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## A decision model for the suitable financing for small and medium enterprises

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### Abstract

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## **A decision model for the suitable financing for small and medium enterprises**

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**Abstract:** This research proposes a “model of selection of the financing sources” which allows to identify both the financing entity to which the company may resort and the appropriate financing methods for the company (with particular reference to alternative instruments to the banking ones). Based on a sample of small and medium-sized Italian companies, and thanks to a quantitative method, the proposed model permits to select the financial sources, in order to choose the most appropriate financing methods for small and medium companies. It allows to suggest to the owners/or to the management appropriate debt-covering instruments different from the banking ones. The application of the model enables to change the financial culture within the company by expanding the knowledge and the use of alternative financing instruments to the bank and working on management unpreparedness and capital inadequacy of the companies. The originality of the research is coherent in the current context of the reference, which is changing in a profound way for both economic and normative reasons as well as presenting a different perspective in the light of the companies’ experience of the past years.

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## 1 Introduction

A company's financial structure represents a factor influencing its growth opportunities; therefore, the difficulty to find and subsequently have at its disposal sufficient financial resources may constitute an obstacle to the aforementioned growth. Therefore, the financial structure constitutes one of the dominant research topics in the literature.

A company's financial structure can be investigated from two points of observation. The first aspect is represented by the coherence of the combination between financial sources and investments typologies: it is necessary that the medium, long-term investments are covered by stable sources of financing, while investments in the working capital are covered by short-term sources. In addition, the company's financial dependency on the banking system (and, more generally, in relation to third parties) must be consistent with the company's ability to self-finance. The second aspect is related to the financial market, with particular reference to the choice of funders. Taking into account the sources of financing, different from both own resources granted by the shareholders and accounts payable, companies generally resort to the banking system or to other various financial entities.

Observing the financial structure of the Italian companies shows a high financial dependency on external parties, especially the banking system. It results from a combination of factors such as abundance of granted credits, modest or insufficient ability of choosing the entities entrusted by banks, and ability of the banking system to meet the companies' financial needs that have characterised the banking system until around 2008. This resulted in a limited financial culture within the company (which restricts the knowledge and use of alternative financing instruments to the banking ones), combined with managerial unpreparedness and capital inadequacy of the companies. As a result, the companies are often not able to easily choose entities different from the bank which would be able to meet their financial needs. Moreover, the recent years have shown a gradual disengagement of the banking system towards providing funds, especially with reference to the requirements of covering the investments in the companies' fixed assets. This fact has not effected in a negative way healthy companies or those characterised by a modest financial dependency on the banking system, but it has created a series of problems for companies characterised by a high use of bank credit.

Therefore, both the legislature (with recent regulatory interventions) and the financial system have attempted to propose some solutions to simplify the access to the capital and debt markets for the companies. Moreover, new providers specialised in the investments in capital or in debt securities of the small and medium-sized companies have been created. In particular, some alternative financial instruments to the bank (commercial papers, mini-bond, debt funds and hybrid debt securities) have been regulated, and the listing process on the capital market has been simplified compared to the main market (AIM). In the meantime, dozens of operators have emerged to underwrite debt securities and shares of small and medium-sized enterprises. This very important effort not always seems to be accompanied by a virtuous process of change in the culture of the small and medium-sized enterprises, notoriously characterised by a limited willingness to impose managerial logic and disclosure consistent with the expectations of the mature financial market.

This research is placed in this context of observation. It proposes a “model of selection of the financing sources” which allows to identify both the financing entity to which the company may resort and the appropriate financing methods for the company (with particular reference to alternative instruments to the banking ones).

This model allows to suggest to the owners/or to the management appropriate debt-covering instruments different from the banking ones. The application of the model enables to change the financial culture within the company by expanding the knowledge and the use of alternative financing instruments to the bank and working on management unpreparedness and capital inadequacy of the companies.

The originality of the research is coherent in the current context of the reference, which is changing in a profound way for both the economic and normative reasons as well as presenting a different perspective in the light of the companies’ experience of the past years. The gradual disengagement of the banking system has resulted in the necessity of understanding the possible use of alternative financing instruments to the bank debt. Moreover, the research is linked to the need for companies to undertake a change in their financial culture, which involves a reinforcement of the financial structure and a reduction of its financial dependency on third parties. Finally, the current circumstances of the Italian banking system and the consequent frequency with which the unavailability or inadequacy of financial resources is emerging are acting as a catalyst for developing a series of new alternative financial instruments to the bank debt, particularly suitable for small and medium-sized enterprises, which can influence their financial structure.

The research is structured as follows. The second section is focuses on the analysis of the literature, with particular reference to two interesting lines of research: the first having as its object the identification of a company’s financial structure and analysis of the combination between financial sources and investments; the second is focused on identifying the most appropriate financing instruments (traditional and alternative), in relation to the company’s condition and its potential. The research method is outlined in the third section. The description of the results, both theoretical (referring to the model proposed) and empirical, is elucidated in the fourth paragraph, which is followed by the discussion of results. Finally, the conclusion and implications of the study are set out, along with the limitations of the research.

## 2 Literature

The choices for the definition of the company's financial structure have a certain relevance in the literature, since they influence business management in a decisive way. The debate on the proper procedures of defining the company's financial structure, required to operate with a level of financial independence from the third parties consistent with the ability of self-financing, as well as on the choice of the best financial arrangements, could account on numerous and valuable contributions.

It is possible to identify a series of research branches that characterise the literature involving the issue of discussion:

- a The first branch of research has as its objective an identification of the company's financial structure and the analysis of the possible combination between financial resources and investments.
- b The second branch of research has as its objective an identification of the most appropriate financing instruments (traditional and alternative), in relation to the company's condition and its potential.

The first branch of research has as its objective the company's financial structure. A number of studies have focused on the company's financial structure, investigated in the literature through a series of theories (starting from the thesis of Durand (1952) and traditionalists, until the original setting of Modigliani and Miller's (1958) study and its revision in (1963); the model of Myers (1974); the thesis of Miller (1977); the essay of Miles and Ezzel (1980); and others). Scholars studied the institutional and theoretical aspects as well as the determinants of the financial structure (Domenichelli, 2013; Galbiati, 1999; Garofalo, 1987; Venanzi, 2010), analysing also the relationship between corporate governance and financial structure (La Rocca, 2008; Maggioni, Potito, and Viganò, 2009; Montalenti, 2009).

The availability of the financial resources for the company has been related to the company's growth; therefore, it has emerged that the investment policy is influenced by the amount of money available to the company (Becchetti and Trovato, 2002; Carpenter and Petersen, 2002; Fagiolo and Luzzi, 2004; Herrera and Minetti, 2007; Honjo and Harada, 2006; Feltnhofer, 2015; Mahéroult, 2000). Especially in the case when the company is undercapitalised, it is important that it continues to get money in a various ways from outside (Broccardo, 2014).

A series of quantitative contributions focused on financial policy conducted by the companies allows to observe their attitude regarding the financing choices (Dallocchio, Tzivelis and Vinzia, 2011; Galbiati, 1999; La Rocca, 2007; Venanzi, 2003; Zazzaro, 2008). In the discussion on these issues, the financial resources were considered a factor accelerating the company's growth (Giacosa and Guelfi, 2003; Giacosa, 2015; Fazzari, Hubbard and Peterson, 1988; Ferri and Messori, 2000; Ferri and Rotondi, 2006; Lang, Ofek, and Stulz, 1996; Machauer and Weber, 2000; Oliveira and Fortunato, 2006), without which the company would be unable to meet its financial needs and respect the growth and development needs. Therefore, it was necessary to define the proper allocation of available financial resources under a right combination of investment choices (Bertini, 1991; Penrose, 1959).

The research for an excellent combination between investment and financing has stimulated great attention on the literature, which is focused on a range of variables that influence the degree of company's indebtedness, in both financial and economic natures

(Baginski and Hassel, 2004; Bernstein and Wild, 1998; Fiori, 2003; Foster, 1986; Giroux, 2003; Giunta, 2007; Helfert, 1997; Higgins, 2007; Ingram, Albright and Baldwin, 2002; Mazzoleni, 2012; Meigs et al., 2001; Rossi, 2014a, 2014b; Value, 2001; Van Horne, 1972; Weston and Brigham, 1978). In particular, the observation of the relationship between the structure of the investments and financing should be analysed, thanks to a series of indicators, based on the analysis of financial statements (Ferrero et al., 2006; Baginski and Hassel, 2004; Ferrero et al., 2003; Foster, 1986; Giroux, 2003; Helfert, 1997; Higgins, 2007; Ingram, Albright, and Baldwin, 2002; Meigs et al., 2001; Value, 2001). Among them, analysis of the financial structure allows to judge the degree of rigidity or elasticity of loans, on the one hand, and the company's decisions taken in terms of financing resources, on the other. In addition, the impact of financial decisions on the economic aspects is debated at length because of the influence of financial costs (Brealey, Myers and Sandri, 1999; Capasso, Gallucci and Rossi, 2015; Golinelli, 1994; La Rocca, 2007; Miglietta, 2004; Rossi et al., 2015).

