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# A MODEL FOR THE EVALUATION TRENDS PERFORMANCE IN SMALL AND MEDIUM ENTERPRISES

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## Abstract

The purpose is to propose a model thanks to which the management, the owners and the stakeholders could assess the evolution in time of small and medium-sized enterprises' state of health, in terms of different criteria during the considered three year period. For this purpose, our framework is represented by a model developed in the previous publication (Giacosa and Mazzoleni, forthcoming), which distinguishes small and medium-sized enterprises into several typologies, in terms of above-mentioned criteria. The originality of the research is consistent to the current context in which the companies operate, which is changing in an intensive way because of the world financial crisis. In particular, the company manifests the need to understand its situation and be encouraged to adopt a series of measures to improve its situation. Concluding, the companies could commit themselves to undertake a path toward virtuous positions, after determining the current starting condition.

**Keywords:** Company's Performance; Evaluation Performance; Growth; Profitability; Financial Debt's Repayment; Stakeholders; Small-Medium Enterprises

## 1. INTRODUCTION

A company is an open system (Culasso, 1999; Ferrero, 1987; Ferraris, 2014; Giacosa, 2011; Gigler and Hemmer, 2001) harmonized in its market context of business activities. Therefore, the company cannot operate by itself, but it interacts with its context through several relationships (Dahnke and Clatterbuck, 1990; Giacosa, 2012a).

During the management and owners' decision making process, a series of relations can be contextualized within a sort of puzzle in the economic context, involving several companies (Culasso, 2009 and 2012; Favotto, 2001; Farneti, 2007) and stakeholders (Airoldi et al., 1994; Freeman, 1984; Freeman et al., 2007; Hitt and Harrison, 2001; Meigs et al., 2001).

In this context of strong relationship with its environment, the company changes its behaviour: from instrument aimed at fulfilling private interest (*shareholder view*), it becomes an entity thanks to which stakeholders could satisfy their interests (*stakeholders view*) (Dell'Atti, 2003; Lai, 2004). In order to mitigate typical conflicts between the company and its stakeholders, the company has to produce a compulsory and voluntary disclosure under the sign of transparency, with the purpose of involving stakeholders in the company's project and permitting them to evaluate the business. Consequently, the process communication allows them to reach a positive or negative consensus on the company's activity, which impacts on the availability of stakeholders when granting new resources to the company (Shannon and Weaver,

1971; Reilly and Di Angelo, 1990; Giacosa, 2012a). Literature has stressed on how the stakeholders represent a key role into the company's business (Carayannis et al., 2015; Carayannis and Rakhmatullin, 2014; Del Giudice and Maggioni, 2014; Hansen, Mors and Lovas, 2005), and their decision making process impacts on the company's opportunities (Del Giudice et al., 2013; Del Giudice and Straub, 2011).

The additional data collection on several types of knowledge about the company's state of health is critical to favour the decision making process of the management, owners and stakeholders; consequently, improving disclosures on company's situation permits to improve business process (Del Giudice, Della Peruta and Carayannis, 2010 and 2011; Del Giudice, Della Peruta and Maggioni, 2013; Maggioni and Del Giudice, 2006; Nicotra, Romano and Del Giudice, 2014) and to satisfy the relationships between the company and its stakeholders (Dias and Bresciani, 2006; Giacosa, 2012b; Rolland, 2004).

The above company's state of health could be observed from different point of view. A combination between economic and financial aspects and the growth ones allows an articulated reasoning aimed at understanding the conditions of the company. This company's situation could be analyzed thanks to a set of indicators, which focuses on the evolution of the company performance (Arcari, 2004; Campedelli, 1998; Ferrero et al., 2006; Teodori, 2008).

The research is placed in this context of observation. The purpose of the research is to propose a model thanks to which the management,

the owners and the stakeholders could assess the evolution in time of small and medium-sized enterprises' state of health, in terms of different criteria (growth, profitability, and their attitude in financial debt's repayment) during the considered three year period.

For this purpose, our framework is represented by a model developed in a previous publication (Giacosa and Mazzoleni, 2016), which distinguishes small and medium-sized enterprises into several typologies - in terms of above-mentioned criteria (growth, profitability, and their attitude in financial debt's repayment) - in the context of an informative matrix.

In addition, this research could be considered as a development of Giacosa, Mazzoleni and Rossi (forthcoming), in which the aim of the research was the identification of the appropriate financing methods for small and medium-sized companies, by comparing Italian and German companies. To reach this purpose, the paper stated some indicators for identifying the appropriate financing methods for small and medium-sized companies, in terms of company's growth, profitability, and capacity of financial debt's repayment. The current research used the some indicators to reach a different purpose.

There can be identified the internal and external parties interested in the presented model. Under the inner profile, the management and owners are identified, as they must consider the company's condition to put in place corrective measures in a timely manner. The proposed model suggests some information for evaluating the company's situation and verifying its evolution over time and, subsequently, stimulating a series of corrective actions to improve abovementioned situation. With reference to stakeholders, there are placed those which are connected with the company by various relationships, as they need to know in advance the possible occurrence of a crisis; among these, several categories of stakeholders, current or potential, need to know well before the conditions of the company: for instance the funders, the company's suppliers and employees, as they are involved in the company's results.

