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Why small and medium-sized firms tend to make recourse to external debt: An investigation into an Italian sample

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The purpose of this research is to identify the determinants impacting companies' financial structure in SMEs belonging to different economic sectors. The research is due to the current situation which characterizes the banking system and the companies' environment. Within this context, both companies and stakeholders need to identify the determinants impacting these companies' financial structure in order to optimize their decisions in terms of short and medium-long term goals and internal/external sources. In a previous research, the frame work of this study has been presented in which some variables impacting companies' financial structure have been identified. Finally, our sample is composed of 12,175 Italian companies; 2% of them are bankrupt; 97% have external debts. The present research identifies the relationship between variables introduced by the literature on the level of indebtedness. In particular, the following variables have been analysed to assess their impact on suitable funding methods: The growth of the company, the attitude to repaying financial debts, the companies' financial situation, their age, size, intangible assets ratio, and economic sector. The present research has some interesting theoretical and practical implications, along with some limitations linked to the sample and research method.

Key words: Debts degree, indebtedness, small and medium companies.

INTRODUCTION

The growth of small and medium-sized companies is a phenomenon of great interest in the literature, and financial structure influences a company's growth; indeed, the difficulty in finding and then maintaining adequate financial resources can be an obstacle to this growth.

The changed economic context as well as the progressive disengagement of the banking system towards financing enterprises for long-term investments has recently (since 2008) facilitated a series of regulatory measures aimed at introducing some alternative financial instruments in the banking channel, and the development of the same in the financial markets (Mazzoleni and Giacosa, 2017).

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Companies' financial structure has been strongly investigated, starting from the Modigliani and Miller theory (1958) and followed by different theories. However, most of the studies focus on the big listed companies and pay less attention to the small and medium-sized enterprises (SMEs), which represent a significant reality as they contribute 58% of European added value and their employees represent 67% of the workforce at a European level (Moritz et al., 2015). On the other hand, a company needs to operate in profitable conditions and meet its obligations in a timely manner. Not fulfilling financial commitments could result in default. Within this context, a company has a possibility to do both: meet its obligations and resort to other debt in order to fund future projects. Instead, a company with a high ratio of debt over invested capital can be considered risky by the financial system, and, consequently, it cannot resort easily to the resources necessary to realize important projects. Therefore, the relation between debt and invested capital and the investigation of its main determinants is highly relevant.

The purpose of this research is to identify the determinants impacting companies' financial structure in SMEs belonging to different economic sectors. The research is due to the current situation which characterizes the banking system and companies' environment. Indeed, until some years ago, the banking system provided financial resources for both investment and working capital coverage. This availability has come to nothing in recent years, as banks are now in a position to provide financial resources for short-term needs but have difficulty in financing long-term investments.

Based on this, the Italian Government intervened by promoting several kinds of financing tools that varied from the banking ones, and making some authority interventions. In addition, the government provided some forms of collateral to the subscribers of the above-mentioned instruments to reduce the risk of investing in SMEs typically characterized by a limited financial culture and a modest ability to communicate financially.

Therefore, both companies and stakeholders need to identify the determinants impacting these companies' financial structure in order to optimize their decisions in terms of short and medium-long term goals and internal/external sources. Financing methods suitable for SMEs belong to the following groups: i) sources of financing of internal origin, which are made up of capital taken as a full risk by the owner or shareholders of the company; their remuneration is linked to the results obtained and without any obligation to repay. Similar to other conditions, these sources of funding allow for greater governmental influence within the company, since they are permanently tied to it. Among internal sources, the company's ability to generate self-financing should also be considered, generally identifiable with the increased economic result of non-monetary costs; (ii) sources of external financing (that is both commercial and financial debts, such as those payables to suppliers,

banks and other financial entities), which are made up of the debt that the company owes outside. This form of financing grants the lending party both the right to repayment of capital and its remuneration, unlike capital at risk.

The added value of the work is then consistent with the current context of reference, which is changing profoundly for both economic and regulatory reasons, highlighting a completely different perspective than the business experience of recent years. Progressive disengagement of the banking system by some types of financing, and the almost total exit from some sectors of the economy necessitate understanding the determinants of companies' financial structures. In addition, the plentiful credit provided by the banking system up to 2008, the ability of banks to cover all SMEs' investment needs and the modest selection of entrusted persons have led to limited development of SMEs' financial culture. This has created substantial managerial incompetence and capital inadequacy in Italian SMEs.

Our framework is represented by Giacosa (2015) and Broccardo et al. (2016), in which some variables impacting companies' financial structure have been identified. In particular, Mazzoleni and Giacosa (2017) made an initial investigation to explore the average and standard deviation of the variables for each economic sector, but the relationship between dependent and explanatory variables was not verified. A second investigation (Giacosa and Mazzoleni, 2017) verified the impact of a series of variables affecting degree of debt and systemic perspective in SMEs (Ferrero, 1968, 1987). That investigation involved Italian manufacturing companies, as the manufacturing sector is the main representative sector in Italy. On the contrary, the present research analyzes the phenomenon in different economic sectors and also investigates the role of "the sector variable" (Giacosa, 2015).

LITERATURE REVIEW

A rich literature review of the field explores the combination between a company's economic and financial aspects (Giunta, 2007; Vause, 2001) plus its business management and opportunities to evaluate and understand its situations in the short, medium, and long term. In particular, numerous scholars focused on the issue of financial structure in small and medium-sized companies (Chittenden et al., 1996; Hamilton and Fox, 1998) as this factor influences a company's growth (Michaelas et al., 1999; Hall et al., 2000). In addition, studies have focused on the most appropriate relation between investments and funding, along with the connection between the financial structure and financial situation (Mazzoleni and Giacosa, 2017).