However, the financial structure analysis does not represent an isolated and exhausting instrument of analysis (Mella and Navaroni, 2012; Orrigan, 1968; Paolucci, 2013; Sostero, 2014). In fact, it must be completed by analysing the financial situation to ensure the most complete overview. In this respect, it becomes interesting to observe the solvency of the companies, meaning its ability to possess financial resources to pay debts in an economic and timely manner (Ferrero et al., 2006; Value, 2001). In addition, the need has arisen to observe the company's ability to repay the debt through the financial resources derived from its core business: a series of indicators make possible to assess this aspect, including operating revenue in terms of turnover (Ferrero et al., 2006; Giacosa, 2011, 2012a, 2012b; Giacosa and Mazzoleni, 2012). Lastly, the impact of global financial crisis on the dependence structure of equity markets has been the focus (Ghorbel and Trabelsi, 2013), as the crisis represents a relevant factor which impacts on the financial issue (Giacosa and Mazzoleni, 2012; Giacosa, 2015).

The second branch of research relates to the identification of the most appropriate financing instruments (traditional and alternative), in relation to the company's condition and potential. A series of research, in the past and today, presented the instruments and traditional financial channels available for small and medium-sized enterprises, assessing the advantages and disadvantages of each of them (Brusa, 2013; Galvanin, 1990; Venanzi, 1999; Marchi and Quagli, 1991). Finally, a series of empirical researches have analysed the financial structure of the Italian economy (Anolli, 1993; Bonato, Hamaui and Ratti, 1991, Castronuovo, 2008; Dainelli and Giunta, 2010; Giannola and Marani, 1991; Meles, 2007; Venanzi, 2003), with particular reference to small and medium-sized enterprises (Giacosa, 2015; Giunta, 2005; Mauro, 1982; Pezzini and Di Cesare, 2003; Rutigliano, 1983; Unioncamere, 2007).

A part of the research, more recent in analysis and less wide in its treatment, has analysed the specificity of different innovative financial instruments from banking channel, thanks to a comparison with the more traditional ones. The listing on the market was considered as a possible solution to overcome the lack of capital (Anderson and Reeb, 2003; Belkhir Boujelbene, Bouri and Prigent, 2011; Rossi, 2015), even if the issue of new shares is often considered only in case when there are no other solutions of financing company's activities (Bracci, 2007; Gualandri and Schwizer, 2008; Mulkay and Sassenou, 1995; Osteryoung, Constand and Nast, 1992), as this emission reduces the company's control (Gallucci, Nave and Santulli, 2012). Consequently, any choice linked to the financial structure can affect the maintenance of power within the company, also



from a point of view of optimising the interest between different types of stakeholders (Alchiam and Demsetz, 1972; Fama, 1980; Fama and Jensen, 1983; Jensen and Meckling, 1976; Levinthal, 1988; Prendergast, 2000; Rasmusen, 1987; Ross, 2004; Shavell, 1979). In addition, those researches are focused on commercial paper, mini-bonds, on the listing on AIM and hybrid instruments (Appio, 2013; Bompani and Catelani, 2012; De Luca and Ferri, 2009; Ordine dei Dottori Commercialisti di Milano, 2011; Urbani, 2013).

By analysing the literature, it was found that the past researches - based on a way to cover the financial needs - did not focus in detail and schematically on the issue of the choice between debt, equity, or hybrid instruments as part of the definition of the financial structure. Moreover, they did not analyse the possible use of the alternative financial instruments to the banking channel, which could be the most prevalent method to meet the financial needs of small and medium-sized enterprises in Italy.

The aim of this research is to fill this gap. It can present a contribution to the scientific debate because of the following reasons:

- The objective of the observation constitutes a highly topical issue, as it deepens an opportunity to transition from a situation characterised by the predominance of the banking channel in the financing of the small and medium-sized enterprises to its potential replacement with alternative forms of financing. This change has a potential impact not only on the processes of growth and competitiveness of enterprises but also on the corporate culture, the adoption of planning and control instruments and the use of economic-financial communication instruments.
- The circumstances fostering this transition are concentrated on a short period of time, both from a regulatory point of view and from the different functioning of the markets. It has resulted in a modest contribution on the part of the literature on the specific issue.
- The analysis takes into account also the specific expectations of the companies (which generate demand for innovative instruments), and to highlight the regulatory conditions and economic context which enables small and medium-sized enterprises to have access to new alternative financial instruments (generating supply for the innovative financial instruments).

### **3 Methodology**

#### *3.1 The sample*

For development of the analysis, we first referred to the economic companies in Italy. Second, we referred to a region in Northern Italy - Lombardy: the area was considered suitable for the purposes of the study as it has the highest industrialisation rate in Italy (Istat data about production value in manufacturing industry). Indeed, Lombardy produces 21.6% of GNP in Italy (Istat, 2013), and in 2013, Lombardy's companies have accounted for 15.1% of the overall turnover of the companies operating in Italy.

In Lombardy, we referred to the companies located in the main area (Brescia, Bergamo, Mantova, Cremona, and Milan): those analysed represent 76.67% of Lombardy's turnover.

The companies (identified using the Aida-Bureau van Dijk database, which contains economic-financial information on over one million Italian companies) have been classified according to the business sector, adopting the ATECO classification of the National Institute of Statistics (Istat).

Carrying out the survey requires the identification of two samples:

- a The first sample is intended to validate the proposed model
- b The second one is used to carry out the application of the model to the Italian economic context and, consequently, to provide an indication about the most suitable funding methods for a representative context.

The two mentioned samples are presented below.

### *3.1.1 Sample for the model's validation*

The sample is intended to validate the model proposed, which means to verify its validity with reference to the characteristics of the companies that have resorted to individual financing instruments concerned by the informative matrix.

Despite the usefulness of this review, it was impossible to make it entirely complete because of the lack of a database that provides information about the companies that have resorted to various funding instruments. Therefore, a decision was made about limiting the sample of the observation to mini-bond and quotation on the MTA (screen-based stock exchange), investment vehicles market (MIV) and alternative investment market (AIM Italia), for which the data are available<sup>1</sup>.

To this end, the companies have been identified among those that have resorted to mini-bond and/or to the listing in the period of 2013–2014. With reference to mini-bond, they have been issued by 86 companies, for a total of 96 issues<sup>2</sup>; the survey was conducted on 49 companies<sup>3</sup>. With reference to quotation, the number of companies listed on the regulated markets is equal to 50, while the survey was carried out in 37 companies<sup>4</sup>.

### *3.1.2 Sample for application of the model*

As mentioned earlier, the second sample is intended to carry out the application of the model to the Italian economic context and, consequently, to provide an indication about the most suitable funding methods for the companies that comprise it.

For this purpose, the population taken into consideration consists of 758,153 Italian companies, of which 125,045 are located in Lombardy.

In order to create a sample, the following selection criteria have been applied. In particular, the companies:

- Have deposited the financial statements related to 2011, 2012 and 2013. This time frame was considered as the minimum necessary to conduct the survey on economic and financial positions of the analysed companies. In addition, the financial statement of 2013 was deposited as the last one at the moment of valuation.
- Have not prepared the financial statements in accordance with International Accounting Standards (IAS) to guarantee the comparability of analysed data.

- Belong to economic activities of ATECO considered as relevant. The assessment has been made taking into consideration the concentration of the number of companies within individual ATECO's economic activities. Thus, the companies belonging to the residual economic activities have been excluded.
- Have developed, in 2013, a production value between 5 and 250 million euro. In this empirical analysis, the parameter of the production value, instead of sales, was used in order to extend the survey also about the companies working to order.
- Have presented in the Aida-Bureau van Dijk database details of the accounting group's 'total debt'. For analytical purposes, the companies that do not present detailed financial debt are excluded.

The manufacturing sector has been further divided in the following sectors: food, automotive, pharmaceutical, rubber-plastic, machinery, metal-mechanic, petrochemical, textile and other manufacturing. This decision has been made due to the fact that the manufacturing sector is composed of 23 economic activities characterised by a significant diversity. The final sample is composed of 41,344 Italian companies, from which 8,958 are located in Lombardy (Table 1).

**Table 1** The sample

<i>Sector</i>	<i>Italy</i>	<i>Lombardy</i>
Agriculture	743	33
Food	2,189	285
Accommodation and catering	522	83
Cultural activities	190	46
Financial activities	176	74
Professional activities	1,539	522
Automotive	510	89
Trade	12,891	2,725
Building	2,762	534
Pharmaceutical	214	90
Rubber - plastic	1,839	397
ICT	950	313
Real estate	716	267
Machinery	3,921	1,027
Other manufacturing	2,763	469
Metal-mechanic	3,220	824
Petrol-chemical	998	330
Business services	892	225
Textile	2,077	310
Transportation and storage	2,232	315
<b>Total for geography area (number of companies)</b>	<b>41,344</b>	<b>8,958</b>

*Source:* Own elaboration.

### 3.2 *The method*

The aim of this research is to propose a “model of selection of the financing sources” which allows to identify both the financing entity to which the company may resort and the appropriate financing methods for the company (with particular reference to alternative instruments to the banking ones).

In order to achieve the aim of this research, the following research question has been formulated:

*RQ: How is it possible to select the financial sources, in order to choose the most appropriate financing methods for small and medium companies?*

The research methodology was developed by the following logical steps:

- a identification of indicators considered as relevant for the analysis of the company’s condition
- b creating an informative matrix, which enables to identify kinds of the funding instruments (including alternatives to banking ones) suitable for the sampled companies
- c validity of the matrix
- d application of the matrix to representative sample.

All the aspects of the observation are explained in detail below.