The originality of the research is consistent to the current context in which the companies operate, which is changing in an intensive way because of the world financial crisis. In particular, the research is linked to the need of a company to understand its situation and, at the same time, be encouraged to adopt a series of measures to improve the situation in terms of growth, profitability and financial capacity of debt repayment. Concluding, the companies could commit themselves to undertake a path toward virtuous positions in terms of economic and financial situation and company's growth, after determining the current starting condition.

The research is structured as follows. The second paragraph is focused on the analysis of the literature, with particular reference to the identification of the company's financial and economic situation. The research method is outlined in the third section. The description of the results is conducted in the fourth paragraph, which is followed by discussion of the results. Finally, the conclusions and implications of the study are set out, along with the limitations of the research.

## 2. LITERATURE

The company's state of health could be observed from different point of view. Economic and financial aspects and the growth ones could be combined, allowing an articulated reasoning aimed at understanding the conditions of the company, over a period of both short and medium-long term. In particular, researchers focused on a range of variables that influence the degree of company's situation, in both financial and economic terms (Baginski and Hassel, 2004; Giunta, 2007; Rossi, 2014b; Value, 2001) and company's growth ones (Canals, 2001; Hart and Mellons, 1970; Giacosa, 2012; Goold, 1999; Grandinetti and Nassimbeni, 2007; Potito, 2013).

Focusing on financial and economic analysis, the literature attributes to the financial analysis a significant role (Bernstein and Wild, 1998; Fiori, 2003; Foster, 1986; Giroux, 2003; Giunta, 2007; Helfert, 1997; Ingram et al., 2002; Meigs et al., 2001; Rossi, 2014a; Van Horne, 1972; Weston and Brigham, 1978). Indeed, a set of indicators focusing on the evolution of the company performance (Arcari, 2004; Campedelli, 1998; Ferrero et al., 2006; Teodori, 2008) allows to evaluate the company's conditions thanks to several typologies of comparison (in relation to several companies belonging to the same sector, and/or considering the trend of the indicators in time for each company). In addition, these indicators permit to provide a unitary system of information deriving from the financial statements (Andrei, 2003; Ferrero et al., 2006), thanks to the fact that they are interdependent.

The financial analysis favours a clear and convincing check-up to diagnose the business situation, placing the company in a positive or negative phase. In particular, an analysis of the current situation and future prospects of the company and an understanding of the key business issues, as well as the reason of them, encourage decision-making process of the property and/or the management, improving the company's survival conditions in a long term (Higgins, 2007; Ingram et al., 2002; Mazzoleni, 2012).

The analysis of the company's condition must include a number of interdependent factors (Ferrero et al., 2006; Giacosa, 2015). To this end, despite a number of limitations suggested by the literature (Brealey and Myers, 1988; Froli et al., 1994; Giunta, 2007; Ingram et al., 2002; Invernizzi, 1990; Lombardi Stocchetti, 2013), the financial analysis was focused in deep.

Thanks to its signalling attitude (Bernstein and Wild, 1998; Brunetti, 1995; Campedelli, 1998; Foster, 1998; Fridson, 1995; Giunta, 1995; Giacosa and Mazzoleni, 2012; Ingram et al., 2002; Helfert, 1997; Higgins, 2007; Teodori, 2000), it aims to evaluate the economic and financial company's situation (Flowers, 2003; Facchinetti, 2002; Ferrero et al., 2003), within a comparison between companies or a time comparison (Bergamin Barbato, 1974; Castellano, 2008; Ferrero and Dezzani, 1979; Teodori, 2002; Terzani, 1978).

For this purpose, the financial analysis provides a series of synthetic elements (Baginski and Hassel, 2004; Bastia, 1996; Caramiello, 1993; Catuogno, 2012; Coda, et al., 1974; Fiori, 2003; Foster, 1986; Giroux, 2003; Meigs et al., 2001; Mella, 1998; Mella and Navaroni, 2012; Horrigan, 1968),

consisting of economic and financial indicators (Invernizzi, 1990; Paolucci, 2013; Prince, 2011; Quagli, 2013; Sostero, 2014; Torcivia, 2010; Value, 2001; Van Horne, 1972; Weston and Brigham, 1978).

As the company system is unique in its entirety, also the indicators produced by the financial analysis create an unitary system of information, because they are influenced by a series of interdependent conditions (Andrei, 1996). The information resulting reflects the operating conditions in terms of productive, commercial and managerial attitude of the company, summarizing the trend of the results achieved (Antonelli, 2001; Arcari, 2004) in both current and prospective terms, in order to permit stakeholders (Branciani, 2003; Brusa, 2000; Giunta, 1992; Paganelli, 1986; Provasoli, 1974) an assessment of the company's current and potential situation (Amaduzzi, 1978). By interpreting a set of indicators mentioned above, the recipient of the information deriving from the financial analysis can mature a judgment on production efficiency, commercial potential, financial autonomy, and innovative capacity (Bresciani, 2010; Bresciani, Vrontis, and Thrassou, 2014; Bresciani and Ferraris, 2012; Ferraris, 2014; Ferraris and Grieco, 2015; Ferraris and Santoro, 2014; Marchi, 2010).

