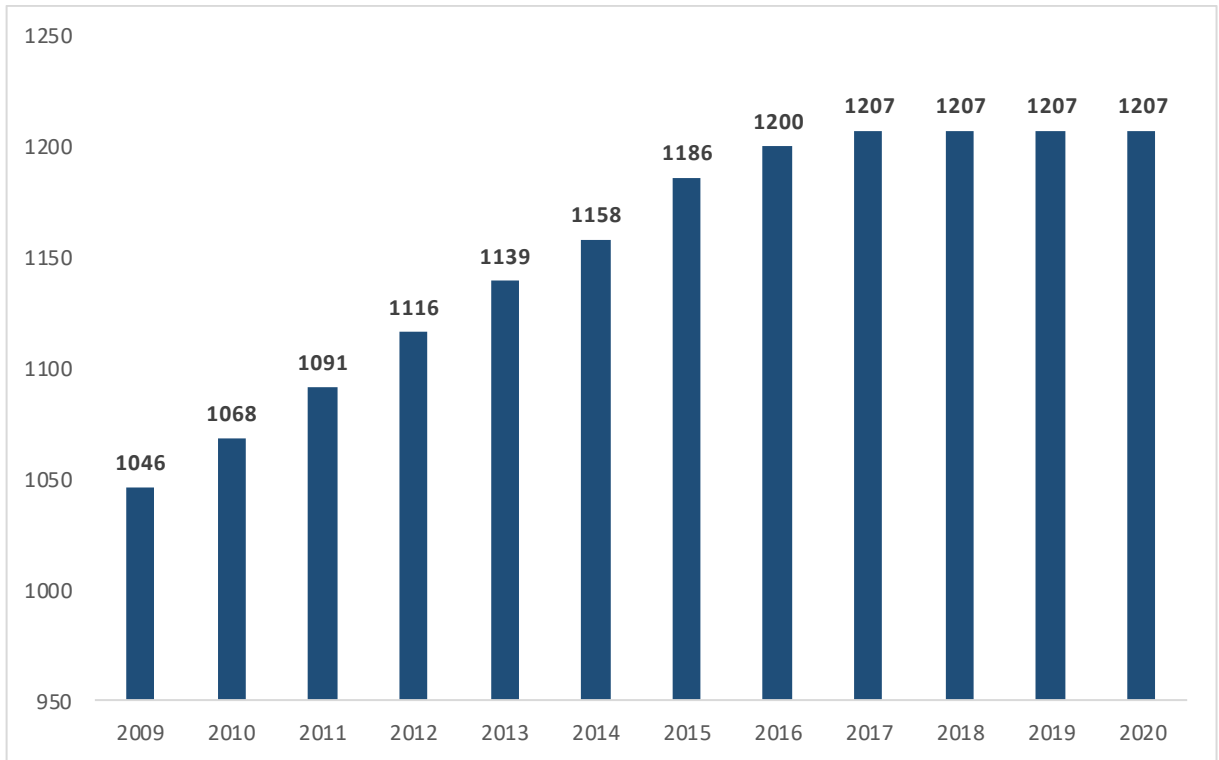


Figure 19 - Number of observations per year selected by PSM-CEM

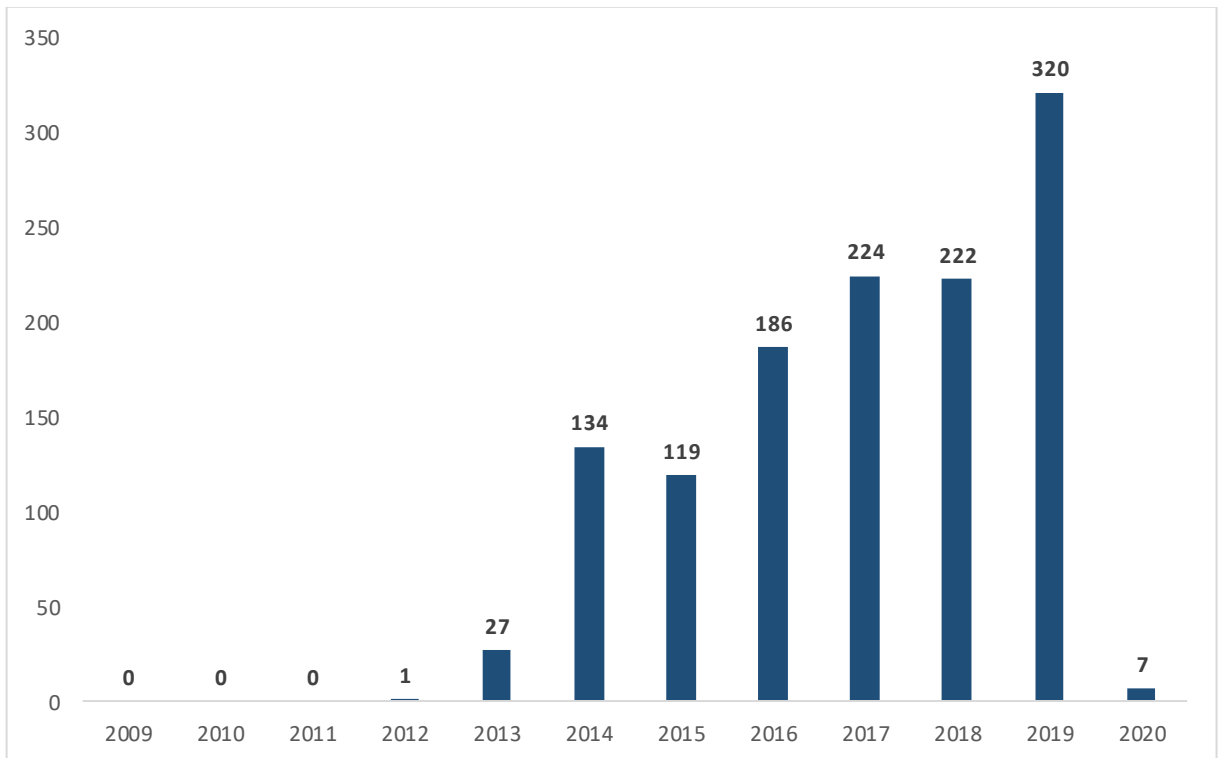


Figure 20 - Number of companies matched per year

The number of firms matched in 2020 is very low due to the lack of accounting data. In fact, most companies had not published 2020 accounting results yet. Companies lacking basic accounting data (e.g., Total Assets) could not be matched by PSM, thus have been excluded by the analysis.

It can be noticed from Figure 21 that both the number of emissions and the number of new issuers (companies issuing a *Minibond* for the first time) present an increasing trend. Consequently, years 2017, 2018 and 2019 represent a substantial portion of the pool, with 65,38% of total emissions and 60% of new issuers. Considering year 2020, only 3 emissions and 2 new issuers have been included in the analysis, due to the lack of accounting data problem. Considering that the total number of emission occurred in 2020 was equal to 194 (19,3% of the *Osservatorio Minibond*'s database total pool), the overall sample has been significantly reduced.