#### 3.2.1 *Identification of indicators relevant for the analysis of the company’s condition*

The use of alternative financial instruments for the bank debt requires the formalisation of a judgment on the financial and economic situation. The parameters relevant for the research are determined by taking into consideration the following economic and financial measures which enable to conduct analysis on the following topics to be considered in a systematic way (Coda, 1990; Ferrero et al., 2006; Teodori, 2000):

- a growth
- b profitability
- c capacity of repayment of the financial debt.

The indicator used to measure the company’s growth is the *compound annual growth rate* (CAGR), calculated for the period of 3 years (2011–2013) on the production value. It expresses the average annual growth in production value on a 3-year horizon and it is calculated by the following formula:

$$\text{CAGR} = \sqrt[3]{\frac{\text{PV}_m}{\text{PV}_n}} - 1$$

where  $PV_n$ ,  $PV_m$  = production value developed by a company, respectively, in years 'n' and 'm', with  $m > n$ .

The use of the CAGR as a measure of average annual growth is justified due to the fact that it allows to neutralise the effects of a wide volatility of growth rates, calculated on individual years that make arithmetic average less meaningful. In order to identify the most appropriate indicators of profitability and ability to repay financial debt, a series of expressive indicators of profitability and ability to repay indebtedness have been analysed and then it was calculated by the correlation of the latter with the economic-financial situation of the company (comparing the data of companies under normal operating conditions and bankrupt companies).

The identification of the relevant parameters to assess company's economic and financial situation is carried out using two criteria:

- high correlation between the company's condition and the indicator
- correlation between the identified indicators.

The results obtained are presented in Table 2.

In the table, the yellow cells indicate the correlation between the company's situation and the chosen indicator, while the green cells show the correlation between the two chosen indicators.

From this analysis, it was found that the indicators highlighted (EBITDA/PV and Financial Debts/EBITDA) are those which are characterised by both a significant correlation between the company's situation and the indicators themselves (respectively,  $-0.3245$  and  $-0.0874$ ) and from a lower correlation between the two indicators identified ( $-0.0094$ ). In conclusion, the indicators that have been used were as follows:

- with regard to profitability: the ratio between EBITDA and production value, which allows to evaluate the company's ability to generate cash flow:

$$\text{Profitability in the year 'n'} = \text{Ebitda } (n) / \text{Production value } (n)$$

- with regard to ability of financial debt's repayment: the ratio of financial debt and EBITDA, which allows to estimate the time frame required to repay the borrowings using the resources generated from core business activity:

$$\text{Ability to repay the financial debt in the year } n = \text{Financial Debts } (n) / \text{Ebitda } (n)$$

### 3.2.2 *Creating an informative matrix*

A model was created that can identify the most suitable form of financing for the companies, including the sources of alternative financing to traditional bank debt. This model has the form of a matrix and uses indicators previously identified with the following relevant aspects of observation:

- a growth
- b profitability
- c ability to repay a debt.

**Table 2** Correlation between the company's economic-financial situation, on one side, and indicators of profitability and ability of debt's repayment on the other (see online version for colours)

Company's condition	EBITDA/ Production Value	EBITDA/ Sales	Return on Investment	EBIT/Total Assets	Return on Equity	Total Liabilities/ Equity	Net Financial Position/EBITDA	Financial Debts/ EBITDA	Financial Debts/ Equity	Financial Debts/ Sales	Financial Debts/ Production Value
1	-0.3245	-0.2966	-0.4587	-0.4498	-0.4765	-0.0521	-0.0631	-0.0874	-0.0319	0.2238	0.253
	1	0.9605	0.6066	0.6161	0.3794	-0.1252	-0.0025	-0.0094	-0.0679	-0.054	-0.1021
		1	0.5751	0.5849	0.3599	-0.1212	0.0117	0.0065	-0.0674	-0.0169	-0.0506
			1	0.9845	0.6624	-0.0933	-0.077	-0.0643	-0.084	-0.3134	-0.3362
				1	0.6467	-0.0877	-0.0762	-0.0672	-0.0784	-0.3135	-0.336
					1	0.0411	-0.0466	-0.031	-0.0133	-0.237	-0.2616
						1	0.1697	0.1704	0.7411	0.0466	0.0355
							1	0.9094	0.4485	0.4826	0.4746
								1	0.4323	0.452	0.4434
									1	0.3732	0.3643
										1	0.9745
											1

Source: Own elaboration.

The matrix is composed of six quadrants. The mapping of the quadrants was possible by identifying the average values of the two indicators identified above (EBITDA/Production Value and Financial Debts/EBITDA). In particular, average values are used, which allow to get a stable evaluation of both profitability profile and ability to repay the debt of an individual company. Below we show the formulas used to calculate the average values mentioned above:

$$CAGR = \sqrt{\frac{PV_{n+2}}{PV_n}} - 1 \cong 0\%$$

$$\text{Average Profitability} = \frac{EBITDA_n + EBITDA_{n+1} + EBITDA_{n+2}}{PV_n + PV_{n+1} + PV_{n+2}} \cong 7\%$$

$$\text{Average Financial Debt Ratio} = \frac{\text{Financial Deb}_n + \text{Financial Deb}_{n+1} + \text{Financial Deb}_{n+2}}{EBITDA_n + EBITDA_{n+1} + EBITDA_{n+2}} \cong 5$$

where:

$PV_n$ ,  $PV_{n+1}$ , and  $PV_{n+2}$  = production value developed in the year  $n$ ,  $n + 1$  and  $n + 2$  by all the companies from the analysed sample;

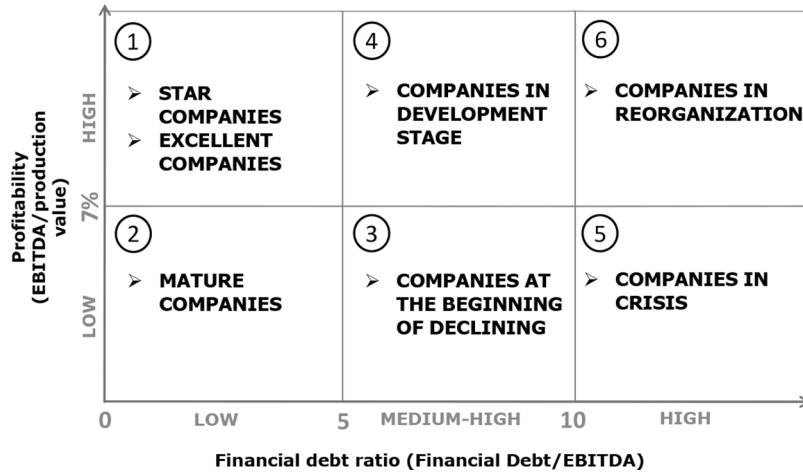
$\text{Financial Deb}_n$ ,  $\text{Financial Deb}_{n+1}$ , and  $\text{Financial Deb}_{n+2}$  = financial debts achieved in the year  $n$ ,  $n + 1$ ,  $n + 2$  by all the companies from the analysed sample;

$EBITDA_n$ ,  $EBITDA_{n+1}$ , and  $EBITDA_{n+2}$  = Ebitda realised in the year  $n$ ,  $n + 1$  and  $n + 2$  by all the companies from the analysed sample;

$n$  = year 2011.

The informative matrix is presented in Figure 1.

**Figure 1** The informative matrix



Source: Own elaboration.

In order to identify the star companies, which differ from those excellent, it was necessary to introduce the growth of production value as a parameter to distinguish them. The CAGR on the production value calculated on the sample of Italian companies is

essentially nil. To identify the Star companies a value growth of 5% was assumed, since the Italian companies have not grown on average.

In the matrix, the three following indicators appear: on the horizontal axis, the financial debt ratio; on the ordinate, profitability; within each quadrant, a 'bubble' graphically appears, which represents the growth (when the companies' average growth is negative, it has been assumed to give these companies an average growth equal to 0.20%, in order to equally identify the position of the bubble in the matrix).

The six quadrants with their characteristics are described below:

- First quadrant - star companies. This quadrant represents star companies, with an average annual growth of more than 5%, average profitability greater than 7% and average financial debt less than 5.
- First quadrant - excellent companies. This quadrant shows excellent companies, with an average annual growth of less than 5%, average profitability greater than 7% and average financial debt less than 5.
- Second quadrant - mature companies. This quadrant represents the mature companies with average profitability below 7% and average financial debt less than 5.
- Third quadrant - companies at the beginning of decline. This quadrant is characterised by average profitability below 7% and average financial debt between 5 and 10.
- Fourth quadrant - companies in development stage. This quadrant refers to the companies with average profitability higher than 7% and average financial debt between 5 and 10.
- Fifth quadrant - companies in a crisis. This quadrant represents companies in a crisis with average profitability below 7% and average financial debt higher than 10.
- Sixth quadrant - companies in reorganisation. This quadrant represents companies in reorganisation with average profitability above 7% and average financial debt higher than 10.

The identification of the fifth and sixth quadrant was necessary because a considerable number of analysed companies has an average financial debt over 10.

In the matrix, within each quadrant, the group of companies belonging to the same quadrant is represented by a bubble. The position of the bubble represents the average profitability and the average of the financial debt ratio of the companies belonging to the quadrant, while the average growth is represented by the size of the bubble itself. In the situation when the average growth of the companies of the quadrant was negative, an average growth equal to 0.20% was assumed, in order to identify the position of the bubble on the graph.