As part of the profitability analysis, the literature has examined a number of indicators, related to the core business and the profitability of shareholders (Bastia, 1996; Bresciani, Vrontis and Thrassou, 2015; Ferrero et al., 2003; Giacosa, 2011; Mazzola, 2002; Rea, 2008). In addition, assessing the company's ability to repay debts with operating activities was a very important issue. It allows to analyze the company's attitude in ability to financial debt repayment through cash generated from operating activities, which is calculated by linking the financial debts with Ebitda. Ebitda represents important component of cash flows from operating activities: indeed, the turnover creates receivables which, after cash collection, provides the entrance of sources deriving from the company's operating activity, which are useful in financial debt's repayment.

Focusing on the company's growth, it refers to the process which, within a certain time frame, affects an increase of a size of the observation subject (Canals, 2001; Hart and Melons, 1970; Giacosa, 2012; Goold, 1999). The aim of the growth in a small and medium-sized enterprise can be imposed both internally, meaning to be stimulated by the ownership or management and externally, that is linked to opportunities deriving from outside (Molinterni, 2000). Regardless of the source of its origin factors, the stimulus of growth is physiological in every company, even those small and medium-sized, as it constitutes an element of a typical human activity challenge in the economic field (Bresciani, Vrontis and Thrassou, 2012; Conca, 2010; Donaldson, 1994).

The growth can be measured in quantitative terms (through the turnover, production value, added value, number of employees, capital invested, market share, etc.). It can also be observed in its qualitative aspects; indeed, the growth affects the creation of new skills and the improvement of those already owned (Grandinetti and Nassimbeni, 2007), being extremely connected to a multiplicity of factors related to human resources operating in the company,

with particular reference to their quality and attitudes.

The growth in the SMEs is an essential ingredient for the company's survival in the long term, characterized by the strategic choices during its life cycle (Gardi, 1990). However, business growth is not a necessary condition for the company to operate in a sustainable manner: considering the small companies working on niche markets, which can show a certain degree of competitiveness while maintaining their size.

By analyzing the previous literature, it emerged the absence of a model which permits to evaluate the evolution in time of small and medium-sized companies' state of health, in terms of a combination of different criteria (such as growth, profitability, and their attitude in financial debt's repayment) during a considered period. In addition, this model could encourage the companies to adopt a series of measures to improve their situation, undertaking a path toward virtuous positions in terms of economic and financial situation and company's growth after determining the current starting condition.

### 3. METHODOLOGY

#### 3.1. The sample

We said that our framework is represented by a model developed in a previous publication (Giacosa and Mazzoleni, 2016), which distinguishes small and medium-sized enterprises into several typologies - in terms of above-mentioned criteria (growth, profitability, and their attitude in financial debt's repayment) - in the context of an informative matrix. In the present research, we used the same sample of the framework, texting it for other purposes.

In addition, this research could be considered as a development of Giacosa, Mazzoleni and Rossi (2016), in which the above framework has been applied on the same sample. The aim of the research was the identification of the appropriate financing methods for small and medium-sized companies, by comparing Italian and German companies. To reach this purpose, the paper stated some indicators for identifying the appropriate financing methods for small and medium-sized companies, in terms of company's growth, profitability, and capacity of financial debt's repayment.

The current research used the same above-mentioned indicators (Giacosa and Mazzoleni, 2016; Giacosa, Mazzoleni and Rossi, 2016) to reach a different purpose.

On the basis of the Aida-Bureau van Dijk database on over one million Italian companies, the companies have been classified to the proper business sector, adopting the ATECO classification of the National Institute of Statistics (Istat).

At the beginning, a population of 758.153 Italian companies has been considered.

The next step was to create a sample and therefore the following criteria have been applied:

- the companies have deposited the financial statements from 2011, 2012 and 2013, while the financial statement from 2013 was the last one deposited at the moment of valuation. This three-year period was considered as the minimum

necessary to carry out the research on the analyzed companies;

- companies' financial statements were not prepared in accordance with IAS (International Accounting Standards) in order to ensure the comparability of analysed data;

- the companies' activities within individual ATECO's economic activities were considered as relevant. The companies that belong to its residual activity have been excluded from the sample;

- their production value of 2013 was between 5 and 250 million euro (using the production value instead of sales it was possible to extend the research about working on order companies);

- in the Aida-Bureau van Dijk database were available the details about the company's accounting group "total debt"(the companies without detailed financial debt were excluded from the sample).

As the manufacture sector consists of 23 different economic activities, it has been divided in the following sectors: food, automotive, pharmaceutical, rubber-plastic, machinery, metal-mechanic, petrochemical, textile and other manufacturing.

At the end, the final sample consists of 41.344 Italian companies (Table 1).

**Table 1.** The sample

<i>Sector</i>	<i>No of companies</i>
Agriculture	743
Food	2,189
Accommodation and catering	522
Cultural Activities	190
Financial Activities	176
Professional activities	1,539
Automotive	510
Trade	12,891
Building	2,762
Pharmaceutical	214
Rubber - plastic	1,839
ICT	950
Real estate	716
Machinery	3,921
Other manufacturing	2,763
Metal-mechanic	3,220
Petrol-Chemical	998
Business services	892
Textile	2,077
Transportation and storage	2,232
<b>Total for geography area</b>	<b>41,344</b>

Source: Own elaboration

### 3.2. The method

The aim of the research is to assess the evolution in time in terms of the economic and financial situation of small and medium-sized enterprises, during three years considered. As we said in the introductions section, our framework is represented by a model developed in a previous publication (Giacosa and Mazzoleni, 2016), which distinguishes small and medium-sized enterprises into several typologies - in terms of above-mentioned criteria (growth, profitability, and their attitude in financial debt's repayment) - in the context of an informative matrix.