Different theories have been used to identify the right financial structure, starting from Durand (1952),

Modigliani and Miller (1958) and their revision (1963), Myers (1974), Miller (1977), Miles and Ezzel (1980) and other studies. They recognize the determinants of the financial structure (Domenichelli, 2013; Galbiati, 1999; Garofalo, 1987; Venanzi, 2010), along with the relationship between corporate governance and financial structure (La Rocca, 2008; Maggioni et. al., 2009; Montalenti, 2009).

The theories were developed in terms of large-sized companies but are also applicable to small and medium-sized ones (Esperança et al., 2003; Fu et al., 2002) using multivariate analysis (Hall et al., 2004; Cassar and Holmes, 2003; Broccardo et al., 2016). The dilemma (Dallocchio et al., 2011; La Rocca, 2007) of the right financial structure has been discussed in numerous publications (Venanzi, 2003; Zazzaro, 2008), as the topic has an important role in terms of business management (Giacosa and Guelfi, 2003; Giacosa, 2015; Fazzari et al., 1988) and the financial requirements of a company (Ferri and Messori, 2000; Oliveira and Fortunato, 2006). Within this context, a proper definition of the financial structure has been made (Grandinetti and Nassimbeni, 2007), along with the balance between different sources of financing (Capasso et al., 2015; Giacosa and Mazzoleni, 2017; La Rocca, 2007), the attitude of self-financing (Brealey et al., 1999; Rossi et al., 2015), the balance between financing and investments (Golinelli, 1994; Miglietta, 2004) and the suitable level of financial independence from third parties (Giacosa and Mazzoleni, 2016). In terms of funding, a company needs to choose between equity and external borrowings (Miglietta, 2004; Rossi, 2014, b; Rossi et al., 2015), as their equilibrium influences the financial and economic situation in terms of financial costs and the freedom of action in terms of investment strategy and independence from third-party investors (Baginski and Hassel, 2004; Bernstein and Wild, 1998; Brealey et al., 1999; Singer, 2000).

Several empirical analyses have been made to compare the financial structure of small, medium and large companies in Europe and the United States (Giacosa, 2015). In particular, studies explore the financial structures and performances, along with how the financial crisis has impacted companies (de Socio et al., 2014; De Bonis et al., 2012; Rivaud-Danset et al., 2001). Within this field, Italian small and medium-sized companies represent a typical sample population for this kind of study (La Rocca et al., 2011; Giacosa, 2015) as they are widespread in the Italian economic context (Broccardo et al., 2016). There is a rich literature focused also on European SMEs (Lopez-Gracia and Romero-Martinez, 1997; Cardone and Cazorla, 2001; Van Caneghem and Campenhout, 2012) or individual European countries (Ocaña et al., 1994; Lopez-Gracia and Aybar, 2000; Aybar et al., 2001) using some financial variables for analysis (López-Gracia and Sogorb-Mira, 2008; Mac An Bhaird and Lucey, 2010; Degryse et al., 2012).

Much attention has been paid to the combination of investment and financing (Bernstein and Wild, 1998; Fiori, 2003; Giunta, 2007), and the range of financial and economic variables (Mazzoleni, 2012; Meigs et al., 2001; Weston and Brigham, 1978) that impact the degree of a company's indebtedness (Rossi, 2014 a, b; Van Horne, 1972). In particular, our literature review investigated several particularly relevant variables impacting companies' indebtedness (Giacosa, 2015; Broccardo et al., 2016; Mazzoleni and Giacosa, 2017). The following variables have been analysed to assess their impact on suitable funding methods: the growth of the company, the attitude to repaying financial debts, the company's financial situation, the age and size of the company, the intangible assets ratio, and the economic sector.

The growth of a company

The growth of a company represents an important variable correlated with the company's financial structure (Carpenter and Petersen, 2002; Herrera and Minetti, 2007; Fellnhofer, 2015). In particular, financial availability may impact the investment policy (Fagiolo and Luzzi, 2004; Honjo and Harada, 2006; Mahérault, 2000). When a company is undercapitalised, new external financial resources are particularly welcome for permitting the growth of the company (Becchetti and Trovato, 2002; Broccardo, 2014). Growth creates new financial requirements (Ferrero, 1972); financial needs have been defined and quantified (Bianchi, 1975; Campedelli, 1998), to be aligned to the corporate strategy (Ansoff, 1974; Chandler, 1962; Invernizzi, 2008). As a consequence, a revision of the corporate strategy may arise when there is lack of funds collection (Coda, 1988; Corbetta, 1999). For Cressy and Olofsson (1997), companies require external financial resources to grow, and the recourse to debt is more than welcome to prevent the loss of control of the company. Mac An Bhaird and Lucey (2010) demonstrated that a company's growth particularly affects medium/long-term debt level, and growing companies incur a high level of indebtedness (Sogorb-Mira, 2005; Ou and Haynes, 2006; Giacosa, 2015). Other authors confirmed the relation between growth and level of indebtedness (Chittenden et al., 1996; Michaelas et al., 1999; Berggren et al., 2000; Lopez-Gracia and Aybar, 2000; Broccardo et al., 2016).