For each quadrant, there were matched financing instruments deemed suitable for companies that belong to that quadrant. To make this combination, we placed the companies into a "model of selection of the financing sources": for this purpose, we referred to the level of acceptance of the same by the financial system, as it allows to identify, with necessary approximation of any taxonomy: the companies which can diversify their funding sources; an instrument or the instruments which are available to meet the financial needs; the type of funding source used between debt and equity.



### 3.2.3 Validation of the matrix

After designing the informative matrix, the model proposed was tested in order to verify its validity with reference to the companies that have resorted to each financing instrument considered by the informative matrix.

Model's evaluation with reference to all of the funding instruments covered by the matrix was impossible, as currently the database containing information about the companies that have used certain funding instruments is not available. Therefore, validity of the model was made with the reference to only those companies which issued the mini-bonds and which are quoted (thus the data are available).

The placement of a company in the various quadrants of the matrix took place by the following steps. For each company, the average values of the three indicators above-mentioned were calculated (except growth, for which an additional average value was not calculated, as the CAGR is already an average growth rate in the 3-year period). The calculation formulas are presented below:

$$\text{CAGR} = \sqrt[3]{\frac{\text{PV}_{2013}}{\text{VDP}_{2011}}} - 1$$

$$\text{Average Profitability} = \frac{\text{EBITDA}_{2011} + \text{EBITDA}_{2012} + \text{EBITDA}_{2013}}{\text{PV}_{2011} + \text{PV}_{2012} + \text{PV}_{2013}}$$

$$\text{Average Financial Debt Ratio} = \frac{\text{Financial Deb.}_{2011} + \text{Financial Deb.}_{2012} + \text{DFinancial Deb.}_{2013}}{\text{EBITDA}_{2011} + \text{EBITDA}_{2012} + \text{EBITDA}_{2013}}$$

The average values calculated for each company are then compared with the cut-off points previously identified in order to determine their placement in the informative matrix.

After placing the companies in the matrix, it was verified whether the companies that have issued mini-bonds and/or that are quoted are placed correctly in the quadrant identified by the model proposed.

### 3.2.4 Application of the matrix to a representative sample

After verifying the validity of the model, it was applied to the second sample. The companies of the second sample were inserted in one of the six quadrants of the matrix, in relation to their economic and financial situation. The place in each quadrant denotes the possibility of using specific financing instruments, also alternative to bank debt.

Once the sampled companies were placed in the matrix, the average value of each of the three indicators for all the companies belonging to that quadrant was calculated. The average values of each indicator (for each quadrant) are calculated in the following way:

$$\text{CAGR} = \sqrt[3]{\frac{\text{PV}_{c2013}}{\text{PV}_{c2011}}} - 1$$

$$\text{Average Profitability} = \frac{\text{EBITDA}_{c2011} + \text{EBITDA}_{c2012} + \text{EBITDA}_{c2013}}{\text{PV}_{c2011} + \text{PV}_{c2012} + \text{PV}_{c2013}}$$

$$\text{Average Financial Debt Ratio} = \frac{\text{Financial Deb}_{c2011} + \text{Financial Deb}_{c2012} + \text{DFinancial Deb}_{c2013}}{\text{EBITDA}_{c2011} + \text{EBITDA}_{c2012} + \text{EBITDA}_{c2013}}$$

where:

$PV_{c2013}$ ,  $PV_{c2012}$ ,  $PV_{c2011}$  = production value developed in the year 2013, 2012 and 2011 by the companies from cluster C;

$\text{EBITDA}_{c2013}$ ,  $\text{EBITDA}_{c2012}$ ,  $\text{EBITDA}_{c2011}$  = Ebitda realised in the year 2013, 2012 and 2011 by the companies from cluster C;

$\text{Financial Deb}_{c2013}$ ,  $\text{Financial Deb}_{c2012}$ ,  $\text{Financial Deb}_{c2011}$  = financial debts achieved in the year 2013, 2012 and 2011 by the companies from cluster C.

$c$  = identifies the quadrant of the matrix and can have values 1, 2, 3, 4, 5, 6.

In the matrix, within each quadrant, the group of companies belonging to the same quadrant is represented by a bubble. The position of the bubble represents the average profitability and the average financial debt ratio of the companies belonging to the matrix, while the average growth is represented by the size of the bubble itself. If the average growth of the companies of a quadrant was negative, it assumed an average growth equal to 0.20% in order to identify the position of the bubble on the graph.

## 4 Findings

The findings are presented with regard to two aspects of observation, which are different but complementary:

- a the use of the matrix for the identification of the most suitable financial instruments for the company
- b the matrix validation
- c the empirical application of the matrix.

### 4.1 The use of the matrix for the identification of the most suitable financial instruments for the company

The proposed model represents a “model of selection of the financing sources” for the company. It allows to identify both the most suitable financial instruments (including the alternative ones to the bank debt) as well as financial entities to which the company can resort.

Among the financial instruments taken into account, the following types have been distinguished:

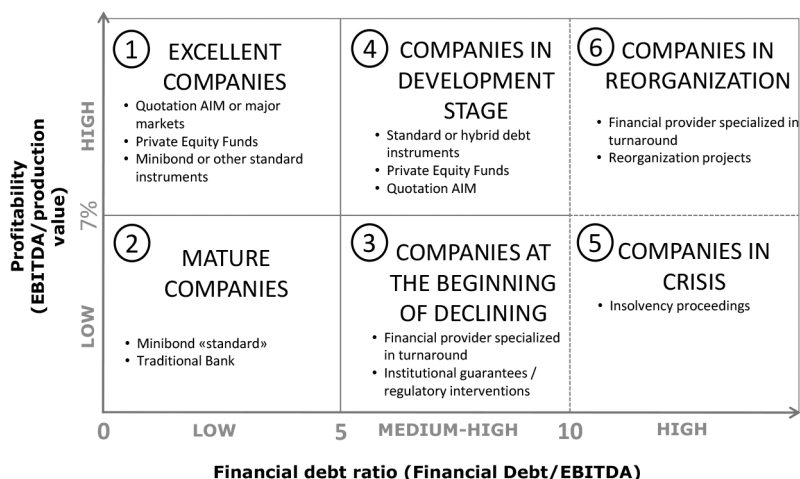
- those debts that are made up of forms of loans with commitment to repay
- those equities that are represented from capital injections without commitment to repay.

In some cases, the companies are forced to choose only one financial instrument, while in other cases there is a wide choice in regards to both the debt and the capital instruments.

As illustrated in the methodology, the proposed model has classified the companies into six quadrants in accordance with the analysis concerning the growth, profitability

and ability to repay debt (Figure 2). For each of the quadrants, the suggested funding instruments are shown.

**Figure 2** The subjective dimension in financing choices



Source: Own elaboration.

By observing the matrix, it is possible to distinguish the following categories of companies:

- investment grade
- high risk<sup>5</sup>.

This classification derives from the credit risk's classification model, similar to the four considered rating agencies (Moody's, Standard & Poor's, and Fitch Ratings - which constitute the best-known global rating agencies - and Cerved, which is more widespread in Italy). In general, the ratings from AAA to BBB are called investment grade, meaning relatively safe investments worthy for institutional investors, while the ratings following BBB are called speculative grade, meaning investments with a high level of risk that are more profitable because of this.

With reference to the investment grade companies, the following categories have been identified, to which the most suitable financial instruments have been matched:

- Star companies and excellent companies (Quadrant 1), which are characterised by good levels of the principal financial-economic indicators, with particular reference to profitability and the financial debt ratio. In context of the first quadrant, the so-called star companies have been distinguished, which are characterised by high growth levels. Given their state of health, they have the possibility to use (in alternative of the banking channel) multiple financing instruments such as debt (mini-bond or commercial paper) standard or hybrid<sup>6</sup>; recourse to the capital market through private equity firms; the listing on the major or minor markets (AIM). These companies, in general, do not have problems to access credit even from the banking channel.

- b Mature companies (Quadrant 2), meaning the companies, which show an erosion of profitability, but are still benefiting from modest debts.

The main contact is the banking system (where considerations are based on historical values), but they can also access the mini-bond in its standard form<sup>7</sup>.

In reference to high-risk companies, the following categories have been identified:

- a Companies at the beginning of decline (Quadrant 3) are characterised by medium-high levels of debt and low profitability. These companies have obvious difficulties in accessing credit from the banking system. The same applies to the access to financial markets, in regards to both debt and capital (except in cases where a recovery process<sup>8</sup> is started and is directed to specialised interlocutors in financing companies with high levels of debt). The only parties potentially interested in investing are those that operate in context of crisis or the beginning of crises: for example, private equity funds or funds specialising in the acquisition of distressed debt, meaning the acquisition of equity capital in non-performing companies.
- b Companies in the development stage characterised by high profitability and potential growth, but with medium-high levels of financial debt ratio (Quadrant 4). The hybrid debt or equity instruments; private equity operators; and the listing on smaller markets can be used (if the necessary information support exists in order to prospects).
- c Companies in a crisis characterised by a high financial debt ratio and low profitability (Quadrant 5). These companies are in an advance state of crisis, and are subject to bankruptcy procedures, which often involve the liquidation of a company's assets. They do not have the ability to access bank loans and alternative financial instruments to bank debt due to negative judgments on both the creditworthiness (due to a highly tensioned financial situation) and the development prospects of the business, as characterised by loss of turnover.
- d Companies in reorganisation characterised by high debt levels and higher profitability (Quadrant 6). These are distressed companies that have identified and initiated an industrial reorganisation process. These companies have the possibility of access to credit, both through bank or derived from other forms of financing or through the assistance of a financial provider specialising in turnaround.