In addition, this research could be considered as a development of Giacosa, Mazzoleni and Rossi (2016), in which the aim of the research was the

identification of the appropriate financing methods for small and medium-sized companies, by comparing Italian and German companies. To reach this purpose, the paper stated some indicators for identifying the appropriate financing methods for small and medium-sized companies, in terms of company's growth, profitability, and capacity of financial debt's repayment. The current research used the some indicators to reach a different purpose.

The following research question has been formulated, in order to achieve the aim of the paper:

*RQ: What is the evolution in time of small and medium-sized enterprises in terms of growth, profitability and ability to repay the financial debt, during the three-years period?*

The research methodology was articulated as follows:

a) short illustration of the framework, whose informative matrix permits to identify different types of financing instruments considering different criteria (growth, profitability, and capacity of financial debt's repayment);

b) application of the above-mentioned informative matrix to the sample;

c) analysis of the evolution in time in terms of different criteria (growth, profitability, and capacity of financial debt's repayment), during three-year period considered.

All the aspects of the observation are deepened and presented below.

#### *A) Illustration of the used informative matrix*

The framework of our research is represented by a model developed in the previous publication (Giacosa and Mazzoleni, 2016). The model mentioned-above illustrates several typologies of small and medium-sized enterprises in terms of different criteria (growth, profitability, and capacity of financial debt's repayment) and permits to conduct analysis on the following topics, considering a them in a system way (Coda, 1990; Ferrero et al., 2006; Teodori, 2000).

Firstly, we used the CAGR indicator to measure an average annual growth, because of its ability of neutralizing the effects of a wide volatility of the rates of growth. The CAGR is calculated on individual years and makes arithmetic average less meaningful.

Secondly, we considered a series of expressive indicators of profitability and ability to repay financial debt, with the purpose to identify the post helpful ones. Then, it was necessary to calculate the correlation of these indicators with the company's economic and financial situation (the data of both, the companies under normal operating conditions and bankrupt ones have been compared).

In order to identify the parameters necessary to evaluate economic and financial situation of the company, the following criteria have been defined:

- high correlation between the financial condition of the company and proper indicator;
- correlation between the indicators identified before.

Table 2 contains the results obtained.

**Table 2.** Correlation between the company's economic-financial situation, and indicators of profitability and ability of repaying financial debt

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

Source: Own elaboration

The yellow cells presented in the table above illustrate the correlation between the situation of the company and the proper indicator. The green one indicates the correlation between two chosen indicators, instead.

As a result of conducted analysis, the highlighted indicators (meaning EBITDA/Production Value and Financial Debts/EBITDA) are characterized by a relevant correlation between the company's condition and between the indicators themselves (respectively -0.3245 and -0.0874) by a lower correlation between the two indicators identified (-0.0094). Finally, the following indicators have been used:

a) to measure the company's growth - indicator CAGR (Compound Annual Growth Rate) has been used, calculated in the following way:

$$CAGR = \sqrt[n]{\frac{PV_n}{PV_m}} - 1$$

Where,

$PV_n, PV_m$  = Company's production value in years "n" and "m", assuming that  $m > n$ .

b) to measure the company's profitability - indicator EBITDA to production value has been used calculated as follows:

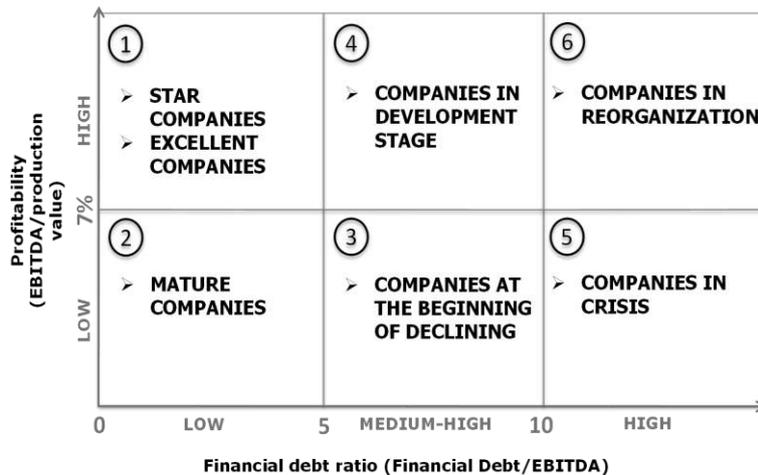
$$Profitability\ in\ the\ year\ "n" = \frac{Ebitda\ (n)}{Production\ value\ (n)}$$

c) to measure the capacity to repay the financial debt - indicator Financial Debt to EBITDA has been used, as it contains an information about the period necessary to repay the debt using the sources deriving from the core business activity. The formula used to calculate it is presented below.

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

Our model is created by 6 quadrants and it is illustrated on the Figure 1.