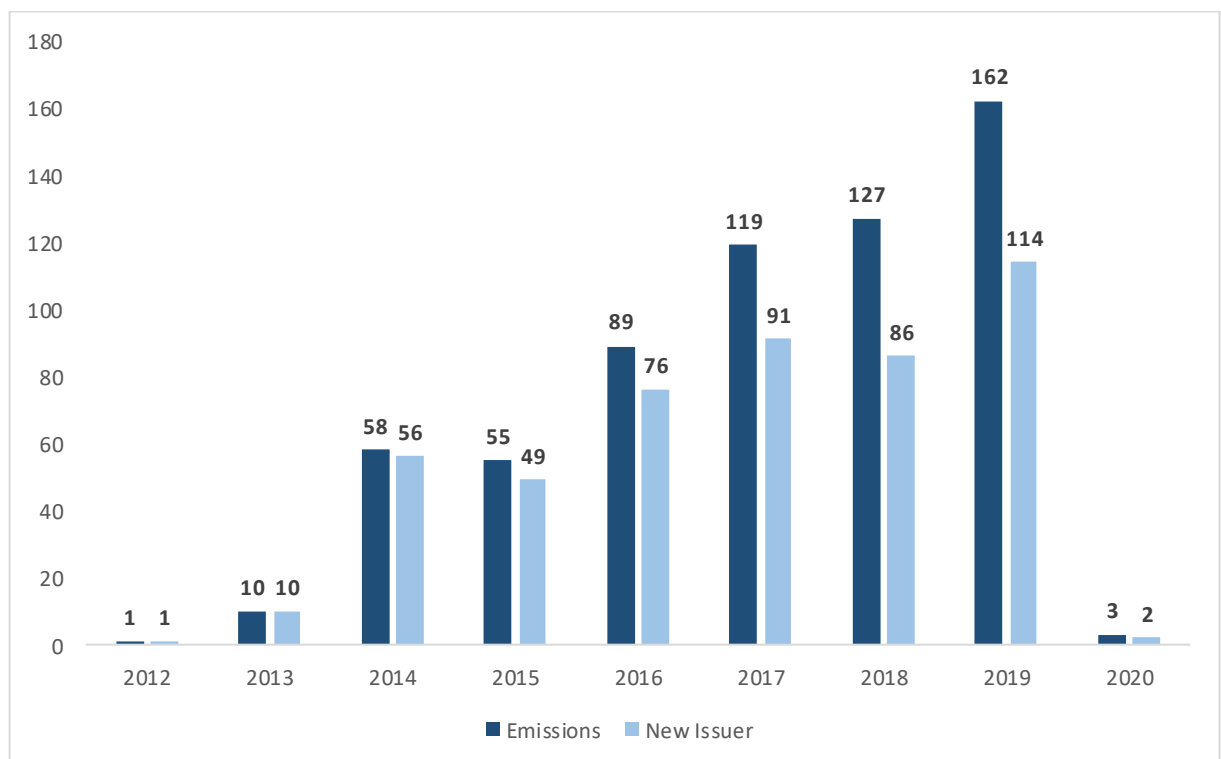


Figure 21 - Number of emissions and issuers. Division by year

Once the sample to be used for the analysis has been defined, it is necessary to go in depth with some considerations about the characteristics of the selected pool.

First, it is interesting to check the size of the firms belonging to the sample, distinguishing between large firms and SMEs. The classification has been made basing on the European Union definition (presented in Chapter 2). SMEs represent the majority of the companies selected for the pool (892 – 71,94%), while large firms are a minor portion. This division could have been expected, considering that *Minibonds* emissions are mainly issued by SMEs (73,3% in 2020, 59,1% for all emissions between 2012 and 2020 – Section 4.1), and that firms' size (considered in terms of assets) was one of the CEM and PSM models matching criteria (Section 5.2).

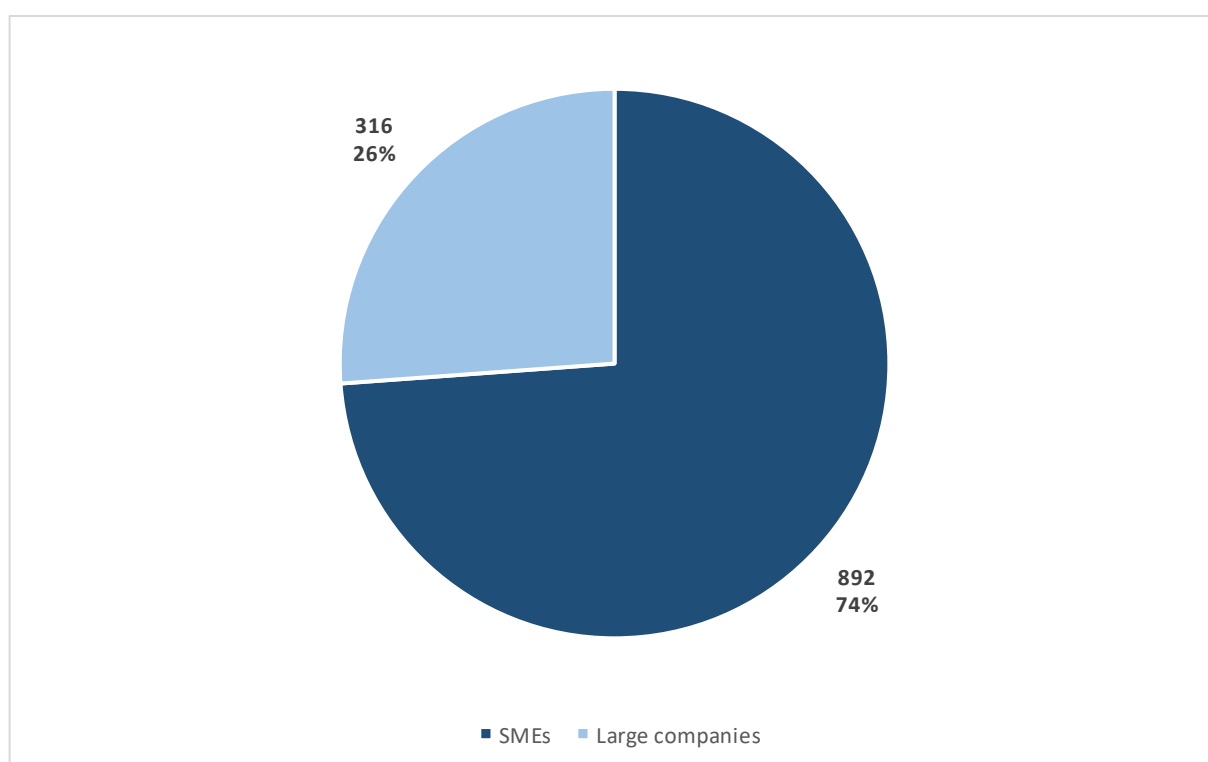


Figure 22 - Number of firms belonging to the sample. Comparison between SMEs and large companies

Firms have been divided according to age classes (as described in Section 5.2). A high number of observations (about 38%) belongs to the 30-years class. A similar proportion is still present even considering only SMEs (about 34%). Age median value is equal to 23 years for the whole pool, and to 20 years for the SMEs pool. The number of observations



belonging to the *-100-years* class is limited to less than 1%, thus this information was available for most companies selected by the PSM-CEM.