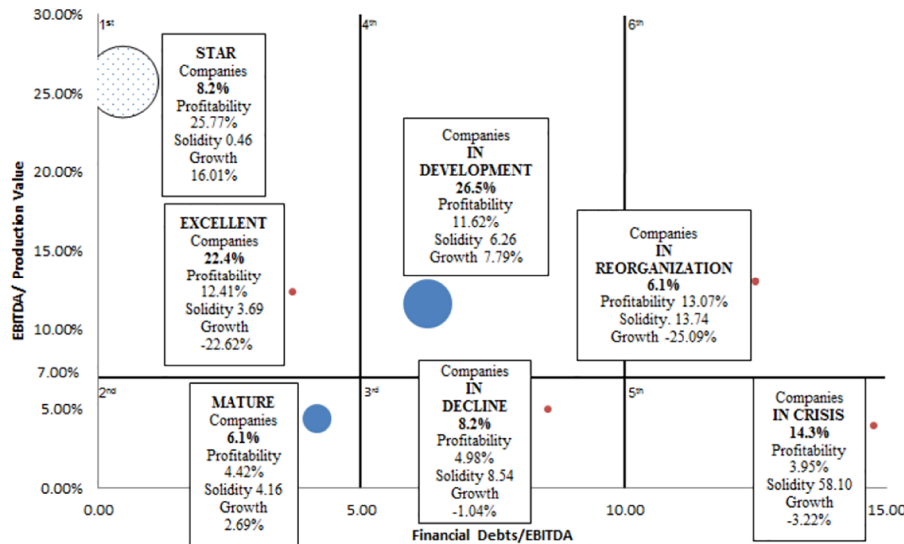
#### *4.2 The matrix validation*

In order to validate the informative matrix, an empirical application was made on the companies that have issued mini-bond and/or are listed during 2013 and 2014.

##### *4.2.1 The companies that have issued mini-bonds*

Afterwards, the companies that have issued mini-bonds are placed in the matrix (Figure 3).

**Figure 3** Informative matrix for companies that have issued mini-bonds (see online version for colours)



Source: Own elaboration.

From the graph analysis and by dividing the companies between investment grade (that are those characterised by a financial debt/EBITDA ratio  $\leq 5$ ) and non-investment grade (financial debt/EBITDA ratio  $> 5$ ), we got the following results (Table 3).

**Table 3** Distinction of companies that have issued mini-bond between investment grade and non-investment grade companies

Categories of companies in the informative matrix	Investment grade companies		Not investment grade companies	
	No.	Percentage	No.	Percentage
Star companies	4	8.16		
Excellent companies	11	22.45		
Mature companies	3	6.12		
Companies at the beginning of decline			4	8.16
Companies in development			13	26.53
Companies in a crisis			7	14.29
Companies in reorganisation			3	6.12
<b>Total</b>	<b>18</b>	<b>36.73</b>	<b>27</b>	<b>55.10</b>

Source: Own elaboration.

The table shows that the most populated quadrant is the first one (which, according to the model, contains the companies with suitable mini-bond's issue; in fact, in this quadrant 30.61% of the companies (15 companies) are concentrated. In particular, four of them (16.8%) have developed a profitability of more than 7% and a financial leverage ratio of less than 5, and have also recorded much higher growth of the parameter of 5% used for the analysis, which is equal to 16%. In compliance with the theoretical model are also the

companies classified in the second quadrant, which represents 6.12% of the analysed companies.

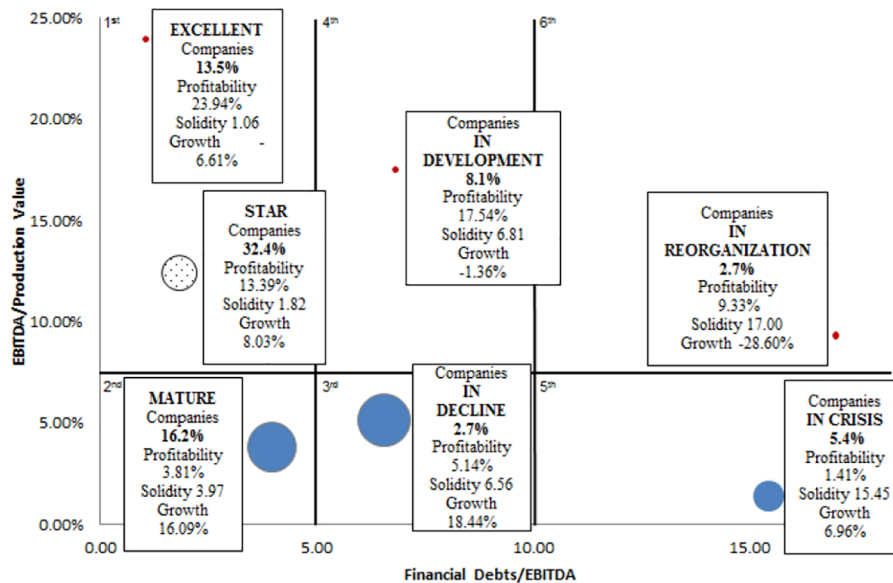
A total of 26% of the companies that have issued mini-bond is placed in Quadrant 4 (companies in development); they have recorded (on average in the 3 years considered) a profitability above 7% (equivalent to 11.62%), a financial debt ratio between 5 and 10 (6.26), and a significant growth (equal to 7.79%). It is also interesting to note, that 11 companies have been able to issue mini-bonds while having low indicators. In particular, seven of them (14.29% of the sample analysed) have recorded a relatively low profitability (3.95%) and a very high debt ratio (58.10)<sup>9</sup>.

Four companies (8.16%) of the sample analysed are not represented in the graph, as they have recorded EBITDA below zero and therefore would not be able to generate the necessary resources to repay the debt contracts.

#### 4.2.2 Listed companies

Listed companies are introduced in Figure 4. From the graph analysis and by dividing the companies between investment grade (those characterised by the financial debt/EBITDA ratio  $\leq 5$ ) and non-investment grade (financial debt /EBITDA ratio  $>5$ ), we got the following results (Table 4).

**Figure 4** Informative matrix for listed companies (see online version for colours)



Source: Own elaboration.

**Table 4** Distinction of listed companies between investment grade and non-investment grade companies

<i>Categories of companies in the informative matrix</i>	<i>Investment grade companies</i>		<i>Not investment grade companies</i>	
	<i>No.</i>	<i>Percentage</i>	<i>No.</i>	<i>Percentage</i>
Star companies	12	32.43		
Excellent companies	5	13.51		
Mature companies	6	16.22		
Companies at the beginning of decline			1	2.70
Companies in development			3	8.11
Companies in a crisis			2	5.41
Companies in reorganisation			1	2.70
<b>Total</b>	<b>23</b>	<b>62.12</b>	<b>7</b>	<b>18.92</b>

*Source:* Own elaboration.

It emerged that 54.05% of the listed companies are presented in the quadrants which, according to the model, contain the companies with suitable listings of them. In fact, 45.94% (17 companies) is placed in the first quadrant (like the star companies and excellent companies). In particular, 12 of them have developed, on average in 3 years considered, a profitability over 7% and financial leverage ratio of less than 5, and have also recorded a much higher growth of the parameter of 5% used for the analysis (and is equal to 16%). Further, three companies are classified in the fourth quadrant which is characterised by medium-high indebtedness (on average 6.81) and a high profitability (on average 17.54%).

However, six companies (16.22% of the sample) are placed in the second quadrant; they have developed, on average, a profitability of less than 7% (3.81), a financial debt ratio of less than 5 (3.97) and a very high growth of 16.09%, placing them as mature companies.

Opposed to the companies which have resorted to the mini-bonds, only three companies are placed in the Quadrants 3 and 5, as the companies in the beginning of decline or already have a crisis.

Seven companies are not presented in the table and graph, as they have registered an Ebitda below 0 and, as a consequence, would not be able to generate resources necessary to repay the financial debt's contracts.

### 4.3 *The empirical application of the matrix*

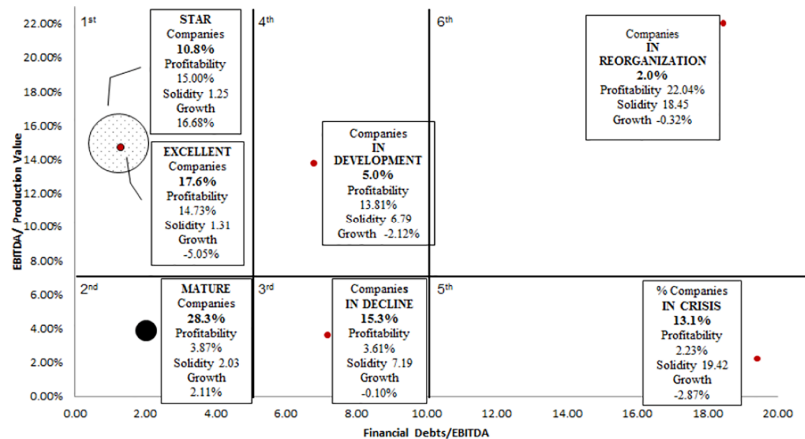
The application of the matrix was carried out with the reference to:

- a Italian companies of the sample
- b Lombardy companies of the sample.