**Figure 1.** The informative matrix



Source: Own elaboration

Below is presented the characteristic of six quadrants mentioned above:

- 1<sup>st</sup> quadrant - star companies, where average annual growth is higher than 5%, average

profitability greater than 7% and average financial debt less than 5;

- 1<sup>st</sup> quadrant - excellent companies, where average annual growth is lower than 5%, average

profitability greater than 7% and average financial debt lower than 5;

- 2<sup>nd</sup> quadrant - mature companies, where average profitability is below 7% and average financial debt is below 5;
- 3<sup>rd</sup> quadrant - companies at the beginning of declining, where average profitability is below 7% and average financial debt is between 5 and 10;
- 4<sup>th</sup> quadrant - companies in development stage, where average profitability is greater than 7% and average financial debt is between 5 and 10;
- 5<sup>th</sup> quadrant - companies in crisis, where average profitability is below 7% and average financial debt is greater than 10;
- 6<sup>th</sup> quadrant - companies in reorganization, where average profitability is above 7% and average financial debt is higher than 10.

A horizontal axis of our informative matrix represents the financial debt ratio, the vertical - profitability. Within each quadrant appears graphically a bubble illustrating the growth. To identify the position of the bubble in the situation, when the companies' average growth is negative, we assumed it is equal to 0.20%

#### *B) Application of the informative matrix to the sample of Italian companies*

The Italian companies were classified in the informative matrix. The classification took place in two different moments.

Regarding to the first moment, the following method was adopted;

- calculation of the indicators previously illustrated (Ebitda/Production value and Financial Debts/Ebitda) with reference to year 2011;
- collocation of the sample's companies in one of the matrix quadrants. The classification took place by comparison the indicators' values for each company with the values delineating by the matrix quadrants.

• Regarding to the second moment, the following method was adopted:

- calculation of the indicators previously illustrated (Ebitda/Production value and Financial Debts/Ebitda) with reference to year 2013.

- collocation of the sample's companies in one of the matrix quadrants. The classification took place by comparison the indicators' values for each company with the values delineating by the matrix quadrants.

The calculation of CAGR was made, in both cases with reference to the years 2011 and 2013.

#### *C) Evolution of the companies' position in the informative matrix in a three-year period*

The aim of the examination of the companies' location in the informative matrix in the years 2011 and 2013 was to identify the evolution and involution processes followed by the same companies during the three-year period considered.

In particular, 2011 has been considered as the initial year of the survey and the 2013 as the conclusive year. Additionally, it was observed that if in the year 2013 the company has changed the quadrant to which has belonged in 2011, or if has remained in the same quadrant, it maintained the same levels of profitability and financial indebtedness that has recorded during the year 2011. For example, if the company A in 2011 has belonged to the second quadrant (with profitability less than 7% and financial indebtedness less than 5) and in 2013 has belonged to the first quadrant (with profitability more than 7% and financial indebtedness less than 5), this means, that during the three-year period 2011-2013, it has recorded an evolution process by improving its profitability and maintaining the same financial indebtedness ratio.

This analysis on the companies' movement in the informative matrix was carried out for each quadrant, as it is described below.

#### **4. FINDINGS**

Once the analysed companies have been placed in the informative matrix, the evolution of their position in the same matrix during the three year period 2011-2013 was examined (Table 3). The findings are presented below and detailed for each quadrant.

**Table 3.** Collocation in the years 2011 and 2013

<i>Categories of companies in the informative matrix</i>	<b>2011</b>		<b>2013</b>	
	No.	%	No.	%
Star and Excellent Companies (1 <sup>st</sup> quadrant)	12,300	30%	12,043	29%
Mature companies (2 <sup>nd</sup> quadrant)	11,596	28%	11,720	28%
Companies at the beginning of decline (3 <sup>rd</sup> quadrant)	5,973	14%	5,829	14%
Companies in development (4 <sup>th</sup> quadrant)	2,148	5%	1,973	5%
Companies in crisis (5 <sup>th</sup> quadrant)	5,288	13%	4,961	12%
Companies in reorganization (6 <sup>th</sup> quadrant)	900	2%	800	2%
Negative Ebitda	3,139	8%	4,018	10%
Total	<b>41,344</b>	<b>100%</b>	<b>41,344</b>	<b>100%</b>

*Source: Own elaboration.*

Compared to 2011, in the year 2013 the percentage of the companies of the first and the fifth quadrant is declined, but there is observed an increase of the number of the companies that are not represented in the informative matrix due to a negative Ebitda in 2013. In the other quadrants there were no changes.

In order to understand the dynamic of the companies' movement within the quadrants of our informative matrix, for each quadrant the analysis has been conducted.

The first quadrant is analysed below (Table 4).

**Table 4.** Analysis of the first quadrant

<i>Collocation of the companies in 2011</i>	<i>Collocation of the companies in 2013</i>	<i>%</i>
Star and Excellent Companies	Star and Excellent Companies	71.50%
	Mature companies	16.40%
	Companies at the beginning of decline	4.04%
	Companies in development	2.87%
	Companies in crisis	2.19%
	Companies in reorganization	0.30%
	Negative Ebitda	2.70%

Source: Own elaboration.