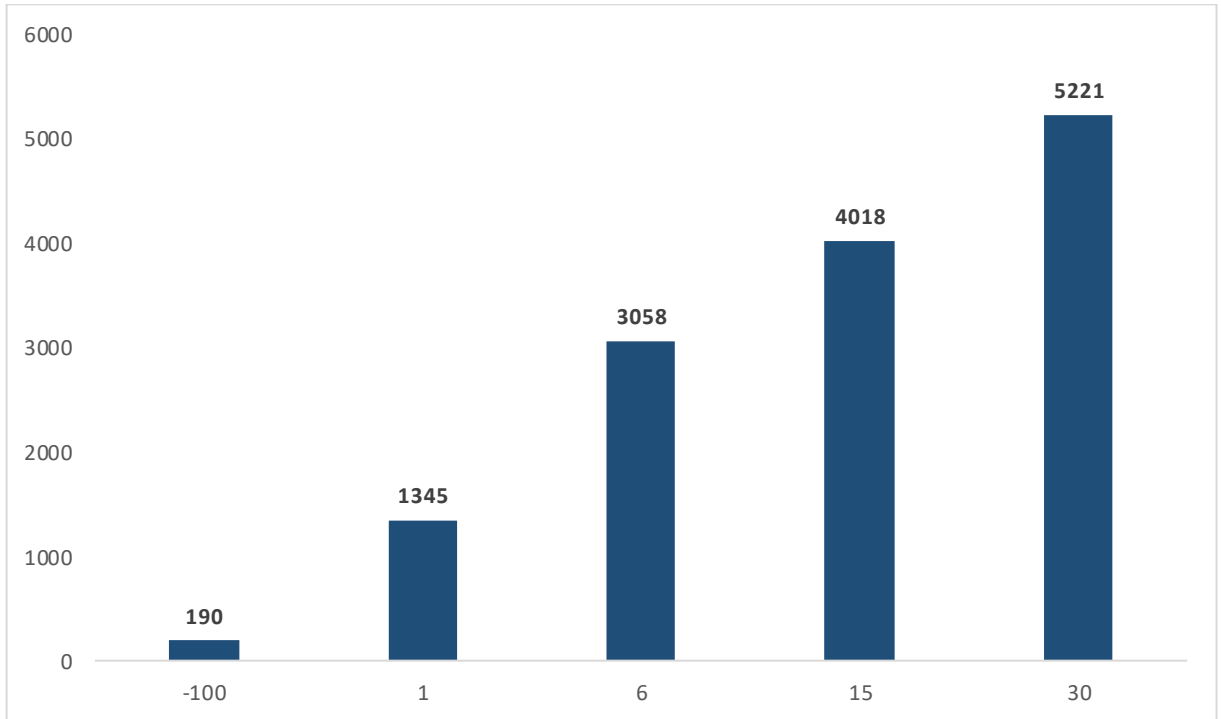


Figure 23 - Number of observations by age class

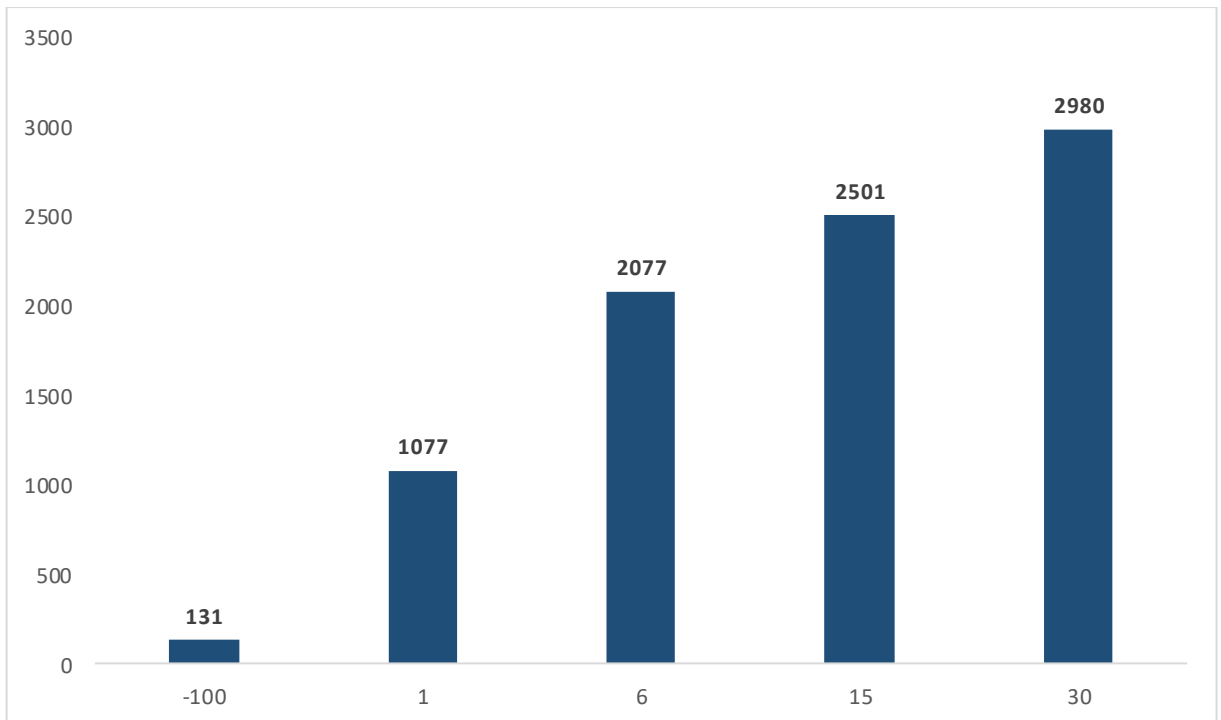


Figure 24 - Number of observations by age class. Focus on SMEs

As far as firms' legal location is concerned, Lombardia, Veneto and Trentino Alto Adige represent together the 54,68% of the companies of the pool. If SMEs are considered, the same ranking stands, with the three regions representing the 56,73% of the SMEs pool.

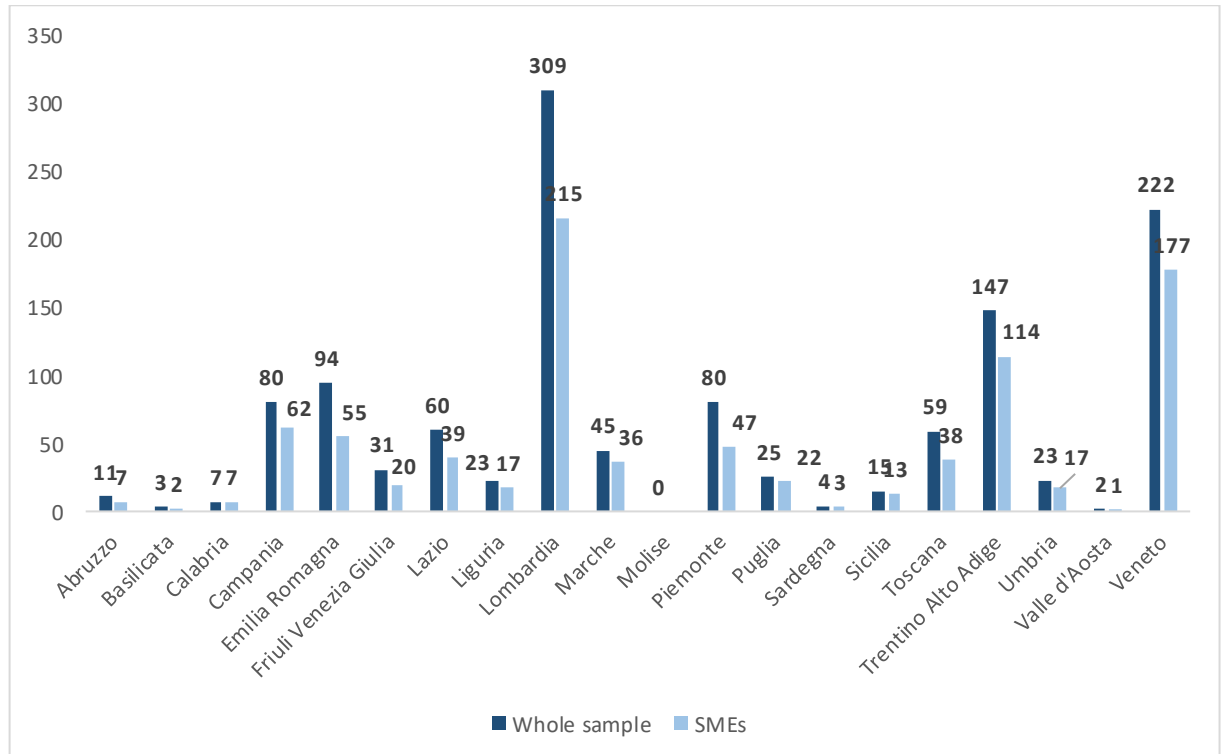


Figure 25 - Sample geographical distribution

A macroregion classification has been defined grouping regions in 5 clusters, as follows:

- North West: regions belonging to this cluster are Valle d'Aosta, Piemonte, Liguria, Lombardia.
- North East: regions belonging to this cluster are Friuli Venezia Giulia, Trentino Alto Adige, Veneto, Emilia Romagna.
- Center: regions belonging to this cluster are Toscana, Lazio, Umbria, Marche.
- South: regions belonging to this cluster are Abruzzo, Puglia, Campania, Basilicata, Calabria.
- Isles: regions belonging to this cluster are Sardegna and Sicilia.

The great majority of the firms of the sample pool is from the North East (39,84%) and North West (33,39%) of Italy, while Center and South clusters present similar sizes. As expected, Isles present a very low portion of the firms of the pool.

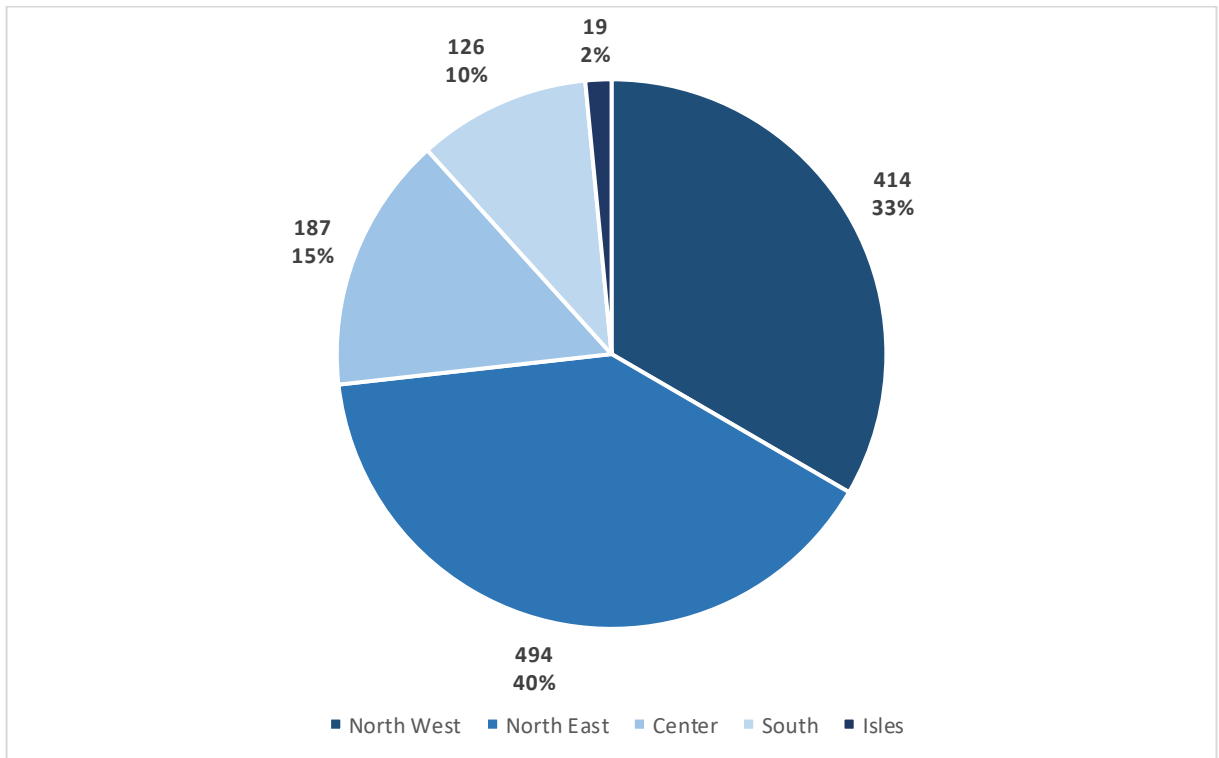


Figure 26 - Number of companies by macroregion

The industry in which each firm operates has been classified according to the NACE code, that distinguishes – at its most general level – among 18 different macroindustries<sup>10</sup>. It is interesting to underline that almost half of the companies considered belong to the manufacturing sector (code C of the NACE classification).