The research was conducted on the sample of 41,344 Italian companies. Figure 5 presents the position of the companies in the informative matrix. The graphical representation allows to perform the three-dimensional analysis of each quadrant; in particular, the position of the bubble indicates the average values of profitability and the ability of

financial debt's repayment by the companies placed in one of the quadrants, while its dimension takes into account the quadrant's average growth.

**Figure 5** The informative matrix for Italian companies (see online version for colours)



Source: Own elaboration.

It emerged that in the first quadrant of the matrix that 28.40% of the analysed sampled companies had recorded a decrease: 10.8% of them had a growth of over 5%, classifying them as star companies, while remaining 17.60% are characterised by a growth of less than 5%, and even negative (equal to  $-5.05\%$ ). The star companies are characterised by a high average profitability (15.00%) and low average ability of the financial debt's repayment (1.25). The remaining companies pertaining to the first quadrant have instead a little bit lower annual average income in comparison to the previous companies (14.73%) and a slightly higher average debt ratio equal to 1.31.

A relevant part of the Italian companies (28.3%) is placed in the second quadrant, characterised by an average profitability of less than 7% (precisely equal to 3.87%), average ability of financial debts repayment of less than 5 (2.03) and an annual average positive growth equal to 2.11%.

A total of 15.3% of the Italian companies is located in the third quadrant instead, with Ebitda/production on average of 3.61% and an average financial debt ratio of 7.19. Moreover, all of the companies register an annual average growth a little below 0, equal to  $-0.10\%$ .

Further, 5% of the Italian companies analysed are placed in the fourth quadrant, recording quite a high average profitability of 13.81%, but its financial debts ratio is over 5 (equal to 6.79). Moreover, all the companies have a negative annual average growth of  $-2.12\%$ .

In the fifth quadrant, 13.1% of the Italian companies are placed, which are characterised by a lower profitability in comparison with other quadrants (2.23%), higher average financial debts ratio (19.49) and negative growth of  $-2.87\%$ .

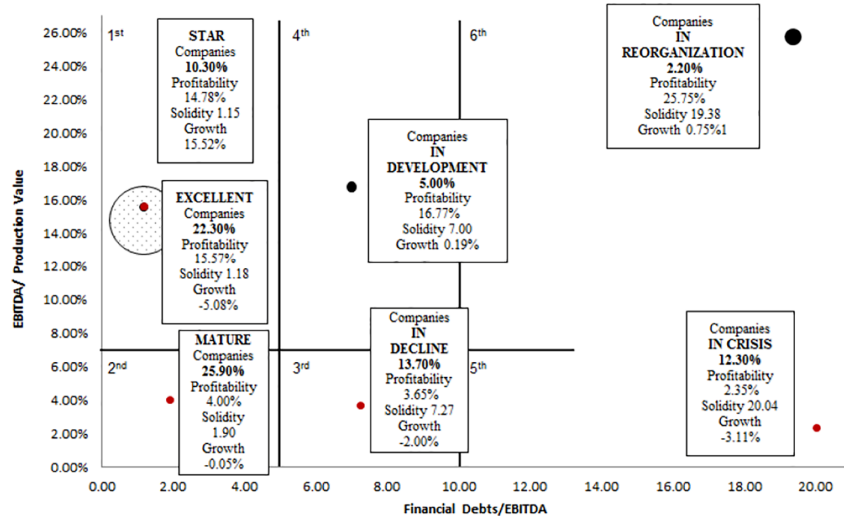
The sixth quadrant is the less populated, where 2% of the sample is placed. These companies are characterised by higher profitability in comparison with other quadrants (22.04%), but they have a really high financial debts ratio (18.45) and an annual average growth a little below 0 ( $-0.32\%$ ).



The graph does not present the remaining 3,228 Italian companies, whose Ebitda was negative and as a consequence did not generate resources necessary to repayment of the financial debt contracts.

Subsequently, the research was conducted on a sample of 8,958 Lombardy companies. Figure 6 represents the position of the companies in the informative matrix.

**Figure 6** The informative matrix for Lombardy companies (see online version for colours)



Source: Own elaboration.

It emerged that in the first quadrant of the matrix, 32.6% of the analysed Lombardy samples had decreased. The 10.3% had a growth over 5%, and were classified as star companies, while the remaining 22.3% was characterised by a growth less than 5% and negative (equal to  $-5.08\%$ ). The star companies are characterised by a high average profitability (14.78%), and recorded a low average ability of financial debts repayment (1.15). However, the remaining companies from the first quadrant have an annual average profitability slightly higher in comparison with the previous one (15.57%) and an average financial debts ratio basically the same (1.18).

A total of 25.9% of the companies are placed in the second quadrant and is characterised by an average profitability of less than 7% (4%), an average ability of financial debts repayment of less than 5 (1.9) and an annual average growth a little below 0 ( $-0.05\%$ ).

A total of 13.7% of the sample are located in the third quadrant, with Ebitda/production ratio on average of 3.65% and financial debt ratio of 7.27. These companies registered a negative annual average growth of  $-2\%$ .

Further, 5% of the companies is placed in the fourth quadrant, registering an average profitability equal to 16.77%, even higher in comparison with those registered by the companies from the first quadrant, but their average financial debt ratio is over 5 (equal to 7). Moreover, these companies have an annual average growth above 0 (0.19%).

A total of 12.3% of the companies is placed in the fifth quadrant, characterised by lower profitability compared to other quadrants (2.35%), higher average financial debt ratio (20.04) and a negative growth of  $-3.11\%$ .

The less populated quadrant is the sixth, where the remaining 2.20% of the companies are located. These companies are characterised by higher profitability in comparison with other quadrants (25.75%), but they have a very high average financial debt ratio (19.38) and an annual average growth above 0 (0.75%).

The remaining 743 companies are not presented, which recorded negative profitability and as consequence did not generate resources necessary to repay the financial debt contracts. It is interesting to compare the results obtained in the analysed geographical areas. The main results are shown in Table 5. Table 6, for each quadrant, shows the comparison of indicators used in the survey in the different geographical areas analysed.

**Table 5** Comparison Italy/Lombardy: analysed companies' position in the informative matrix

Categories of companies in the informative matrix	Italy (number of companies)		Lombardy (number of companies)	
	No.	Percentage	No.	Percentage%
Star companies	4,466	10.80	921	10.28
Excellent companies	7,278	17.60	2,000	22.33
Mature companies	11,704	28.31	2,318	25.88
Companies at the beginning of decline	6,340	15.33	1,231	13.74
Companies in development	2,076	5.02	448	5.00
Companies in a crisis	5,436	13.15	1,102	12.30
Companies in reorganisation	816	1.97	195	2.18
Negative Ebitda	3,228	7.82	743	8.29
<b>Total</b>	<b>41,344</b>	<b>100</b>	<b>8,958</b>	<b>100</b>

Source: Own elaboration.

**Table 6** Comparison Italy/Lombardy: profitability, financial debt ratio and growth of the companies analysed in the period 2011–2013

Categories of companies in the informative matrix	Profitability		Financial debt ratio		Growth	
	Lombardy (%)	Italy (%)	Lombardy	Italy	Lombardy (%)	Italy (%)
Star companies	14.78	15.00	1.15	1.25	15.52	16.68
Excellent companies	15.57	14.73	1.18	1.31	-5.08	-5.05
Mature companies	4.00	3.87	1.90	2.03	-0.05	2.11
Companies at the beginning of decline	3.65	3.61	7.27	7.19	-2.00	-0.10
Companies in development	16.77	13.81	7.00	6.79	0.19	-2.12
Companies in a crisis	2.35	2.23	20.04	19.42	-3.11	-2.87
Companies in reorganisation	25.75	22.04	19.38	18.45	0.75	-0.32
Negative Ebitda	-5.03	-6.35	-8.31	-7.19	-9.68	-7.43
<b>Total (weighted average)</b>	<b>7.71</b>	<b>6.65</b>	<b>4.24</b>	<b>4.73</b>	<b>-1.19</b>	<b>0.17</b>

Source: Own elaboration.

The comparison between the two samples (those about the Italian companies, and those about Lombardy companies) demonstrates that Lombardy's star companies have a lesser representative percentage compared to the companies in the national territory (10% in Lombardy and 11% in Italy). On the contrary, Lombardy's excellent companies have a higher percentage than those in Italy (22% in Lombardy and 18% in Italy). Finally, we observe that Lombardy's companies are located in similar or lower percentage in comparison with Italian ones in all of the quadrants of the matrix, except the first one.

In terms of growth, Lombardy companies shows an overall decrease in comparison with Italian companies, which recorded a stable trend (-1% vs. 0% nationally). In terms of profitability, we observe that the overall average of Lombardy's companies are almost in the line with the trend recorded by Italian companies; in particular, the excellent companies, in development and reorganisation, have higher profitability than Italian companies. In terms of financial debt ratio, instead, in the first 2 quadrants Lombardy companies are less indebted than Italian ones but are more indebted in other quadrants.

## 5 Discussion

The results of the survey will be discussed with reference to the following observation aspects recognised before:

- a use of the matrix to find the most suitable financial instruments
- b the matrix validation
- c empirical application of the matrix.