The 71.50% of companies that in 2011 were placed in the first quadrant, in 2013 has maintained the same collocation and in this way the same levels of profitability and financial indebtedness. The remaining 28.50% instead, has moved towards other quadrants. In particular:

- most of these companies (16.40%), in 2013 was placed in the second quadrant, underlying in this way a worsening of profitability (to level below 7%) and maintaining a financial indebtedness ratio lower than 5;
- a further 4.04% of the companies that in 2011 was placed in the first quadrant, has instead moved towards the third quadrant, getting worse both in terms of profitability and in terms of financial solidity (profitability has fallen to level between 0

and 7%, while the financial indebtedness has risen to level between 5 and 10);

- there are 269 companies (2.19), whose situation has deteriorated, and which in 2013 have been relocated in the fifth quadrant, recorded in this way a sharp deterioration in financial indebtedness to values higher than 10, with a drop in profitability to values between 0 and 7%;
- the 2.71% in 2013 has recorded an Ebitda below zero;
- the remaining 3.17% is lastly located in the remaining quadrants, in particular the 2.87% in the fourth and the 0,30% in the sixth quadrant.
- The second quadrant is analysed below (Table 5)

**Table 5.** Analysis of the second quadrant

<i>Collocation of the companies in 2011</i>	<i>Collocation of the companies in 2013</i>	<i>%</i>
Mature companies	Star and Excellent Companies	13.26%
	Mature companies	62.95%
	Companies at the beginning of decline	11.40%
	Companies in development	0.28%
	Companies in crisis	4.73%
	Companies in reorganization	0.04%
	Negative Ebitda	7.34%

Source: Own elaboration

The 62.95% of the 11,596 companies that in 2011 was placed in the second quadrant, in 2013 has maintained the same levels of profitability and financial indebtedness, and therefore were always placed in the second quadrant. In addition, it emerged that:

- the 37.05% from 2011 to 2013 has changed its collocation in the informative matrix;
- a big part of the 37.05% of the companies that have changed their place (1,536 companies, meaning 13.26% of the total number of 11,596 companies) have recorded an increase of their profitability above the level of 7%, maintaining a financial debt ratio below 5, and they have moved in this way to the first quadrant;
- remaining 11.40% of the companies has recorded the deterioration of its situation, and in

2013 has been classified and placed in the informative matrix as the companies at the beginning of decline, keeping the low level of profitability (below 7%) and worsening a financial debt ratio to the level between 5 and 10;

- the 7.34% of the companies has recorded a deterioration of its profitability, reaching in 2013 negative values;
  - there are 549 companies (4.73%) that in 2013 have significantly worsened their financial debt ratio, recording the values above 10 and maintaining profitability below 7%;
  - a remaining 0.32% of the companies has been finally moved to the fourth and the sixth quadrant.
- The third quadrant is analysed below (Table 6).

**Table 6.** Analysis of the third quadrant

<i>Collocation of the companies in 2011</i>	<i>Collocation of the companies in 2013</i>	<i>%</i>
Companies at the beginning of decline	Star and Excellent Companies	9.44%
	Mature companies	21.41%
	Companies at the beginning of decline	38.67%
	Companies in development	4.27%
	Companies in crisis	18.63%
	Companies in reorganization	0.25%
	Negative Ebitda	7.33%

Source: Own elaboration

5,973 companies that in 2011 were placed in the third quadrant are among those who have been moved the most. From the analysis emerges as follows:

- only 826 (38.67%) of them have not changed their difficult situation from 2011, meaning that they have kept a low profitability (below 7%) and medium-high financial debt ratio (between 5 and 10);
- a big part of the analyzed companies (21.41%) that has recorded a change, in 2013 has been placed in the second quadrant, what means that situation of these companies has improved a little bit: they have maintained low level of profitability but they have improved a financial debt ratio (to a level below 5);
- a significant part of 5,973 companies (18.63%) has recorded deterioration of its already difficult situation, placing itself in the fifth quadrant; in particular, they have deteriorated again their ability

to repay financial debt to the values above 10, keeping in the same time low profitability;

- the 9.44% of the companies that in 2011 has been placed in the third quadrant, has changed place and in 2013 has been located in the first one, meaning that those companies were able to improve in both terms of profitability (values above 7%) and in terms of financial debt ratio (values below 5);
- the 7.33% of the companies that in 2011 has recorded the financial debt ratio between 5 and 10 and profitability below 7%, in 2013 has worsened again their profitability, recording a negative Ebitda;
- the remaining 4.52% of the 5,973 companies analyzed, in 2013 has been relocated in the fourth (4.27%) and in the sixth quadrant (0.25%).
- The fourth quadrant is analysed below (Table 7).

**Table 7.** Analysis of the fourth quadrant

<i>Collocation of the companies in 2011</i>	<i>Collocation of the companies in 2013</i>	<i>%</i>
Companies in development	Star and Excellent Companies	26.03%
	Mature companies	2.56%
	Companies at the beginning of decline	11.03%
	Companies in development	38.45%
	Companies in crisis	10.99%
	Companies in reorganization	5.96%
	Negative Ebitda	4.98%

*Source: Own elaboration*

From the analysis it emerged as follows:

- 2,148 companies that in 2011 have been placed in the fourth quadrant are these one, who have changed the most. Only 38.45% of them in 2013 present the same levels in terms of both profitability and in terms of financial debt ratio;
- the 61.55% of the 2,148 companies that in 2013 present different collocation, a big part (26.03%) has been relocated into the first quadrant, improving in terms of indebtedness, what means decrease the values below 5 and keeping the same profitability levels (above 7%);
- the 11.03% of the companies analyzed has worsened their situation, and has been placed in the third quadrant with lower profitability (below 7%)

and maintaining a financial debt ratio on the level between 5 and 10;

- in 2013, 236 companies (meaning 10.99%) have been placed in the fifth quadrant, recording deterioration in both terms of profitability (values between 0 and 7%) and in terms of ability to repay financial debt (values greater than 10);
- further 5.96% of the companies, in 2013 has recorded worse indebtedness (values greater than 10) but has kept high profitability (values greater than 7%), placing itself in the sixth quadrant;
- the remaining 162 companies (7.54%) in 2013 have been placed in the second quadrant (2.56%) and have recorded a negative Ebitda (4.98%).