The attitude to repaying financial debts

It is worth mentioning the importance of a company's ability to repay financial debts (Ferrero et al., 2006; Giacosa and Mazzoleni, 2012) using financial resources generated by its core activity (Broccardo et al 2016; Giacosa, 2011, 2012, 2015). The ability to repay financial debts thanks to the financial resources from the core business has a relevant role (Giacosa, 2011 and 2012) and several indicators evaluate this aspect, including operating revenue in terms of turnover (Ferrero et al.,

2006). Indeed, when the core business produces sufficient financial resources, the company can count on its own ability to repay financial debts; on the contrary, some difficulties may occur if the core business is not strong enough to generate money (Giacosa and Mazzoleni, 2012). This indicator represents a measure of the company's risk (ECB, 2014). The recourse to debt is also influenced by the company's risk level, which could impact the bankruptcy cost (Wijst and Thurik, 1993; Wald, 1999).

The companies' financial situation

Analysis of the companies' financial structure is important (Orrigan, 1968; Paolucci, 2013), but does not constitute an isolated or exhaustive instrument (Mella and Navaroni, 2012; Sostero, 2014). Several researchers combined definitions of a company's financial structure and financial situation (Grandinetti and Nassimbeni, 2007) because they have an important role in terms of business management (Ferrero et al., 2006; Giacosa, 2015). Indeed, financial structure analysis has to be integrated with the financial situation to offer a more comprehensive analysis (Orrigan, 1968) and a complete overview of the financial situation (Paolucci, 2013).

A combination of the financial structure and financial situation allows for an investigation of a company's solvency, that is, its ability to possess sufficient financial resources to repay debts timely (Ferrero et al., 2006; Value, 2001). Several scholars find that companies that invest in fixed capital tend to finance those investments by medium/long-term funds (Degryse et al., 2012; Brealey and Myers, 2000), thereby ensuring a match between the maturities (Heyman et al., 2008; Mitchel, 1991).

The turnover assets

Turnover assets may also impact a company's financial needs (Frielinghaus et al., 2005; La Rocca et al., 2011) because it requires new financial resources for growth opportunities in respect of different environments' constraints (Dallocchio et al., 2011).

This aspect also depends on the company's life cycle (Rija, 2006), as each phase of the cycle requires particular assets permitting its activity (Giacosa, 2012). In addition, the investment growth rate and the marked diversification influence this aspect as they require different turnover assets (Hall et al., 2000; Michelas et al., 1999; Venanzi, 2003). In particular, small and medium-sized companies characterized by high investment growth rate are more indebted than those with limited or no opportunities (Giacosa and Mazzoleni, 2016, 2017).

The age of the companies

Some studies claim that medium/long-term indebtedness

is correlated in a negative way with the companies' age (Giacosa and Mazzoleni, 2016; Mazzoleni, 2017). Indeed, newly created companies have difficulties obtaining financial debts as a result of informational asymmetries between potential funders and the companies' management and a greater probability of default (Mac An Bhaird and Lucey, 2010). Generally, mature enterprises rely on financial resources generated internally, requiring lesser external financial resources than young companies with lower or negative cash flows (López-Gracia and Sogorb-Mira, 2008). On the contrary, for other scholars a company's age is not relevant for determining its indebtedness's level (Chittenden et al., 1996).

The size of the companies

Findings on the role of a company's size are not always aligned. For some authors, a company's size does not impact its financial structure and degree of debt (Kim and Sorensen, 1986), while for others the relationship may be relevant (Warner, 1977; Ang et al., 1982; Sogorb-Mira, 2005). For instance, Pettit and Singer (1985) and Berger and Udell (1998) stated that small companies are characterized by greater probability of default than large enterprises are because the small companies resort to debt less frequently than large companies do (Confindustria, 2007). In addition, large-sized companies generate higher internal resources than small and medium-sized ones, decreasing the need for external debt (Mazzoleni and Giacosa, 2017).

In particular, a positive correlation between the size of a company and its level of indebtedness is also confirmed by the Static trade-off theory (Michaelas et al., 1999; Sogorb-Mira, 2005). This arises because of the different levels of agency costs (Sogorb-Mira, 2005), the diversification of different business (Rajan and Zingales, 1994) and information imbalances (Fama and Jensen, 1983). In addition, small and medium-sized companies have a bigger debt recourse than big companies do (Chittenden et al., 1996; Titman and Wessels, 1988) in terms of the Pecking Order Theory. Overall, it seems small companies have a greater recourse to short-term debt than big companies have because of their difficulties in obtaining long-term debts.

The intangible assets ratio

On the one hand, intangible assets are used by variousauthors as an indicator of companies' growth opportunities. In this sense it is believed that greater growth opportunities attract more capital (De Jong, 1999). Broccardo et al. (2016) find a positive relationship between indebtedness and growth opportunity, and Sogorb-Mira (2005) finds a positive relationship between

growth opportunity and medium/long-term debts. On the other hand, a greater ratio of intangible assets results in a lower ratio of tangible assets, which decreases the possibilities of accessing secured debt.

Therefore, a high intangible asset level generally reduces the level of indebtedness (Fama and French, 2002; Graham and Harvey, 2001), while for Sogorb-Mira (2005), there is a negative relationship between short-term debts and intangible assets ratio. On the contrary, Michaelas et al. (1999) stated a positive relationship between them.