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<sup>10</sup> Code “K” of NACE classification is excluded from the analysis, since *Minibonds* issued from companies belonging to this code are not considered by the *Osservatorio Minibond*. Consequently, control firms belonging to this code have not been matched by the PSM-CEM techniques.

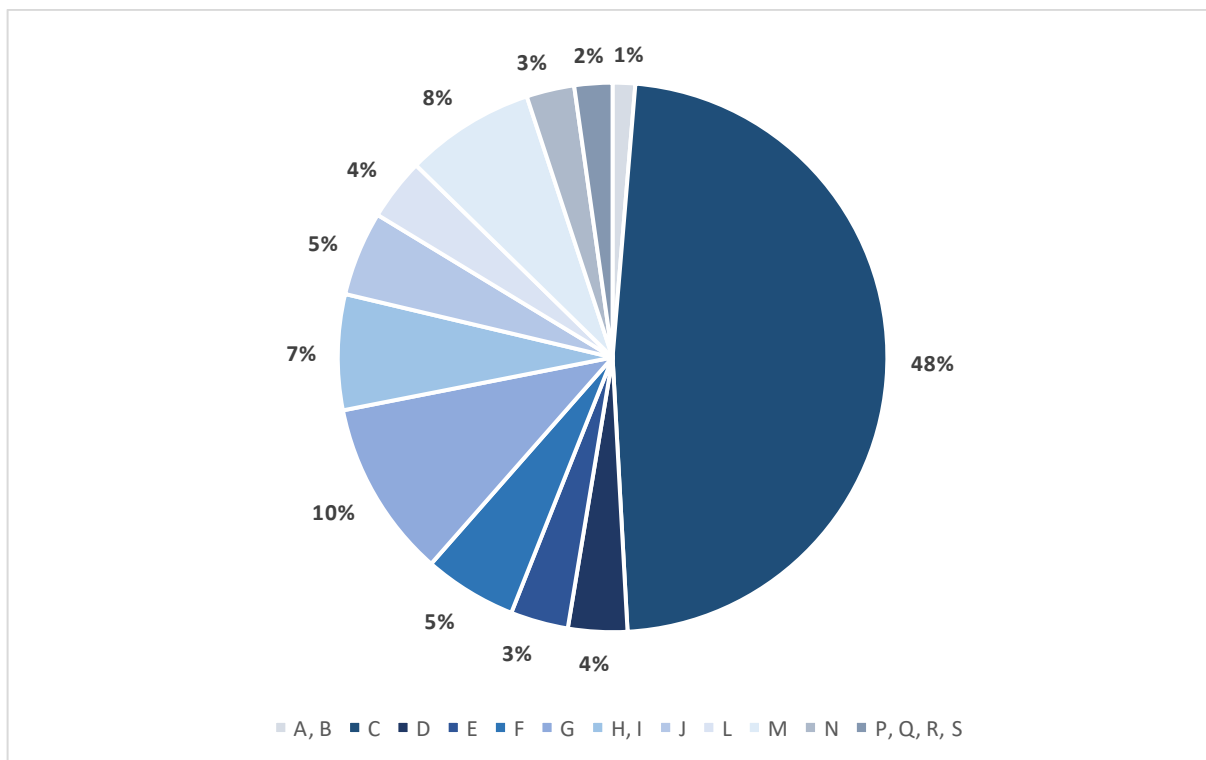


Figure 27 - Companies classification according to their industry

The sample description detailed in the previous paragraphs could be extended focusing only on the issuing firms that are part of the pool under analysis. However, issuers' main characteristics (portion of SMEs in the pool, age classes, geographical location, NACE classification) distributions show a great similarity with the already presented results, as it could be expected. In fact, both matching techniques work on these parameters, thus the distribution of the pool is built over issuers' distribution.

For this reasons, no additional consideration about the number of issuer and number of emissions will be detailed.

### 5.3.2 MINIBOND PROPERTIES

In this paragraph, the main characteristics of emissions will be analyzed, with a focus on the main differences between SMEs and large companies.

One of the most important characteristics is the amount of emissions, thus the amount of debt collected through the issue of the *Minibond*. In average, the collected amount is equal to €7,81M, while the median value is €4,95M.

Emission amount may vary significantly according to the kind of issuer: the average amount collected by SMEs is €4,69M versus €13,28M collected by large companies. Considering median values instead, the difference is very similar: €2,50M collected by SMEs versus €9,60M collected by large enterprises. These results are in line with expectations, since large companies, due to their different size, generally require more debt to carry on their operations.

[million €]	Pool	SMEs	Large
Average Amount (tot)	7,81	4,69	13,28
Median Amount (tot)	4,95	2,50	9,60

Table 5 - Emission amount. Comparison between the whole sample, SMEs and large companies

Considering the maturity of *Minibonds* pool under analysis, a much lower variability may be noticed with respect to the amount of emission. The average maturity of a *Minibond* is about 5,32 years, while the median value is of 5,00 years. SMEs and large firms emissions does not differ much from the results just illustrated, as it is disclosed by the table.

[Years]	Pool	SMEs	Large
Average Maturity (tot)	5,32	4,90	6,06
Median Maturity (tot)	5,00	5,00	5,90

Table 6 - Emission maturity. Comparison between the whole sample, SMEs and large companies

It is a frequent practice for issuers to publicly announce the reason behind the emission of a *Minibond*, and it may be useful to understand which are the leading motivations. In particular, 4 main clusters have been defined, according to the *Osservatorio Minibond* (as presented in Section 4.1): Internal growth, External growth, Debt restructuring, Cash cycle financing.

The leading motivation given to justify a *Minibond* issue is Internal growth, present in more than the half of the emissions. Debt restructuring is the second most common reason, followed by Cash cycle financing and by External growth. Motivations are known for 565 emissions of the sample pool, representing the 90,54% of *Minibonds* under analysis. As far as SMEs is concerned, a similar situation can be noticed. Anyway, in this case Debt restructuring and Cash cycle financing are inverted in the ranking.

	Number	% (of known)
Mot Internal growth	389	68,85%
Mot External growth	49	8,67%
Mot Growht	438	77,52%
Mot Debt Restr	75	13,27%
Mot Cash cycle	52	9,20%

Table 7 - Emission motivation

	Number	% (of known)
Mot Internal growth - SME	246	69,49%
Mot External growth - SME	23	6,50%
Mot Growht - SME	269	75,99%
Mot Debt Restr - SME	40	11,30%
Mot Cash cycle - SME	45	12,71%

Table 8 - Emission motivation. Focus on SMEs

Finally, it is important to highlight some numbers related to the portion of *Minibonds* issued presenting a rating or a guarantee. In particular, 27,4% of emissions analyzed is guaranteed, while 25,96% is supported by a rating. The proportion of guaranteed *Minibonds* issued by SMEs and large firms is very similar to the sample's one. Anyway, as far as the rating is concerned, SMEs and large firms have very different results, with a portion of respectively 18,89% and 38,33% of *Minibonds* issued with a rating.

	Number	%
Emission Rating	162	25,96%
SMEs Rating	75	18,89%
Large Rating	87	38,33%

Table 9 - Emission rating. Comparison between SMEs and large companies

	<b>Number</b>	<b>%</b>
Emission Guaranteed	171	27,40%
SMEs Guaranteed	107	26,95%
Large Guaranteed	64	28,19%

*Table 10 - Emission guarantees. Comparison between SMEs and large companies*

## 5.4 REGRESSION MODEL ANALYSIS & RESULTS

### 5.4.1 REGRESSION MODEL

In order to analyze the relation between the emission of *Minibond* and the growth of issuers ability to raise funds, a dynamic random-effect regression model has been defined.