The fifth quadrant is analyzed below (Table 8).

**Table 8.** Analysis of the fifth quadrant

<i>Collocation of the companies in 2011</i>	<i>Collocation of the companies in 2013</i>	<i>%</i>
Companies in crisis	Star and Excellent Companies	5.05%
	Mature companies	9.15%
	Companies at the beginning of decline	22.02%
	Companies in development	5.07%
	Companies in crisis	40.97%
	Companies in reorganization	2.63%
	Negative Ebitda	15.11%

*Source: Own elaboration*

5,288 companies that in 2011 have been placed in the fifth quadrant, valued as worse one because of high profitability (values between 0 and 7%) and high financial debt ratio (values greater than 10), in 2013 were able - in the most cases - to change their place in the informative matrix. Only 40.97% of them in 2013 has presented the same levels of profitability and of financial debt ratio. In particular, from the analysis it emerged that:

- a significant part of the companies (22.02%), which in 2013 has changed their position in the informative matrix and has been placed in the third

quadrant, improving a little bit financial debt ratio to level between 5 and 10, maintaining however the profitability below 7%

- a big part of 5,288 companies analyzed (meaning 15.11%) in 2013, in comparison to 2011, has worsened their profitability and recorded a negative Ebitda;
- in 2013 the 9.15% of the companies was able to improve their indebtedness (below 5) maintaining in the same time a low profitability (below 7%) and has been placed in the second quadrant;

- it is very important to highlight that 267 of 5,288 Italian companies analyzed (5.05%) were able to move within 3 years from the fifth quadrant, evaluated as the worst one, to the first and the best one, thanks to increased profitability to values

greater than 7% and decreased financial debt below 5;

- the remaining 7.70% of the companies, in 2013 has been relocated in the fourth quadrant (5.07%) and in the sixth quadrant (2.63%).

The sixth quadrant is analyzed below (Table 9).

**Table 9.** Analysis of the sixth quadrant

<i>Collocation of the companies in 2011</i>	<i>Collocation of the companies in 2013</i>	<i>%</i>
Companies in reorganization	Star and Excellent Companies	7.44%
	Mature companies	0.89%
	Companies at the beginning of decline	1.56%
	Companies in development	18.22%
	Companies in crisis	17.11%
	Companies in reorganization	46.56%
	Negative Ebitda	8.22%

*Source: Own elaboration*

The 46.56% of 900 companies that in 2011 were placed in the sixth quadrant, in 2013 has kept the same level of profitability (above 7%) and of financial debt (values greater than 10). In particular, it emerged that:

- 481 companies that in 2013 have changed their position in the informative matrix (53.44%) in the most cases (18.22%) have been placed in the fourth quadrant, recording better indebtedness (values between 5 and 10) and keeping high profitability (values greater than 7%);

- the 25.33% of 900 companies analyzed has deteriorated their situation: the 8.22% has registered in 2013 a negative Ebitda and the 17.11% has kept the same high financial debt ratio and reduced its profitability, and as a consequence has been placed in the fifth quadrant;

- in the three-year period of analysis, 67 companies (7.44%) have been relocated instead in the first quadrant instead, what means that they were able to keep high profitability (values above 7%) and to improve their ability to repay the financial debt, decreasing it to values below 5;

- the remaining 2.44% of 900 companies analyzed, in 2013 has been placed in the third (1.56%) and in the second quadrant (0.89).

## 5. DISCUSSION

Observing the results, it emerged that the quadrant characterized by the best stability is the first one (Star and Excellent Companies), while those the less stable are the third (Companies at the beginning of decline) and the fourth one (Companies in development).

The dynamic of the second quadrant (Mature Companies) leads to the following conclusions. In the situation when the company with a low profitability and a low financial debt tends to improve its profitability, it therefore has a possibility to be placed in the quadrant which is represented by a Star and Excellent Companies. On the other hand, decrease of profitability means a deterioration of the financial debt/Ebitda ratio and, in this way, the replacement to the quadrants characterized by medium-high indebtedness is high. There were observed a limited cases where the companies that were moving in the fourth (Companies in development) and the sixth quadrant (Companies in crisis), have been characterized by

high profitability and medium-high or high financial debt level.

The behavior of the companies classified in the third quadrant (Companies in crisis) is different than the one assumed for the companies in the second quadrant (Mature companies). The movement from the quadrant, in which they were placed at the beginning is assigned above all because of decrease or increase of financial debt. Indeed, significant part of the companies are placed in the quadrant 2 and 5, characterized by low profitability and financial debt respectively low or high.

The behavior of the companies classified in the fourth quadrant (Companies in development) provokes the following discussion. A company classified as the company in development has a real possibility to improve its solidity: in the case when a company continues to guarantee a high profitability, it can be located as a Star or Excellent Company (the first quadrant); on the other hand, probable increase of its financial debt ratio leads to placement in the third quadrant (Company in decline) or in the fifth quadrant (Companies in crisis).