The economic sector

Various authors have explored the indebtedness level of companies belonging to different sectors. Indeed, companies belonging to a particular sector may be characterized by different financial structures (Michaelas et al., 1999; Harris and Raviv, 1991). For instance, the industry sector is characterized by a lower degree of bank debt due to a higher level of self-financing (Miglietta, 2004). Nevertheless, for other researchers, careful observation according to specific companies is necessary, and the economic sector variable does not primarily impact that issue (Balakrishnan and Fox, 1993). Some in-depth analysis on manufacturing, service and trade sectors obtained discordant results (Bradley et al., 1984; Frank and Goyal, 2009; Titman and Wessels, 1988). Factors can differ from one sector to another and companies belonging to the same sector tend to finance in the same way due to similar environments and problems (Cassar and Holmes, 2003). In this context, Ibbotson et al. (2001) identify informational asymmetries and cost of equity as similarities, while Chittenden et al. (1996) and Jordan et al. (1998) refer to the will of the owner (who in the case of SMEs is usually also a manager) to maintain control over the business.

METHODOLOGY

The sample

While identifying the sample, the Italian economic context and timeframe (2012–2014) have been taken into consideration. In particular, our sample is composed of unlisted small and medium-sized active companies (in accordance with European Union Recommendation n.361 from 2003 for their definition), belonging to the most relevant economic sectors for the Italian economy: manufacture; trade; construction; transporting and storage; professional, scientific and technical activities; ICT; administrative and support service activities; agriculture, forestry and fishing; utilities; real estate activities; and accommodation, food and beverage. From the sample described above, some exclusion criteria have been applied with reference to availability of the financial statements (all the companies whose financial statements from the years 2012, 2013 and 2014 were not available were excluded), details of some financial statement items (the companies with financial statements that do not provide all the details necessary to calculate indicators introduced in the present analysis

are not considered in the following analysis), presence of outlier values (all the companies in reference to which the outlier values have been identified, have been excluded from the sample). The Aida Bureau Van Dijk database has been used to identify the sample in terms of the Ateco's economic activities adopted by Istituto nazionale di Statistica (ISTAT). Finally, our sample is composed of 12,175 Italian companies; 2% of them are bankrupt and 97% have external debts. This is due to the fact that over the last 15 years, the Italian banking system has largely supported the financial needs of businesses, ensuring a high level of access to credit. This situation has been facilitated by the abundance of financial resources available to the banking system rather than by the ability of banks to assess business projects (Mazzoleni, 2016).

Method

As specified above, the purpose of the research is to identify the determinants impacting the financial structure in small and medium companies. The shared approach in this study is inspired by the basic principles of Grounded Theory (Glaser and Strauss, 1967), for which observation and theorization go hand in hand and are circumscribed by a circular process: the theory is formalized for later stages based on the analysis of the acquired information, continuously influencing the way data is collected through the typical encoding activity of the model. Data collected in the field and using databases are de-structured, compared and analysed in order to highlight elements useful for building the "funding selection model", which represents the conclusion of the research activity.

In particular, after contextualizing the survey in the systems theory (Culasso, 1999; Giacosa, 2011), it was decided to analyse a particular phenomenon (that is, the use of debt for financing the company). For these reasons, the independent variables, also called explanatory variables, have been identified taking into account studies by Giacosa (2015) and Broccardo et al. (2016). Moreover, this study constitutes a further development of previous research (Broccardo et al., 2016), in which only the manufacturing sector was observed. Mazzoleni and Giacosa (2017)'s first work only investigated the average and standard deviation of the variables for each economic sector; it did not verify the relationship between dependent and explanatory variables.

To meet our study's aims, the following RQ was drafted:

RQ: What are the main variables impacting debt in small and medium-sized companies?

We used the econometric software Gretl, for which the OLS model has been developed, with regards to the case studies of the sample. Outliers have been eliminated for not compromising the relevance of the results. The OLS model is as follows:

$$y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_n x_n + \varepsilon$$

where:

y = it represents the variables in the observation

α = it is the constant of the model

β_i = it represents the regression coefficient for the variable x_i

x_i = it represents the nth independent variable

ε = it represents the end of an error, called alternatively "residue error"

n = it represents the number of variables contained in the model

This method allows us not only to identify the factors that have an impact on debt in small and medium-sized companies but also to determine the importance of these factors. The dependent variables (Y) were identified as follows: the relation between total debt and invested capital, the relation between short-term debt and invested

capital, and the relation between medium and long-term debt and invested capital. The variables used by the model are presented in Table 1. Those variables are analysed taking into consideration the previous studies in this field.

To carry out a current analysis, the following steps were considered. Firstly, conducting the research assumes identification of the average values of the variables considered (dependent and explanatory) of each sector. In this way, it is possible to evaluate whether differences between the analysed sectors exist. To this end, the average values achieved by each company in the analysed three-year timeframe were taken into consideration. The choice was caused by the fact that some variables represent average values in three-year period considered (by the way the growth).

The next step was to assess the relationship between dependent (that is total debt/total assets) and independent variables (the company's growth, the ability to repay financial debt using the financial sources generated from operating activity, the turnover assets, the company's age, degree of incidence of intangible investments and economic sector) using the Pearson's correlation. The same analysis was used to evaluate the relationship between explanatory variables and the relationship between short-term debt and capital invested and the relationship between explanatory variables and medium/long-term debt and capital invested. This step is relevant to understanding whether the determinants of the financial structure influence the recourse to both short-term and medium/long-term debt in the same way.

Finally, the research has been deepened using the dependent variables of the OLS Regression separately: the Debts/Total assets, the relationship between short-term debt and total assets and the relationship between medium/long-term debt and total assets on the explanatory variables that have been previously assessed. The accuracy of the model has been checked with reference to R-correct framework; this explains which part of the phenomenon is clarified by the variables introduced in our model. This method allows us to identify the factors that have an impact on a company's debt structure. At the same time, this method requires the satisfaction of a series of preconditions and considers a linear relationship between dependent and explanatory variables.