The dependent variables identified are consistent with the different source of funding observed in the literature review:

- Long debt: debts with maturity longer than one year;
- Short debt: debts with maturity shorter than one year;
- Equity: capital that may be raised issuing new shares.

These variables have been taken into analysis in their logarithmic form, in order to better compare *Minibonds* effects on companies of different sizes. Furthermore, variables have been winsorized at the 1% level, to reduce the impact of possible outliers in the data.

*Minibond* issuance has a clear and direct link with Long Debt and Short Debt since the emission is a form of debt itself. Anyway, the analysis aims at proving that emissions have a differential effect over time on firms' ability of raising funds, independently from the amount of debt collected through the emission itself. Thus, Equity capital collection capacity has been analyzed as well.

To check if the analysis of these dependent variables is reasonable, a t-test has first been performed, in order to check whether the amount of the different sources of funds increases more for treated companies rather than for the control group. The t-tests have been carried out after the year of matching (thus, for issuers, after the year of emission). Groups have been created basing on the variable *MiniB\_backed*, valued 1 in each year the issuer exists from the year of emission on, 0 otherwise.



Long Debt: two-sample t test with equal variances				
Group	Obs	Mean	Std Err	Std Dev
0	1437	5,721	0,104	3,938
1	989	8,312	0,079	2,484
Combined	2246	6,780	0,074	3,651
Diff		-2,597	0,141	
diff = mean (0) - mean (1)				
Ho: diff = 0				
	Ha: diff < 0	Ha: diff != 0	Ha: diff > 0	
	Pr(T>t) = 0.000	Pr( T > t ) = 0.000	Pr (T>t) = 1.000	
Short Debt: two-sample t test with equal variances				
Group	Obs	Mean	Std Err	Std Dev
0	1351	8,962	0,053	1,960
1	947	9,527	0,045	1,398
Combined	2298	9,195	0,037	1,772
Diff		-0,565	0,074	
diff = mean (0) - mean (1)				
Ho: diff = 0				
	Ha: diff < 0	Ha: diff != 0	Ha: diff > 0	
	Pr(T>t) = 0.000	Pr( T > t ) = 0.000	Pr (T>t) = 1.000	
Equity Capital: two-sample t test with equal variances				
Group	Obs	Mean	Std Err	Std Dev
0	1351	8,962	0,053	1,960
1	947	9,527	0,045	1,398
Combined	2298	9,195	0,037	1,772
Diff		-0,565	0,074	
diff = mean (0) - mean (1)				
Ho: diff = 0				
	Ha: diff < 0	Ha: diff != 0	Ha: diff > 0	
	Pr(T>t) = 0.000	Pr( T > t ) = 0.000	Pr (T>t) = 1.000	

Table 11 - T-tests on the dependent variables

The three tests show, with a maximum confidence level, that the amount of Long debt, Short debt and Equity capital in the years after the matching is higher for issuers rather than for the other firms (Table 11). Anyway, results may depend on other firms' characteristics, and not on *Minibond* emission. Consequently, in order to verify a causal relationship between the two, it is necessary to run a multivariate model.

To deeply analyze the differential impact of *Minibonds*, a dummy has been created: *MiniB\_step0\_2*, that represents the principal independent variable in our regression model. Its value is equal to 1 for the issuer in the first three years after the emission, 0 otherwise. So, if a company issues a *Minibond* in 2017, the variable *MiniB\_step0\_2* is valued 1 in the years 2017, 2018 and 2019. The time span has been determined by the fact that *Minibond* emissions are increasing significantly in the last few years, and a larger window would have reduced the significance of the analysis by excluding issuers of the last years (2018, 2019, 2020). It has also to be considered that most of firms' data available by now refer to the 2019 closing year. Nevertheless, 3 years seems to be sufficient to study the differential effect of *Minibonds* on the different sources of funds.

Since *MiniB\_step0\_2* is the main variable of interest in this analysis, results discussion will be focused on its coefficient.

Several control variables have been identified in order to check the real and unbiased effect of *Minibond* emission on the dependent variables:

- Fixed Assets: this variable may be considered as a proxy for company size. A larger company is likely to have larger debts, in absolute terms;
- Operating Profits - EBIT: computed as Revenues net of Cost of Goods Sold and operating expenses, EBIT is a common indicator to analyze the capacity of a company of being profitable, excluding the effect of interest expenses and taxes.

It has to be underlined that the combination of Fixed Assets and Operating Profits allow to consider even firms' profitability. Thus, the inclusion of a profitability ratio not only would have been unnecessary but would have likely created collinearity problems causing a bias in coefficients interpretation;

- Leverage: computed as debt on equity, it is an indicator showing the indebtedness level of a company in relative terms. Leverage has not been considered in the Equity analysis, since the denominator of the ratio is exactly equity capital;
- Age: the age of a firm may have an impact on its relationships with financial institution and with the stability of its debt structure.

Furthermore, in order to exclude from the analysis industry, macroregion and year's fixed effects, dummies have been created and included:

- Industry: a dummy has been created for each industry, according to the NACE sectors classification, resulting in 18 dummies. Since different industries may present different indebtedness level, these variables have been included as control variables to exclude the effect of belonging to specific industries from the dummy of interest, *MiniB\_step0\_2*;
- Macroregion: a dummy has been created for each Italian macroregion, in particular: North West, North Est, Center, Sud, Islands. In this way, the effect of *Minibond* emission on the growth of funds of the pool of companies is analyzed independently by their location;
- Year: with the same logic of the last two variables, dummies have been created according to the year in which the companies is looked. In particular, years considered are between the period 2009-2020.

As already illustrated for the dependent variables, a log-transformation and a 1% winsorization have been applied for all these variables, with the exception of ratios and dummies.

Running the regression models, all accounting variables (Fixed Assets, Operating Profits, Leverage) and *MiniB\_step0\_2* dummy have been lagged. In this way, the effect of these variables is considered to have an influence on the dependent variables in the next year – thus with a time lag of one year.

The regression will be focused only on those firms of the pool that were selected by the PSM-CEM matching (Section 5.2). These firms are identified through the time invariant

variable *PSMCEMatched*, valued 1 if the firm is either an issuer or a control firm. Consequently, *PSMCEMatched* = 1 has been used as a filter in all the regressions run.

Once the main characteristics of the regression models leveraged during the analysis have been depicted, the basic regression formula has been determined as a random model regression of one of the dependent variables on all the control variables illustrate above, for observations with *PSMCEMatched* = 1.

Correlations between variables used in the three regression models described above are illustrated in Table 12.

Correlation analysis - Long debt regression model						
	In(Long Debt)	L.MiniB_step0_2	L.In(Fixed Assets)	L.In(Age)	L.Leverage	L.In(EBIT)
In(Long Debt)	1					
L.MiniB_step0_2	0,122	1				
L.In(Fixed Assets)	0,477	0,108	1			
L.In(Age)	0,281	0,024	0,406	1		
L.Leverage	0,376	0,043	0,057	-0,037	1	
L.In(EBIT)	0,346	0,107	0,708	0,354	-0,100	1
Correlation analysis - Short debt regression model						
	In(Long Debt)	L.MiniB_step0_2	L.In(Fixed Assets)	L.In(Age)	L.Leverage	L.In(EBIT)
In(Long Debt)	1					
L.MiniB_step0_2	0,104	1				
L.In(Fixed Assets)	0,436	0,108	1			
L.In(Age)	0,299	0,024	0,406	1		
L.Leverage	0,411	-0,015	-0,095	0,083	1	
L.In(EBIT)	0,406	0,107	0,708	0,354	-0,057	1
Correlation analysis - Equity capital regression model						
	In(Long Debt)	L.MiniB_step0_2	L.In(Fixed Assets)	L.In(Age)	L.Leverage	L.In(EBIT)
In(Long Debt)	1					
L.MiniB_step0_2	0,122	1				
L.In(Fixed Assets)	0,801	0,117	1			
L.In(Age)	0,422	0,038	0,393	1		
L.Leverage	n.a.	n.a.	n.a.	n.a.	n.a.	
L.In(EBIT)	0,798	0,120	0,704	0,343	n.a.	1

Table 12 - Correlation analysis of the three starting regression models

In addition to the control variables already described, other variables have been created in order to analyze different aspects about *Minibonds* effect on dependent variables. In particular, such moderation variables have been adopted to analyze the differential effects that size, emissions characteristics and region of provenience may have on *Minibond* issuers. These variables are:

1. Emission Amount: this variable is valued with the logarithm of the total issued amount in the year of emission. Thus, if a company has issued more than one *Minibond* in a single year, the variable is valued with the sum of the amounts. In the regression models, the variable has been used with a time-lag;
2. SME dummy: this time-invariant dummy is valued 1 in each year the firm exists, if it was an SME in the year of emission or in the year of matching. For the purpose of the analysis, SMEs are defined accordingly to the EU definition, presented in Chapter 2: ‘The category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million’;<sup>11</sup>
3. Large firm dummy: complementary to SME dummy, this variable is valued 1 if the firm exceeds at least one of SMEs parameters in the emission or matching year. It is still a time-invariant dummy;
4. Motivation: *Minibond* emissions can be based on different motivations, that are often declared by the issuer company at the moment of emission. Accordingly to their classification, already described in Chapter 4, a dummy has been created for each class of motivations:
  - a. Internal growth: funds are collected with the purpose of spur the firm’s internal growth, thus investing in R&D, new products and in opening new markets (often with the aim of internationalization). Specifically, common kind of investments are, for example: industrial plants, machineries, properties, patents;
  - b. External growth: the main emission funds’ purpose will be about financing external growth, thus mainly supporting M&A operations;

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<sup>11</sup> Extract of Article 2 of the annex to Recommendation 2003/361/EC

- c. Debt restructuring: new funds are used to pay back expiring debts (it may be the case of bank loans, other *Minibonds* etc.), with the aim of rebalance third-parties financing mix;
  - d. Cash cycle financing: in this case, *Minibond* aims at facing liquidity needs in the short term, in order to grant the balance between credits collection and debt payments;
5. Rating: the variable *Rating\_step02* is valued 1 to identify a *Minibond* issued with a rating, in the year of emission and in the following two years (as with *MiniB\_step0\_2*). On the other hand, the variable *No\_Rating\_step02* is created with the opposite function, thus valued 1 if the *Minibond* emission was not supported by a rating;
  6. Guarantee: the dummies *Guaranteed\_step02* and *No\_Guaranteed\_step02* have been created with the same logic and functionality of Rating's variables;
  7. Issuers' macroregion: dummies have been created through the interaction between *MiniB\_step0\_2* and each macroregion dummy. Thus, these variables are valued 1 for the year of emission and the following two, if the firm is from the macroregion of reference. As it will be showed during the analysis description, macroregions have been joint in order to have more significant results. In particular, two main variables have been used: *MiniBstep\_Nord\_Cen* – referring to issuers from the North and the Center of Italy – and *MiniBstep\_Sud\_Is* – referring to issuers from the South and from the Isles of Italy. Finally, *d\_Centro\_Nord* – a time invariant dummy valued 1 if the firm is located in the North-Center of Italy in the moment of the matching, 0 otherwise – has been used as control variables in this analysis.

Finally, it has to be highlighted that for most variables described above (*MiniB\_step0\_2*, emission amount, motivation, rating, guarantee, macroregion), their interactions with SME dummy have been created in order to carry out analysis both on the whole pool of company and with a focus on SMEs, for which information asymmetries and credit crunch problems are particularly relevant. These variables keep the same names of the one described above, preceded by the “SME” prefix.

## 5.4.2 RESULTS

### 5.4.2.1 GENERAL ANALYSIS

According to the regression models previously illustrated (Section 5.2 and 5.3), the effects of *Minibond* emissions on the three dependent variables – Long debt, Short debt and Equity – have been analyzed.

First Regressions			
	Long debt	Short debt	Equity capital
L.MiniB_step0_2	0.312** (0.135)	0.151 (0.120)	0.042* (0.023)
L.In(Fixed Assets)	0.553*** (0.030)	0.409*** (0.026)	0.312*** (0.008)
ln(Age)	0.608*** (0.085)	0.419*** (0.074)	0.480*** (0.023)
L.Leverage	3.564*** (0.242)	3-882*** (0.223)	n.a. n.a.
L.In(EBIT)	0.118*** (0.028)	0.172*** (0.025)	0.184*** (0.007)
constant	0.382 (1.337)	0.331 -1.150	1.326*** (0.019)
Years FE	YES		
Macroregions FE	YES		
Industry FE	YES		
R <sup>2</sup>	0.3533	0.3847	0.7125
Number of observations	6825	6825	8577
Number of groups	1116	1116	1145
Avg obs per group	6.1	6.1	7.5
Coefficient values are reported; Standard Errors are in brackets			
***, **, * stand for 99%, 95% and 90% Confidence Interval			

Table 13 - First regression model on the 3 dependent variables

As it may be observed in Table 13, results clearly show that the emission of *Minibond* has a positive effect on firms financing capacity. In fact, *Minibond* issuers have a differential growth of Long debt equal to +31,2% in the time window considered.

On the other hand, the null hypothesis that *Minibond* emission has not a differential effect on firms' Short debt cannot be refused. As showed in Section 3.3, there is evidence that a typical important driver of the decision to enter the bond market is, among others, the need to reduce maturity mismatches between assets and liabilities, particularly when there are high portions of Short debt and of Fixed capital. Furthermore, it has been proved that financial structure driver is particularly important for smaller firms<sup>12</sup>. As a consequence, these results do not come unexpected: the fact that *Minibonds* differential impact on Short debt is statistically null is likely to depend on the issuers' propensity to increase the average maturity of their debt structure. Furthermore, as showed in Section 4.2, the average maturity of the *Minibonds* of the *Osservatorio Minibond* database is equal to 5,47 years, thus they have a tendency to increase debt average maturity.

Such differential effects may be explained considering two main factors, strictly linked among them:

- Information asymmetry: the publishment of information about the companies – mandatory in order to issue any kind of bond – is fundamental to reduce information asymmetries between firms and investors. Furthermore, the *Minibond* program has been introduced to incentivize SMEs to issue debt instruments by reducing fixed costs (provided that these instruments could be underwritten only by professional investors, as illustrated in Section 2.1). Therefore, the cost necessary to partially overcome the problem of information asymmetry has been consistently reduced by the *Minibond* program. The importance of this consequence relies on the fact that banks can gather soft information about firms through monitoring activities, reducing agency costs. Anyway, incumbent banks can leverage this information advantage – and consequently firms' dependence on banks – to increase financing costs (and consequently reducing firms' available funds). Reducing information asymmetry, banks' advantage is reduced, both over the capital market and over other bank competitors.

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<sup>12</sup> Accornero et al., 2015



- Bargaining power: the diversification of funding sources can improve the bargaining power of firms over banks. Thus, accessing the bond market, companies are reducing their reliance on bank loans, and this could lead to an improvement in firms' financing conditions, increasing the competition in the financial market.

Despite both factors are relevant in the analysis, it must be underlined that the features of issuance under the *Minibond* reform (e.g. lower costs, lower information disclosure) may lead to a relatively limited effect over information asymmetry, despite the emission is still a strong public signal. Consequently, a stronger role played by the increase in firms' bargaining power could be supposed.

*Minibond* emissions appear to have a positive differential effect (+4,2%) on Equity capital collection too. Even if the coefficient is much lower than the one regarding Long debt, the hypothesis that *Minibond* effect is null is strongly rejected (p-value 6,5%).

This result is very important to correctly interpret the reasons behind the positive differential effect of *Minibond* emissions: considering that not only firms' ability of increasing Long debt improves, but that even Equity capital collection does, it is clear that the reason cannot be found just in the emission itself, but it must have other justifications. Considering that information asymmetry, bargaining power, having a first approach with public markets, and looking for alternative financing channels are all important factors to increase Equity capital collection ability, this positive differential effect, even if low, seems to strengthen the hypothesis presented.

In order to find more proofs to support such hypothesis, the amount of Long debt has been regressed even against the amount issued through the *Minibond*. Results (Table 14) show that *Minibonds'* amount has no significative effect on the evolution of Long debt. Considering the fact that any emission directly increases the amount of Long debt, it can be stated that the absence of a significative effect of the amount issued on Long debt is a strong proof to the fact that the improvement in issuers' financing conditions does not depend on the funds collection itself, but even on other causes.

<b>Amount of emission - Long debt</b>	
	<b>Long debt</b>
<b>L.MiniB_step0_2</b>	0.326* (0.176)
<b>L.ln(Amount)</b>	-0.012 (0.096)
<b>L.ln(Fixed Assets)</b>	0.553*** (0.030)
<b>ln(Age)</b>	0.608*** (0.085)
<b>L.Leverage</b>	3.563*** (0.242)
<b>L.ln(EBIT)</b>	0.118*** (0.028)
<b>constant</b>	0.384 -1.337
<b>Years FE</b>	YES
<b>Macroregions FE</b>	YES
<b>Industry FE</b>	YES
<b>R<sup>2</sup></b>	0.3532
<b>Number of observations</b>	6825
<b>Number of groups</b>	1116
<b>Avg obs per group</b>	6.1
Coefficient values are reported; Standard Errors are in brackets	
***, **, * stand for 99%, 95% and 90% Confidence Interval	

Table 14 - Regression model for Long debt, with a control for Amount of emission impact

#### 5.4.2.2 SMEs

As stated in the literature review (Section 3.1.1), it is well known that SMEs are more affected by information asymmetry than large enterprises, and at the same time they are

more dependent on bank loans. Consequently, a deeper analysis has been conducted distinguishing the two groups of firms, leveraging “SME firm” and “Large firm” dummies, and their interactions with *MiniB\_step0\_2*.