First we refer to the use of the matrix to find the most suitable financial instruments. According to the investment grade companies, the following categories of the companies have been identified, to which the most suitable financial instruments have been combined:

- a Excellent and star companies (Quadrant 1) characterised by high values of the principle economic-financial indicators, with particular reference to profitability and financial debt. Within the first quadrant, the so-called star companies have been distinguished, characterised by high growth values. It is said that they can resort, in alternative, to banking channels (with which in general they do not have problems with the access to credit), to multiply financial instruments such as debt (mini-bonds or commercial paper) standard or hybrid<sup>10</sup>; recourse to the capital market through private equity firms; the listing on the major or minor markets (AIM). For the banking system, the companies placed in this quadrant are the most interesting and challenging clients: interesting because credit to them generates a high return - much higher than in any other quadrant; challenging because they require financial needs and services which go far beyond credit (e.g., hedging of currency risks, management of global payment flows, management of investment projects, internationalisation, etc.), which requires the bank to be a strongly international organisation, capable of delivering a range of diversified products and able to provide, when it is necessary, a significant credit amounts at competitive prices. Italian companies located in this quadrant are around 28.4%. It is observed that

Lombardy companies are more virtuous than the national average, and 32.6% of them are classified in the first quadrant.

- b Mature companies (Quadrant 2) constitute the companies in the mature phase or in a crisis. These companies would need to return to growth by investing in innovations and entering in new markets, eventually divesting those which today do not bring any benefit in economic-financial terms. They are characterised by the erosion of profitability, but benefiting from a modest indebtedness they can access both the banking system (which bases its considerations on the historical values) and mini-bond instrument in its standard sense. In both cases they should have available clear and sustainable development plans with the support of financial operators able to define the most appropriate economic-financial packet for the developed investment plans and able to present those plans to possible external funders. On the contrary, those companies are not attractive for funders who are looking for investments characterised by high growth and development rates: it means that those companies, only in a modest way can resort to the capital markets, with reference to both listing and the use of private equity as well. The mature companies account for about 28% of the Italian companies in the sample. A total of 56.71% of the Italian companies are classified as investment grade companies.

With reference to the high-risk companies, the following categories have been identified:

- a The companies at the beginning of decline (Quadrant 3), which are characterised by high debt level and low profitability. According to them, for several years the banking system has presented a process of disengagement from these positions. Financial markets also (with regard to both debt and capital) present a certain reticence: it does not happen if the company has initiated the reorganisation process and is dealing with partners specialised in financing companies with high levels of debt. A total of 15.33% of Italian companies are at the beginning of decline.
- b Developing companies, characterised by high profitability and a potential growth, but with medium-high levels of debt (Quadrant 4). Although there are companies in which abundance of a credit could contribute effectively to development, they have a problem in accessing the banking system and using those instruments because the assessments of the creditworthiness is based on historical elements (standard mini-bonds). It is said that the most useful financial instruments can be hybrid debt or equity instruments, the use of private equity operators and, in residual way, listing on the minor markets. Despite the fact that they could be potentially interesting also for the banking system, these companies do not always receive the credit and all the variety of services which they need to finance the growth through the fix investment and working capital: indeed, banks, investors and funders are usually linked too much to the company's creditworthiness assessment, which is based only on historical elements, without taking into account the real large industrial potential of the company's growth. These companies suffer the most because of the information asymmetries in the communication with financial system, which usually does not have the elements of judgment to support such an investment in capital/debt of these realities. A total of 5.02% of Italian companies are classified as companies in development.

- c The companies in a crisis are characterised by high financial debt ratio and a low profitability (Quadrant 5). Because of negative assessment on both creditworthiness (due to a highly tensioned financial situation) and on the development prospect of the activity, they do not have access to banking credit and alternative financial instruments to the bank debt. The application of the model shows that 13.15% of Italian companies are in a crisis.
- d The companies in reorganisation are characterised by high profitability and high levels of debt (Quadrant 6). Being companies in a crisis, which have identified and initiated the reorganisation process, they have possibility to access banking credit as well as derive from other forms of financing, through the assistance of the financial operator specialised in turnover. The reorganisation and revitalisation projects would need to resort to the capital of higher risk deriving from the shareholders and professional investors and/or institutional investors to finance major changes in production, in the range of offered products, in management and company organisation, and all the other short-term reorganisation operations necessary to find economic-financial equilibrium. Company restructuring plans also require support from the banking system, but not in terms of indiscriminate supply of a credit (at the risk of financing unsustainable situations), but to finance and support the development of the working capital. The model classified 1.97% of the Italian companies as companies in reorganisation.

With reference to the second aspect observed (validation of the matrix), results are as follows:

a Companies who have issued mini-bonds

A representative number of companies who have issued mini-bonds (36.73%) are classified in the quadrants deemed appropriate by the model to issue this instrument. The remaining part of the companies are classified in the other quadrants of the matrix. These results do not indicate the non-validity of the theoretical model; on the contrary, first they are affected by a limited number of the companies analysed because the model is taking into consideration only quantitative and historical variables. As a result, it does not consider both the specific characteristics of the company, for example, originality of the company's brand, as well as ongoing or planned investment projects, which could lead to a strong discontinuity of the future company's performance compared to the past. Such reasoning requires an analysis carried out on one company by one.

b Companies who have been listed

The model shows that 54.05% of the listed companies analysed are placed in the quadrants which identify the companies appropriate to listing. The results obtained are partly consistent with the theoretical model. We can see that a further 16.2% of the companies analysed are classified in the second quadrant, what means the solid companies from the financial point of view but unprofitable in the same time. These companies are however characterised by a high average growth, indicating in this case that the specific characteristics of the company and the new projects can exceed, in the specific case, the low levels of profitability.

With reference to the third aspect observed (the empirical application of the matrix), it was found that the degree of effectiveness of alternative financing instruments to the

debt is, at present and with reference to Italy, quite small for a number of reasons, such as:

- Limited number of companies that can potentially access those instruments. Empirical analysis shows that by applying evaluation methods commonly shared by financial investors, the number of companies that meet the requirements for access to the debt market is a small minority in comparison with the total number of potentially interested companies.
- Conversely, the audience of individuals who could potentially be interested in diversifying their sources of funding compared to the bank debt (as they have difficulties with access to the bank) do not find the potential approval by the financial market, as they are classified as non-investment grade. These companies are located in Quadrants 3 (at the start of decline), 4 (in development), 5 (in a crisis) and 6 (in reorganisation) of the informative matrix (meaning those characterised by a ratio of financial dependence from the third parties higher than 5, although even with a high profitability, in Quadrants 4 and 6) and represent the cases with positive profitability.
- With regard to the companies from the previous point, they could potentially use those debt or capital instruments, where the underwriter focuses his/her assessment using the historical values, but overall considering in the relevant way the weight of estimated economic and financial results. The reference is to the hybrid debt instruments or the listing at the AIM. It is considered relevant to report ongoing debate in relation to assumed state intervention. This intervention should allow, to the latter, to accept such issuer companies with less economic and financial standing in comparison with those accepted today.

Developed analysis has therefore the permission to propose the following final considerations:

- The companies which pursue a careful policy on funding sources deriving from the bank are, in general, those which show higher growth rates and better profit performance. The companies must, therefore, strive to pursue growth paths necessarily consistent with the self-financing and/or with the shareholder's ability to contribute resources in the form of equity.
- The innovative financing instruments (from the point of view of both capital of risk as well as debt) can play an important role in accelerating the ongoing process of change with disengagement of the banking system from the companies' financial needs. However, the expected impact cannot be immediate for reasons related to both the culture of enterprises (which significantly does not prove to have the necessary maturity to seize the opportunities offered to them in terms of funding) and the non-perfect functioning, in the present, of the capital market.
- In the short term, banking channel will continue to be the main interlocutor of the companies' financial choices for both a clear need of protecting its receivables against already entrusted companies and because it presents, to date, the most flexible and economic entity, to which companies can resort to meet the financial needs. In the long term, it is believed instead that the role of the traditional bank will affect a major downsizing, especially with regard to financing of fixed investments.

It seems therefore relevant to assume, even from today, the familiarity with the alternative financial instruments to the bank's one, having clear the rules of the game necessary to access the capital market.

In conclusion, the matrix we proposed permits to select the financial sources, in order to choose the most appropriate financing methods for a small and medium-sized companies.

## **5 Conclusion, implication and limitations of the research**

The financing instruments used by the company can be classified in the following categories:

- a debt financing instruments
- b capital financing instruments.

In the case of potential use of both instruments, the company has to choose one of them and orient itself on instruments from the first case (debt) or from the second one (capital) or from a mixed solution.

Although it cannot comprehensively identify the underlying factors in its choice, it is possible to identify some elements of reflection to be considered in the choice of financing instrument:

- Sharing the company's development projects. The choice of covering the financial needs by capital raising needs a strong sharing of the company's development projects with potential funders/shareholders, in the way which attracts professional investors. On the other hand, resorting to the debt forms requires only a moderate sharing of the strategy and business plans. This distinction assumes the maximum intensity with the banking system where, in the presence of the operators with a high credit assessment, the company's perspectives are not even considered in the process of identification the credit assessment and credit providing. The assessment in reference to capacity of debt repayment is carried out with the assignment of a synthetic judgment or rating.
- Modification of the corporate governance. The choice of debt financing sources does not require an enlargement of the governance, as it is required in the case of resorting to the capital market with the possible entry of new shareholders to the governance. In the latter case we often can see the entrance in the governance of the company directors indicated by new shareholders or independents, as there are developed processes of selecting the transparent management realised in order to provide to the market the highest professionalism.
- The way of evaluating the business project. In the case of instruments based on debt, evaluation of the credit ability is primarily conducted on the base of historical results and through the instruments and standardised techniques of rating calculation. In the case of resorting to the capital market, evaluation is based on both historical performance and provisional forecasting values, synthesised in the business and financial plans.