FINDINGS

The findings have been identified by observing the following aspects:

(1) The presence of some differences between several economic sectors. To reach this purpose the descriptive statistics (average and standard deviation) for each sector are illustrated (Table 2);
(2) The presence of relationships between the explanatory variables included in the model. To this end, the correlations between them are illustrated in Table 3.

We then observe the first aspect relating to the presence of some differences between several economic sectors. It emerges that the variable Total debt/Total Assets (DEBTS/TA) is different for the manufacture, real estate activities and accommodation, food and beverage sectors, while it is similar for the other sectors. Subsequently, it is observed that in the sectors such as trade, construction, transporting and storage, professional scientific and technical activities, administrative and support service activities, the short-

term debt burden constitutes more than 80% of total debts. The sectors with a lower burden of short-term debts over total debts are real estate activities and accommodation, food and beverage. As expected, the differences between the sectors concern not only the variables being an observation subject but refer also to explanatory variables; indeed, differences between sectors in connection with net financial position/Ebitda, cash flow form core business activities, intangible assets/total assets, sales/total assets. We then observe the second aspect relating to the presence of relationships between the explanatory variables included in the model.

As seen in Table 3, correlations between short-term debts and explanatory variables and correlations between medium and long-term debts and the same explanatory variables do not always have the same sign. In particular, the relationship between the age and burden of the short-term debts on the invested capital shows that with increasing companies' age, the burden of short-term debt on invested capital decreases.

On the contrary, the correlation between the burden of medium and long-term debts on the invested capital and age shows that the rise of the companies' age increases the burden of medium and long-term debt on invested capital. The same phenomenon concerns the growth (measured in terms of production value, invested capital and employees), turnover and size of the companies. The results obtained by regression of the dependent variables (Debts/TA, STD/TA, LTD/TA) on the explanatory variables are presented in Table 4.

When the ratio DEBTS/TA constitutes a dependent variable, all of the variables taken into consideration are relevant, which means that all of the explanatory variables determine the burden of debt on the invested capital. When considering the relationship between medium/ long-term debts and total assets as a dependent variable, it emerges that mature companies, companies characterized by greater growth in terms of production value and invested capital, those affected by financial stress and those that record a greater relationship between intangible assets and total assets, make recourse to short-term debt to a lesser extent than the companies with the opposite characteristics. In addition, the short-term indebtedness increases in the following situations: the increasing of the turnover (SALES/TA), growth in terms of employees, the company's size, and with decreasing ability to repay debts (NFP/EBITDA). Current analysis results show that all the sectors are significant with the exception of utilities, manufacture, real estate activities, and accommodation, food and beverage as they make recourse to the short-term debt to a lesser extent than the companies operating in the other sectors. We then consider the relation between medium/long-term debts and total assets as a dependent variable. It emerged that mature companies, the companies that grow in terms of production value and invested capital, the ones that record a reduction in the ability to repay

Table 1. The model's variables.

Investigated area	Description	Formula	Legend
The company's growth	To calculate the company's growth, the CAGR (Compound Annual Growth Rate) indicator has been used; it gives information about average annual growth in the three-year period considered (2012–2014). It has been measured in terms of: Production value Invested capital Number of employees	$$CAGR_{PV} = \sqrt{\dfrac{PV_{2014}}{PV_{2012}}} - 1$$ $$CAGR_{TA} = \sqrt{\dfrac{TA_{2014}}{TA_{2012}}} - 1$$ $$CAGR_{E} = \sqrt{\dfrac{E_{2014}}{E_{2012}}} - 1$$	PV_{2014} = company's production value in 2014 PV_{2012} = company's production value in 2012 TA_{2014} = company's total assets in 2014 TA_{2012} = company's total assets in 2012 E_{2014} = number of employees in the company in 2014 E_{2012} = number of employees in the company in 2012
The ability to repay financial debt using the financial sources generated from operating activity	The relationship between Net financial position and Earning before interest, taxes, depreciation and amortization (NFP/EBITDA) can be considered the company's financial risk indicator (BCE, 2014). The companies with a high NFP/EBITDA ratio are potentially the companies with financial difficulties as they are not able to honour financial debt contracts using cash flow from day-to-day management.	$$\dfrac{NFP}{EBITDA} = \dfrac{\sum_{n=2012}^{2014} NFP_n}{\sum_{n=2012}^{2014} EBITDA_n}$$	NFP = Net Financial Position (which considers net financial debts less financial activities); Financial debts derive from the balance sheets and they are composed of bank debts, bonds, other financial debt and payable to shareholders per debt. EBITDA = Earning before Interest, Taxes, Depreciation and Amortization of the company n = year, which can mean 2012, 2013 or 2014
The company's financial situation	Characteristics of the company's financial situation can determine its ability to meet its financial needs in a timely and economical manner	$$CFA = \dfrac{\sum_{n=2012}^{2014} Long\ Term\ Liabilities_n + Equity_n}{\sum_{n=2012}^{2014} Fixed\ Assets_n}$$	CFA = covering fixed assets Long term liabilities n = a company's consolidated liabilities of the year n Equity n = a company's equity of the year n Fixed assets n = a company's investments characterised by transformability in cash greater than of the year n n = year, which can mean 2012, 2013 or 2014
The turnover assets	The turnover assets (TA) enables one to assess the company's ability to return the invested capital in liquid form through turnover. The turnover assets can be measured by comparison with the revenues with invested capital.	$$\dfrac{Sales}{TA} = \dfrac{\sum_{n=2012}^{2014} Sales_n}{\sum_{n=2012}^{2014} TA_n}$$	$Sales_n$ = a company's sales realized over the year n TA_n = invested capital (total assets) of the year n n = year, which can mean 2012, 2013 or 2014
The company's age	Recourse to debt depends also on the company's age. Mature companies are more likely to depend on accumulated profit than younger enterprises at the beginning stages of operating because the latter need financial	Age = ln (number of years since the company's foundation). In particular, we do not use a dummy variable to define new companies or mature companies; we use age as a continuous explanatory	Age = age of the company ln = natural logarithm