<b>SMEs Regressions</b>			
	<b>Long debt</b>	<b>Long debt - Amount</b>	<b>Equity capital</b>
<b>L.SME_MiniB_step0_2</b>	0.446** (0.180)	0.484*** (0.244)	0.070*** (0.029)
<b>L.Large_MiniB_step0_2</b>	0.164 (0.194)	n.a. n.a.	0.001 (0.034)
<b>L.ln(Amount)</b>	n.a. n.a.	-0.047 (0.169)	n.a. n.a.
<b>SME dummy</b>	0.176 (0.168)	0.162 (0.167)	-1.135*** (0.066)
<b>L.ln(Fixed Assets)</b>	0.560*** (0.030)	0.560*** (0.030)	0.294*** (0.008)
<b>ln(Age)</b>	0.610*** (0.085)	0.610*** (0.086)	0.449*** (0.028)
<b>L.Leverage</b>	3.547*** (0.243)	3.539*** (0.243)	n.a. n.a.
<b>L.ln(EBIT)</b>	0.125*** (0.029)	0.125*** (0.029)	0.171*** (0.007)
<b>constant</b>	0.093 (1.362)	0.117 (1.365)	2.880*** (0.555)
<b>Years FE</b>		YES	
<b>Macroregions FE</b>		YES	
<b>Industry FE</b>		YES	
<b>R<sup>2</sup></b>	0.3543	0.3535	0.7280
<b>Number of observations</b>	6825	6825	8577
<b>Number of groups</b>	1116	1116	1145
<b>Avg obs per group</b>	6.1	6.1	7.5
Coefficient values are reported; Standard Errors are in brackets			
***, **, * stand for 99%, 95% and 90% Confidence Interval			
<b>Test: L.SME_MiniB_step0_2 - L.Large_MiniB_step0_2 = 0</b>			
	<b>Long debt</b>	<b>Long debt - Amount</b>	<b>Equity capital</b>
<b>Coefficients</b>	0.281		0.069*
<b>Standard Errors</b>	(0.258)		(0.043)

Table 15 - Regression models with SMEs moderation factor

Results (Table 15) show that SME issuers' Long debt differential growth is significant and with a coefficient (+44,6%) higher than the one seen before for the whole group (+31,2%). On the other hand, results are not statistically significant for large enterprises. Furthermore, the t-test on the difference between the two coefficients is not significant. It can be observed that large firms' standard error is very large: it is reasonable that they present a wider variety than SMEs (whose definition, given in Chapter 1 and in Section 5.4.1, poses precise limits to their dimensions), while they present a lower number of observation than SMEs (as showed in Section 5.3) This could explain the fact that results on large firms are not statistically significant.

Analyzing the impact of *Minibonds* on Equity, similar results have been found: SMEs are positively impacted by the issue (+7,0%) with a higher coefficient than the one seen for the whole pool (+4,2%), while the hypothesis that large firms' coefficient is null is accepted with a 97% confidence interval. Consequently, it could be affirmed with a 90,1% confidence interval that *Minibond* emission has a larger impact on SMEs issuers, if compared with large firms (+6,9%).

Even in this analysis, a further check has been carried out: emission amount does not appear to have a statistically significant impact on Long debt, as in the general analysis.

It is clear from the results that *Minibond* emissions have a higher impact on SMEs financing capacity rather than on large firm issuers. As said, SMEs are more affected by market imperfections and more dependent on bank debt with respect to large firms. Consequently, this conclusion may be considered as another hint that the differential effect of *Minibond* may depend on the lower information asymmetry and the higher bargaining power experienced by issuers as a direct consequence of the emission itself.

#### 5.4.2.3 EMISSION VARIABLES

Despite it has already been proved that emission amount does not play any role in *Minibonds* treatment effect on dependent variables, it may be interesting to check if other emission

variables have an impact on firms' capacity of raising funds. In particular, the kind of motivation at the basis of the emission and the presence of a rating or a guarantee in favor of the issuer have been analyzed.

As already explained in Chapter 4 and in Section 5.4.1, there are 4 main clusters of motivations behind *Minibond* emissions: Internal growth, External growth, Debt restructuring and Cash cycle financing.

If the last two clusters – Debt restructuring and Cash cycle financing – are considered, a similarity can be noticed: in both cases, funds raised through the emission are sufficient to accomplish the emission goal. In fact, in the first case emission amount is used to repay other debts, while in the second case short-term needs are covered. Consequently, in these cases *Minibond* funds are likely to be used as substitute to bank loans.

On the other hand, the first two clusters are both about growth. It is well known that the higher the amount of available funds, the larger the investment opportunities that could be undertaken, leading to higher growth (Section 3.2). Thus, as far as internal and external growth motivations is concerned, *Minibonds* fund are likely to be complementary – and not substitute – to other sources (like bank loans). Furthermore, it is reasonable to have higher Equity capital collection when firms aim is growth, while it is not expected for the other two motivation clusters.

In order to check these assumptions, a regression model has been run. Two dummies – one related to growth motivations (both internal and external) and one related to the other two clusters – have been introduced in order to test whether there are statistically significant differences.

Motivations Regressions				
	Long debt	Long debt - SMEs	Equity capital	Equity capital - SMEs
L.MiniB_step0_2 Growth Mot	0.443*** (0.155)	n.a. n.a.	0.082*** (0.026)	n.a. n.a.
L.MiniB_step0_2 Other Mot	-0.0082 (0.294)	n.a. n.a.	-0.133*** (0.049)	n.a. n.a.
L.SME_MiniB_step0_2 Growth Mot	n.a. n.a.	0.285 (0.220)	n.a. n.a.	0.063* (0.036)
L.Large_MiniB_step0_2 Other Mot	n.a. n.a.	0.132 (0.443)	n.a. n.a.	-0.182*** (0.068)
Growth Mot dummy	n.a. n.a.	0.455*** (0.134)	n.a. n.a.	0.038 (0.024)
L.In(Fixed Assets)	0.553*** (0.030)	0.552*** (0.030)	0.312*** (0.008)	0.312*** (0.008)
In(Age)	0.605*** 0.085	0.605*** (0.085)	0.480*** (0.029)	0.481*** (0.029)
L.Leverage	3.564*** (0.242)	3.555*** (0.242)	n.a. n.a.	n.a. n.a.
L.In(EBIT)	0.119*** (0.028)	0.117*** (0.028)	0.184*** 0.007	0.184*** (0.007)
constant	0.395 (1.334)	0.395 (1.332)	1.327** (0.564)	1.317** (0.563)
Years FE	YES			
Macroregions FE	YES			
Industry FE	YES			
R <sup>2</sup>	0.3563	0.3557	0.7124	0.7121
Number of observations	6825	6825	8577	8577
Number of groups	1116	1116	1145	1145
Avg obs per group	6.1	6.1	7.5	7.5
Coefficient values are reported; Standard Errors are in brackets ***, **, * stand for 99%, 95% and 90% Confidence Interval				
Test: MiniB_step0_2 Growth Mot - MiniB_step0_2 Other Mot = 0				
	Long debt		Equity capital	
Coefficients	0.525		0.215***	
Standard Errors	(0.327)		(0.054)	
Test: SME_MiniB_step0_2 Growth Mot - SME_MiniB_step0_2 Other Mot = 0				
		Long debt - SMEs		Equity capital - SMEs
Coefficients		0.153		0.245***
Standard Errors		(0.492)		(0.076)

Table 16 - Regression models with motivation moderation factors

Results (Tables 16) show that, if the declared motivation is growth, issuers' Long debt improves +52,5% more than issuers with different motivations, with an acceptable

confidence interval (89,2%). Furthermore, the coefficient (44,3%) is much higher than the one seen for the whole pool in the general regression (31,2%).

Equity capital analysis shows even stronger results: the differential effect of *Minibond* emissions issued to back growth goals is equal to +21,5%, with a confidence interval close to 100%.

Focusing on SMEs, results show that there is not a statistically significant differential effect on Long debt between motivation clusters, while it is present for Equity capital collection (+24,5%).