The financial market (in the form of capital and debt financing) presents development margins in terms of both number of actors who may operate and regulatory framework facilitating the use of innovative financing instruments (e.g., mini-bonds).

The degree of effectiveness of the alternative financing instruments to the debt appears quite modest, at the present and with reference to the analysed space-time context, for a number of reasons, such as:

- The limited number of companies which can potentially access these instruments. Empirical analysis shows that by applying evaluative criteria commonly shared by financial investors the number of companies which meet the requirements of the access to the debt market (referring to all existing financing instruments) represents a small minority in comparison to the total number of potentially interested companies.
- On the other hand, the audience of companies which, having difficulty in accessing the banking system, could be interested in diversifying the financing sources in relation to the bank debt, do not find the potential approval of the financial market, as they are not classified as investment grade companies. These companies are located in Quadrants 3 (at the beginning of decline), 4 (in development), 5 (in a crisis) and 6 (in reorganisation) of the proposed informative matrix.
- Referring to the companies from the previous point, they could potentially use these debt or capital instruments where the subscriber bases his/her assessment using historical values but, above all, considering in a relevant way the weight of the forecasting economic and financial results. It refers to the hybrid debt instruments or the listing at the AIM.

Therefore, the following final considerations should be stated:

- The companies, which pursue a prudent policy according to the banking financing sources, are those, in general, which show a higher growth rates and better profit performance. The companies must, therefore, strive to pursue the growth paths necessarily consistent with the self-financing and/or with shareholders' ability to provide capital resources.
- The innovative financing instruments (from the point of view of risk capital and debt, as well) can play an important role in accelerating the process of change about the actual disengagement of banking system from the companies' needs. The expected impact cannot be immediate for both reasons related to the culture of enterprises (which significantly does not have necessary maturity to size the opportunities offered to them in terms of financing), as well as for non-perfect functioning of the capital market to date.
- In the short term, the banking system will continue to be the main interlocutor of the companies' financial choices, both for a clear need to protect its receivables against already entrusted companies and because it represents, so far, the most flexible and economic entity to which the companies can resort to meet their financial needs. In the long term, it is believed that the role of the traditional bank will suffer a relevant downsizing, especially with regard to the financing of fixed investment. For this reason, it seems relevant to assume, even from today, familiarity with alternative financing instruments to the bank, having clear ground rules necessary to access the capital market.



- The companies analysed who resorted to mini-bonds and those that are listed on regular markets are not always placed in the model as excellent companies. In particular, the 63% of the companies that have issued mini-bonds and 38% of those listed are considered as non-investment grade. This confirms the fact that the starting economic and financial situation of the company does not always limit the resort to channels different from bank ones; in other words, access to alternative financial instruments depends also on the business plan of the company and on its ability to present it to the financial system.

The model proposed, whose theoretical proposition has been supported by empirical analysis of a significant number of Italian companies, is characterised by a series of theoretical and practical implications.

With reference to the theoretical implications, the research can represent a contribution to the scientific debate for a number of reasons:

- Subject of the observation is exceptionally topical, as it increases an opportunity of transition from a situation characterised by the predominance of a banking channel in financing of small and medium-sized enterprises to its potential replacement with alternative forms of financing. This change has a potential impact not only on the processes of growth and competitiveness of the companies, but also on corporate culture, on adoption of the planning and control instruments and on the use of economic-financial communication instruments. The proposed model shows the way which companies could follow in order to make right choices in terms of financing methods, according to their economic and financial situation.
- The circumstances which are favouring this step are concentrated on a short period of time, both from a regulatory point of view and from the different functioning of the markets as well. This resulted in a modest contribution of the literature on the specific issue. Indeed, the actual changes in the financial markets and in the regulatory context could be used by the companies only if they are linked to adjustments into their financial culture.

With reference to the implications of a practical nature, the following results are distinguished:

- With reference to the companies: research presents a general model created to identify the potentially usable financing instrument, articulating the same in function of some relevant dimensions, which characterise each individual company. Second, it is necessary to hope that the companies commit themselves to undertake a path towards virtuous positions in terms of economic and financial situation. To reach this purpose, it is necessary that the company understands that the financial markets' actual situation (the high quantity of finance for the investments grade companies from banking systems) is going to change very quickly, and the Italian situation will be the same of other countries with low presence of banks, as the source of financing of the company.
- With reference to the legislature: it appears the need, even though appropriate government's security interventions, of reducing the selectivity in evaluation of companies' suitability, to access to these alternative instruments. It would be also interesting to introduce a mechanism of rewards and incentives for companies, with a

prospect of not a short term, adopting advanced management logics and instruments approached to reduce information asymmetries with the financial community and professional investors. In a starting period, it should be useful that the Italian government provides a financial guarantee to support the change from banking to financial investors in their financing process.

Finally, the research shows some limitations which, nonetheless, do not affect significantly the conclusion and proposed observations. One of the limitations is linked to the use of only three indicators to evaluate the economic and financial situation of the company; however, it is justified by a strong correlation with the economic and financial situation of the company. In this context, it would be appropriate to use a system of indicators, which enable to make the most of the peculiarities and characteristics of each company. Another limitation concerns the sample size used to test the theoretical model. Indeed, the number of the companies that have issued mini-bonds is limited because the instrument in Italy represents a novelty introduced since 2012 and in the sample are present all of the companies which have issued mini-bonds until the reference date of the analysis. For consistency (the mini-bond emissions were carried out in 2013–2014), it was decided to consider the companies listed during the same 2-year period. Lastly, a further limitation of the model concerns the fact that it is based on only quantitative variables and does not consider qualitative variables, such as investment projects, the brand's originality, market share and other important variables, which describe the company's business that might be relevant in the determination of the financing sources to which the firm can resort.

Subsequent developments of the research will be concentrated on increasing the structure of a model of communication between the company and the financial community able to overcome both the informational asymmetries existing so far between the economic system operators (companies and operators of the financial system) and the current situation which is often mutual distrusted. In addition, subsequent research developments will be concentrated to deepening ongoing analysis, comparing the picture that emerged relatively from Italy with that emerging from other industrial advanced countries, and to evaluate the evolution in time of economic and financial situation of the analysed companies within the model proposed. It would be of particular interest to investigate a number of aspects, such as the shift of companies from one quadrant to another one over the time; the most stable quadrants, meaning those quadrants characterised by a lesser degree of companies' movement; conversely, the quadrants characterised by a greater degree of movement.

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## Notes

<sup>1</sup>The identification of the companies which have issued mini-bond derives from research conducted by Politecnico di Milano (MIP), presented in “*The first Italian Report about mini-bond*”. The publication is available on the following website: <http://www.borsaitaliana.it/pro-link/newsdeventi/reportminibondosservatoriopolitecnico25022015.pdf>. The identification of the quoted companies derives from the website of Italian Stock Exchange: <http://www.borsaitaliana.it>.

<sup>2</sup>The difference between those two numbers is due to the fact that some of the companies have issued mini-bond several times on different data.

<sup>3</sup>In the Aida-Bureau van Dijk database (used for carrying out this analysis), financial statements from 2011, 2012, and 2013 deposited by the remaining 37 companies were not in detail; therefore, it was impossible to include them in the analysis.

<sup>4</sup>The difference between those two numbers is due to the fact that 13 companies have not possessed detailed financial statements necessary for the analysis.

<sup>5</sup>With specific reference to the ability of repaying its debt, the calculated indicator is consistent with the suggestions made by the European Central Bank (ECB) to individual nation’s banks to classify the companies (assigned) as *high risk*. The ECB has provided, with reference to *asset quality review*, the credits of the main European banks, which “*trigger event*”, the presence, among others, of financial debt to EBITDA ratio greater than 6. See the European Central Bank (March 2014), *Asset Quality Review. Phase 2 Manual*, pp.100 et seq.

<sup>6</sup>The mini-bonds are not defined as ‘one-size-fit-all’. In general, they are distinguishable in ‘standard’ instruments and ‘hybrids’. The first ones are subscribed by companies with excellent economic and financial conditions, while the second ones can accept situations with some reservations, as subscribers are potentially interested in the company’s performance and in the company’s value, also prospective one.

<sup>7</sup>They refer to the emission of mini-bonds without guarantee or conversion clauses. In financial terms, it is possible to discuss also about mini-bond Plain Vanilla.

<sup>8</sup>According to the subject, refer to Giacosa and Mazzoleni (2012), *Il progetto di risanamento dell’impresa in crisi*, cit.

<sup>9</sup>The average value is significantly influenced by debt ratio of two companies in crisis; by removing such companies, the average drops to 18.06.

<sup>10</sup>The mini-bonds are not considered as “one-size-fit-all”. In general, they are distinguishable in “standard” instruments and “hybrids”. The first ones are subscribed by companies characterized by historical financial indicators expressing excellent economic and financial conditions, while the second ones can accept situations with some reservations, when subscribers are potentially interested in the company’s performance and in the company’s value, also prospective one.