Table 1. Cont'd

	sources that are not available internally if not provided by stakeholders in order to make investments on corporate assets and to meet working capital requirements. The younger companies have more difficulty accessing external financial sources caused by a greater uncertainty and absence of relationships with banking institutions unless they do not have previous experience but have already established relationships with banking institution	Variable	
Degree of incidence of intangible investments	The degree of incidence of intangible investment (it means Intangible Assets/Total assets – Intangible assets/Total assets) is a measure of growth opportunities of significant importance for determining the company's financial structure as they enable the company to make significant investments that are financed not only by the internal financial sources.	$$\frac{Intangible\ Assets}{TA}=\frac{\sum_{n=2012}^{2014} Intagible\ Assets_n}{\sum_{n=2012}^{2014} TA_n}$$	Intangible Assets$_n$ = a company's intangible assets over the year n TA$_n$ = invested capital (total assets) of the year n n = year, which can mean 2012, 2013 or 2014
Economic sector	The inclusion of dummy variables on the sectors in our model allows us assess the impact of economic sectors on the company's financial structure.	This variable assumes a value of 1 for some sectors and a value of 0 for other sectors.	

PV2014 = company's production value in 2014, PV2012 = company's production value in 2012, TA2014 = company's total assets in 2014, TA2012 = company's total assets in 2012, E2014 = number of employees in the company in 2014, E2012 = number of employees in the company in 2012.

debts (NFP/EBITDA) and those with a greater burden of intangible assets on total assets rely on medium/long-term debts more frequently than the companies with the opposite characteristics. However, the relation between medium/long-term debt and invested capital decreases in the following situations: an increase of the invested capital rotation, of the companies' size, of the financial stress and of the growth in terms of employees and invested capital. In all the sectors, with the exception of real estate and construction, we can observe a positive relation between medium/long-term debts and invested capital.

DISCUSSION

Mature companies tend to make recourse to medium/long-term debts (Broccardo et al., 2016) for a number of reasons, such as difficulties accessing medium/long-term bank debt and the need to gain market shares (Van der Wijst and Thurik, 1993; Chittenden et al., 1996). In addition, new companies may have difficulties accessing medium and long-term debts; therefore, they tend to make recourse to short-term debt (Kon and Storey, 2003; Black et al., 1996; Berger and Udell, 1990). On the contrary, mature companies may use greater financial sources due to greater internal cash flows and long-term developed relations with the bank system. However, other scholars have found that a company's age is not relevant in the determination of its indebtedness's level (Chittenden et al., 1996).

Secondly, in general, the companies with greater growth rates in terms of both production value and invested capital imply a reduction of debt burden on invested capital, which is in line with the findings of Chittenden et al. (1996), Michaelas et al. (1999) and

Table 2. Average and standard deviation of the variables for each economic sector.

Sector	Manufacture		Trade		Construction		Transporting and storage		Professional, scientific and technical activities		ICT	
Variables	Average	Std D.	Average	Std D.	Average	Std D.	Average	Std D.	Average	Std D.	Average	Std D.
NFP/EBITDA	1.62	2.58	2.36	3.07	1.62	3.01	0.73	1.74	0.50	2.21	0.44	1.95
CFA	1.95	1.01	1.98	1.22	2.11	1.45	1.62	1.03	2.93	2.80	2.84	2.70
Age	3.30	0.50	3.11	0.58	3.17	0.58	3.14	0.60	2.97	0.60	3.03	0.55
CAGR PV	0.03	0.08	-0.21	0.19	0.10	0.30	-0.19	0.21	-0.11	0.23	-0.06	0.24
CAGR TA	0.03	0.07	0.03	0.09	0.01	0.14	0.02	0.11	0.04	0.17	0.04	0.14
Intangible Assets/TA	0.02	0.03	0.03	0.05	0.02	0.06	0.02	0.02	0.04	0.07	0.08	0.10
Sales/TA	1.13	0.37	1.77	0.81	0.93	0.41	1.67	0.75	1.34	0.61	1.23	0.53
Size	7.13	0.24	7.09	0.26	7.04	0.25	7.08	0.26	7.06	0.25	7.08	0.26
CAGR Employees	0.02	0.10	0.04	0.25	0.00	0.10	0.05	0.42	0.04	0.13	0.03	0.14
Debts/TA	0.64	0.17	0.76	0.17	0.78	0.16	0.77	0.19	0.77	0.18	0.76	0.17
STD/TA	0.48	0.15	0.62	0.19	0.63	0.18	0.62	0.19	0.62	0.21	0.59	0.18
LTD/TA	0.16	0.09	0.13	0.10	0.15	0.11	0.15	0.11	0.14	0.12	0.17	0.11