As a consequence of the analysis, it may be noticed that *Minibonds* are used both as an alternative source of fund and to increase the amount of debt available to firms. In fact, it is significant that companies issuing *Minibonds* with growth purposes increase both Equity and Long debt more than firms with other motivations. As far as SMEs is concerned, considering they are more affected by credit crunch problems it is likely that all funds available are collected, thus a differential effect on Long debt is not noticeable in this analysis.

Going on with further analysis of the emission variables, it has to be underlined that the presence either of a rating or of a guarantee in favor of the issuer has a differential effect on Equity capital collection. Even this analysis has been performed creating dummies to reflect different emission characteristics, and t-tests to analyze the differential effects.

In particular, the presence of a rating assigned to the issuer in the moment of emission – independently to the rating itself – leads to a higher Equity capital collection growth with respect to other issuers (+12,5%) (Table 17). A similar result may be found for SMEs (+13,8%).

Rating Regressions		
	Equity capital	Equity capital - SMEs
L.MiniB_step0_2 Rating	0.120*** (0.036)	n.a. n.a.
L.MiniB_step0_2 No Rating	-0.004 (0.028)	n.a. n.a.
L.SME_MiniB_step0_2 Rating	n.a. n.a.	0.142** (0.059)
L.Large_MiniB_step0_2 No Rating	n.a. n.a.	0.004 (0.034)
Rating dummy	n.a. n.a.	0.008 (0.050)
L.ln(Fixed Assets)	0.312*** (0.008)	0.311*** (0.008)
ln(Age)	0.481*** (0.029)	0.481*** (0.029)
L.ln(EBIT)	0.184*** (0.007)	0.184*** (0.007)
constant	1.333** (0.564)	1.332** (0.564)
Years FE	YES	
Macroregions FE	YES	
Industry FE	YES	
R <sup>2</sup>	0.7125	0.7119
Number of observations	8577	8577
Number of groups	1145	1145
Avg obs per group	7.5	7.5
Coefficient values are reported; Standard Errors are in brackets ***, **, * stand for 99%, 95% and 90% Confidence Interval		
<b>Test: MiniB_step0_2 Rating - MiniB_step0_2 No Rating = 0</b>		
	Equity capital	Equity capital - SMEs
Coefficients	0.125***	0.138**
Standard Errors	(0.044)	(0.067)

Table 17 - Regression models with rating moderation factor



Ratings have a clear impact on the level of information asymmetries. In fact, through the disclosure of a risk assessment related to the solvency capability of a company, banks have additional information about the characteristics of the firms they are dealing with. Additionally, the burden of a screening process usually performed by banks is reduced.

These results are coherent with the previous statements: a further decrease in information asymmetry due to *Minibond* emission, together with a reduced dependence on bank loans, leads to higher fund available to firms.

Moving to guarantees, it may be noticed that a guaranteed emissions leads to a higher differential effect on Equity growth than unsecured *Minibonds*, both for the general pool of companies (+8,82%) and for SMEs (+12,42%) (Table 18).

<b>Guarantee Regressions</b>		
	<b>Equity capital</b>	<b>Equity capital - SMEs</b>
<b>L.MiniB_step0_2 Guarantee</b>	0.111*** (0.047)	n.a. n.a.
<b>L.MiniB_step0_2 No Guarantee</b>	0.023 (0.025)	n.a. n.a.
<b>L.SME_MiniB_step0_2 Guarantee</b>	n.a. n.a.	0.132*** (0.070)
<b>L.Large_MiniB_step0_2 No Guarantee</b>	n.a. n.a.	0.017 (0.033)
<b>Guarantee dummy</b>	n.a. n.a.	0.015 (0.062)
<b>L.ln(Fixed Assets)</b>	0.312*** (0.008)	0.312*** (0.008)
<b>ln(Age)</b>	0.479*** (0.029)	0.479*** (0.029)
<b>L.ln(EBIT)</b>	0.183*** (0.007)	0.184*** (0.007)
<b>constant</b>	1.324*** (0.564)	1.325*** (0.564)
<b>Years FE</b>	YES	
<b>Macroregions FE</b>	YES	
<b>Industry FE</b>	YES	
<b>R<sup>2</sup></b>	0.7124	0.7120
<b>Number of observations</b>	8577	8577
<b>Number of groups</b>	1145	1145
<b>Avg obs per group</b>	7.5	7.5
Coefficient values are reported; Standard Errors are in brackets ***, **, * stand for 99%, 95% and 90% Confidence Interval		
<b>Test: MiniB_step0_2 Guarantee - MiniB_step0_2 No Guarantee = 0</b>		
	<b>Equity capital</b>	<b>Equity capital - SMEs</b>
<b>Coefficients</b>	0.088*	0.115
<b>Standard Errors</b>	(0.052)	(0.077)

Table 18 - Regression models with guarantee moderation factor

The presence of a guarantee – differently from the presence of a rating – is referred only to the emission itself. Anyway, the presence of a guarantee has a positive signaling function for the company. Consequently, the positive effect of secured emissions on Equity capital collection growth may depend on this signaling effect.

As far as Long debt is concerned, a differential effect is not observed neither regarding rating nor guarantee moderation factors.

## 6. CONCLUSIONS

Growth is a fundamental factor in spurring the economy of a country. This theme is particularly important for SMEs that, representing the 99% of all business in the EU, are the backbone of the European economy. Anyway, without access to financing, firms' potential for growth is jeopardized.

It is well known that Italian firms, and in particular SMEs, are facing huge difficulties in having access to the credit needed to finance growth. According to the literature, there are several market imperfections that foster these difficulties in the financial market, such as information asymmetries and transaction costs (Section 3.1).

*Minibond* program has been introduced with the clear aim of incentivizing firms – and particularly SMEs – to issue debt instruments through the simplification of bond's emission regulation. In particular, both fixed costs and the amount of information to be disclosed are reduced leading to a reduction of “transaction costs”.

*Minibond* market has been developing fast in the last years. Therefore, it was important trying to investigate whether these securities issuance leads firms to actual advantages over non-issuing firms in terms of credit availability. In fact, the disclosure of information and the diversification of fundings are supposed to lead to a lower information asymmetry in the market, and to a higher bargaining power of firms towards banks. Consequently, the increased competition in the financing market, both between different sources and between different banks, is supposed to reduce firms' – particularly SMEs – dependence on bank loans, leading to an increase of available funds.

Long debt, Short debt and Equity capital have been considered as three appropriate indicators to investigate this phenomenon. Once the pool of company to be analysed has been stratified and matched through Coarsened Exact Matching and Propensity Score Matching techniques, a random effect regression model has been created.

Results clearly show that issuers' Long debt and Equity capital present, after the emission, a differential fund availability with respect to the control group equal to +31,2% and +4,2%,

respectively. As far as Short debt is concerned, no differential effect is registered after the *Minibond* emission. Furthermore, it has been illustrated that SMEs present a differential funds availability much higher than the one of the general pool: it is equal to +44,6% for Long debt, and to 7% for Equity capital. It is also important to underline that the Amount of emission has no significative impact on the differential financing capacity.

The treatment effect just described may depend on two main factors:

1. A reduction in information asymmetry as a direct consequence of the *Minibond* emission. An immediate effect is the increase in credit competition, since the advantage of the incumbent bank monitoring the issuer is reduced both with respect to other banks and with the capital market;
2. An increase in issuers bargaining power toward banks. In fact, accessing the bond market and differentiating their funding sources, firms reduce their reliance on bank loans, potentially improving their financing conditions.

Despite both factors are relevant in the analysis, it must be underlined that the features of issuance under the *Minibond* reform (lower costs, lower information disclosure) may lead to a relatively limited effect on information asymmetry. Consequently, a stronger role played by the increase in firms' bargaining power could be supposed.

Another significant analysis shows that *Minibonds* issued with growth motivation present +52,5% Long debt and +21,5% Equity capital with respect to issuers that have been driven by different motivations. These last analysis are a further focus on the fact that firms – particularly SMEs – are leveraging the *Minibond* reform to pursue mainly growth objective, considering bond debt mainly complementary to bank loans, rather than substitutive.

Finally it has been demonstrated that, if the *Minibond* is issued with a guarantee or with a rating, Equity capital future growth increases respectively of 12,5% and 8,8%, with respect to emission without a guarantee or a rating. These results are a further proof of the centrality of the information asymmetry role in firms' financial constraints.

The results illustrated seem to suggest that *Minibond* emission may be a key step in the growth of a company by representing the first moment in which it joins the public market

and a focal turning point in managing financing difficulties, leading to new growth possibilities that would give advantages to the whole country economy and employment situation. Furthermore, even investors will see many new and regulated possibilities.

Considering the aim of the *Minibond* reform was about simplifying the approach of more firms – mainly SMEs – with the bond market, it can be concluded that the new regulation could lead to the results desired.

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