Sectors	Agriculture, forestry and fishing		Utilities		Real estate activities		Accommodation, food and beverage		Administrative and support service activities	
Variables	Average	Std D.	Average	Std D.	Average	Average	Average	Std D.	Average	Std D.
NFP/EBITDA	3.71	4.40	0.97	1.68	3.71	3.71	1.34	2.54	0.35	2.48
CFA	1.11	0.49	1.33	0.56	1.11	1.11	1.01	0.37	2.35	2.09
Age	3.50	0.68	3.06	0.47	3.50	3.50	3.26	0.59	3.02	0.54
CAGR PV	0.02	0.33	0.01	0.27	0.02	0.02	0.09	0.46	-0.19	0.24
CAGR TA	0.02	0.08	0.01	0.10	0.02	0.02	0.01	0.07	0.04	0.15
Intangible Assets/TA	0.01	0.01	0.02	0.02	0.01	0.01	0.06	0.08	0.04	0.07
Sales/TA	1.21	0.77	1.15	0.55	1.21	1.21	1.27	0.87	1.81	1.03
Size	7.11	0.25	7.09	0.24	7.11	7.11	7.01	0.25	7.08	0.27
CAGR Employees	0.02	0.11	0.02	0.07	0.02	0.02	-0.01	0.09	0.03	0.11
Debts/TA	0.76	0.17	0.74	0.18	0.76	0.76	0.66	0.24	0.77	0.18
STD/TA	0.60	0.21	0.54	0.20	0.60	0.60	0.41	0.24	0.64	0.20
LTD/TA	0.16	0.12	0.20	0.16	0.16	0.16	0.25	0.19	0.13	0.11

Source: Mazzoleni and Giacosa (2017).
NFP/EBITDA: Companies' net financial position over EBITDA, CFA: (covering fixed assets): degree of covering fixed assets with medium/long term sources of funding, Age: age of the company, CAGR PV: company's growth in terms of production value, CAGR TA: company's growth in terms of total assets, Sales/TA: sales over total assets of the company, Intangible Assets/TA: comparison between intangible assets over total assets, CAGR Employees: growth in terms of employees, Size: company's size, Debts/TA: Impact of debts on total assets, STD/TA: Impact of short term debts on total assets, LTD/TA: Impact of long term debts on total assets.

Table 3. Variation and the co-variation matrix.

	LTD/ TA	STD/ TA	CAGR employees	Size	Sales/TA	Intangible assets/TA	CAGR TA	CAGR PV	Debts/TA	Age	CFA	NFP/EBITDA
NFP/ EBITDA	0.1976	0.2108	0.0099	0.026	0.1265	0.0135	0.0754	0.112	0.348	0.0327	0.1944	1
CFA	0.1414	0.0365	0.005	0.0094	0.1032	0.1503	0.0481	0.0948	0.1246	0.022	1	
AGE	0.0989	0.3115	0.0759	0.1168	0.2171	0.1884	0.078	0.1712	0.2763	1		
DEBTS/TA	0.1614	0.8323	0.0385	0.0679	0.3002	0.1327	0.0099	0.2646	1			
CAGR PV	0.2065	0.3595	0.0589	0.0112	0.7141	0.0758	0.1405	1				
CAGR TA	0.0678	0.0264	0.1586	0.0211	0.0635	0.0076	1					
Intangible Assets/TA	0.0811	0.0788	0.006	0.0332	0.0662	1						
Sales/TA	0.2023	0.39	0.0477	0.0474	1							
Size	0.1117	0.0005	0.0291	1								
CAGR Employees	0.0682	0.0733	1									
STD/TA	0.4083	1										
LTD/TA	1											

NFP/EBITDA: companies' net financial position over EBITDA, CFA: (covering fixed assets): degree of covering fixed assets with medium/long term sources of funding, Age: age of the company, CAGR PV: company's growth in terms of production value, CAGR TA: company's growth in terms of total assets, Sales/TA: sales over total assets of the company, Intangible Assets/TA: comparison between intangible assets over total assets, CAGR Employees: growth in terms of employees, Size: company's size, Debts/TA: Impact of debts on total assets, STD/TA: Impact of short term debts on total assets, LTD/TA: Impact of long term debts on total assets

Berggren et al. (2000). The growth in terms of production value means greater recourse to medium/long-term debts and lesser recourse to short-term debts, while the growth in terms of invested capital implies a lower recourse to short-term debts and does not seem to be a determinant for medium/long-term indebtedness (Lopez-Gracia and Aybar, 2000; Sogorb- Mira, 2005). The growth in terms of production value, in general, means lesser recourse to external financial resources as the company is able to generate greater internal resources. Instead, Cressy and Olofsson (1997) and Mac An Bhaird and Lucey (2010) stated that growing enterprises incur a high level of indebtedness.

High turnover implies an increase of total indebtedness. In particular, increase of turnover leads to an increase of short-term debt and a decrease of medium/long-term debt. This is in line with the findings of Confindustria (2007) and Partner Equity Markets (2009).

Subsequently, the bigger companies depend on external financial resources less than small or medium companies do. In particular, they tend to use overall short-term debt rather than medium/long-term debt because they have already implemented their own production structure and do not need medium/long-term financing in the way small companies do (Broccardo et al., 2016). Moreover, the ability to repay debt using internal sources shows a positive correlation with both short and medium/long-term debt (Wijst and Thurik, 1993; Wald, 1999). Conducted analysis shows that increasing the indicator increases the indebtedness. This is the opposite in large companies in which an increase of the company's risk level leads to a decrease in indebtedness. These results are in line with studies carried out on SMEs in Britain (Michelas et al., 1999).

Additionally, taking into account a covering of fixed assets by medium/long-term debt we can observe a negative correlation: the companies that use medium/long-term debt in order to finance their long-term investments are correlated in a lesser extent to indebtedness (Giacosa, 2015; Giacosa and Mazzoleni, 2012). This phenomenon concerns both short and medium/long-term debts.

Finally, the burden of intangible assets on total assets is positively correlated with indebtedness, which means that the companies that take advantage of greater opportunities of growth more often make recourse to debt (De Jong, 1999; Sogorb-Mira, 2005). In particular, Sogorb-Mira

Table 4. Relationship between dependent and explanatory variables.

Explanatory variable/dependent variable	DEBTS/TA	STD/TA	LTD/TA
constant	0.992399***	0.530533***	0.456661***
Age	0.0558404***	0.0725215***	0.0162477***
CAGR PV	0.0405687***	0.0778245***	0.0371694***
CAGR TA	0.0495352***	0.0386526**	0.0154660
Sales/TA	0.0695043***	0.0778262***	0.00862669***
Size	0.0328023***	0.0193641***	0.0511496***
NFP/EBITDA	0.0255846***	0.0184862***	0.00708635***
CFA	0.0132618***	0.00798577***	0.00526412***
Intangible Assets/TA	0.141331***	0.0554299	0.201766***
CAGR Employees	0.011504**	0.0348739***	0.0234477***
Manufacture	0.0224687***	0.0424783***	0.0197845***
Construction	0.117051***	0.116297***	0.000452043
Transporting and storage	0.0604922***	0.0357360***	0.0249695***
Professional, Scientific and technical activities	0.0938326***	0.0728635***	0.0207286***
ICT	0.0952424***	0.0609467***	0.0332994***
Administrative and support service activities	0.0549635***	0.0453539***	0.0169264***
Agriculture	0.0301116***	0.0281178**	0.00196180
Utilities	0.0555602***	0.00426355	0.0619497***
Real estate Activities	0.107375***	0.143475***	0.0352589
Accommodation, food and beverage	0.0273999*	0.123758***	0.0959867***
Interaction CAGR PV*CAGR TA	0.275043***	0.311047***	0.0393318***
Adjusted R^2	**0.380276**	**0.359191**	**0.131888**
F(20, 12154)	**369.70*****	**348.74*****	**77.47726*****

2005) stated that there is a negative relationship between short-term debts and intangible assets; this is in contrast with Michaelas et al. (1999) for whom a positive relationship exists.

Furthermore, the companies whose investments concern most of all the intangible assets often resort to long-term debts (the relation between burden of intangible assets on total assets and medium/long term-debts is positive, while the relation between short-term debts is not relevant) (Titman and Wessels, 1988; Graham and Harvey, 2001). Therefore, the study on the sectors demonstrates that the sectors are an important variable in determining the level of indebtedness of SMEs.

CONCLUSION, IMPLICATIONS AND LIMITATIONS

The present research identifies the relationship between variables introduced by the literature on the level of indebtedness. The economic sector to which a company belongs has an impact on its level of indebtedness; in addition, the sectors that require higher up-front investments make more use of short-term debt than of medium/long-term debt more than the other sectors do. The company's age has an impact on the need for short and medium/long-term external resources, reflecting the price policy and the importance of establishing stable relationships with external funders. There is less recourse to external resources where the growth is considered in terms of production value and invested capital; there is greater recourse to financial resources if we consider the growth in terms of the number of employees. High turnover leads to an increase of total indebtedness, especially of short-term debts. In general, big companies make less use of external financial resources than SMEs do; in particular, they use short-term rather than medium/long-term debt. The company's ability to repay debt shows a positive correlation with the level of indebtedness. In fact, if the company generates sufficient sources to repay its debts, its ability to meet financial commitments in a timely manner increases. This increases the use of debts because the company is more likely to utilise new, external financial sources from banking institutions and other funders when it is confident about its ability to repay its financial liabilities. The presence of financial imbalances leads to higher financial indebtedness in both the short and medium/long-term, while the degree of intangible assets over total assets is correlated in a positive way with indebtedness, showing that the companies characterized by greater growth opportunities recourse more often to external resources, especially to short-term debts. The present research has some interesting theoretical and practical implications:

(1) From a theoretical point of view, it is possible to assess the findings of a wide range of decisions concerning a company's variables about the level of debt. (2). From a practical point of view, stakeholders may be interested in the study because the accuracy of our proposed model has been investigated in two ways: in terms of the sample size – the model was applied to a large number of companies from different sectors – and in terms of the specific characteristics of each sector. Therefore, stakeholders can investigate the advantages or disadvantages of their current or future investment in a company.

The research has some limitations:

(1) Regarding the sample, we only considered Italian companies belonging to several sectors. Consequently, a comparison with another context would allow one to verify the "country system" variable on the company's indebtedness.
(2) Regarding the research method, we did not consider qualitative variables, which could better explain the level of indebtedness. The model does not include specific variables permitting consideration of the changes over time of the debts-to-invested capital ratio. For instance, the customers' and employees' satisfaction levels, the product's range uniqueness and the level of its personalization, the managers' experience and their training, the owners' financial support etc. In addition, we did not use the economic cycle as a dummy variable (Ghorbel and Trabelsi, 2013), even though it can impact the business activity, in terms of financial availability from the bank system and other financial entities plus the companies' opportunities based on their business and performance (Giacosa and Mazzoleni, 2012; Giacosa, 2015).

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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