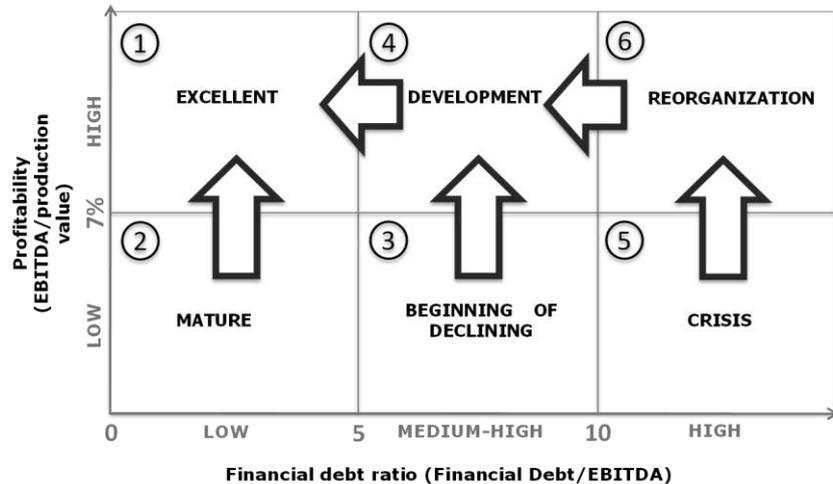
The behavior of the companies classified in the fifth quadrant (Companies in crisis) leads to the following discussion. The relevant part of the companies are relocated into quadrants with a low profitability and an ability of financial debt's repayment lower in comparison to the respective quadrant, indicating reduction of the indebtedness level.

The behavior of the companies placed in the sixth quadrant (Companies in reorganization) leads to the following conclusions. A company in reorganization has a possibility to migrate to the fourth quadrant (Companies in development), under condition that will keep a high profitability; alternatively if the company's profitability will decrease, it will be placed in the fifth quadrant (Companies in crisis).

After discussing the paths followed by Italian companies within our informative matrix, and according to *RQ*, it emerged the evolution in time of *small and medium-sized enterprises in terms of growth, profitability and ability to repay the financial debt, during the three-years period*.

Consequently, a "virtuous" path is introduced, which should be followed by the companies placed in a different quadrants in order to improve their economic and financial situation (Figure 2).

Figure 2. Evolution paths in the informative matrix



Source: Own elaboration

In particular, it would be advisable to wait, as the Mature companies (the second quadrant) and those in development (the fourth quadrant) would improve respectively their profitability and indebtedness, placing itself between Excellent Companies (the first quadrant).

It is also advisable to wait, as the companies at the beginning of decline (the third quadrant) and in

crisis (the fifth quadrant) would improve in a short-time period their profitability, collocating itself as the companies in development /fourth quadrant) and companies in reorganization (the sixth quadrant).

The table presented below shows the results of the analysis conducted on the Italian companies (Table 10).

Table 10. Trend of profitability and indebtedness 2011 - 2013

Relevant indicator	Trend	%
Profitability	Improvement	17%
	Stability	73%
	Deterioration	10%
Indebtedness	Improvement	15%
	Stability	72%
	Deterioration	13%

Source: Own elaboration

The 73% of the Italian companies analyzed in the three-year period considered is not a subject of any increase/ decrease of profitability that would allow to classify them in another quadrant. The 17% of the companies recorded increase of profitability and the remaining 10% showed its decrease.

The 72% of the sample of the companies operating in Italy, during the three-year period considered has not recorded any variation of the values in terms of financial debt, what would permit to place them in 2013 in a different quadrant. The 15% instead has recorded an improvement of indebtedness, while 13% has noticed its deterioration.

This virtual path permits the creation of information for management, owners and stakeholders, which represent a key role into the company's business (Nicotra, Romano and Del Giudice, 2014; Hansen, Mors and Lovas, 2005), and their decision making process impacts on the company's opportunities. In particular, the proposed model could contribute to setting up a Knowledge management strategies in the identification of those decisions who can help and those who can hinder the implementation of the company business (Del Giudice et al., 2013).

The model creates several types of knowledge about the company's state of health, favouring the management and owners in a conscious decision making process (Culasso, 2009 and 2012; Giacosa, 2012b). In addition, the model creates such information useful for stakeholders, allowing them to reach a positive or negative consensus on the company's activity, which impacts on their availability when granting new resources to the company (Giacosa, 2012a; Reilly and Di Angelo, 1990; Rolland, 2004; Shannon and Weaver, 1971).

## 6. CONCLUSIONS, IMPLICATIONS AND LIMITATIONS

The use of the framework has allowed to analyze the evolution of the company's situation in time, in terms of different criteria (growth, profitability, and capacity of financial debt repayment), during the three years considered.

In three-year period, it was observed a decrease of the companies classified as Star and Excellent Companies (the first quadrant) and the Companies in Crisis (the fifth quadrant), while the companies that have no representation in the information matrix (negative EBITDA) have increased instead. On

the contrary, the companies placed in the other quadrants (Mature companies of the 2<sup>nd</sup> quadrant; companies at the beginning of decline of the 3<sup>rd</sup> quadrant, companies in development of the 4<sup>th</sup> quadrant) have not recorded any changes..

Therefore, the following final considerations should be stated.

The position of Star and Excellent Companies (characterized by solid conditions in terms of growth, profitability and capacity of financial debt's repayment) inserted in the first quadrant, tend to be unchanged (in 71.50% of cases). Only the 16.40% of them becomes a mature company.

The mature companies (placed in the second quadrant) tend to maintain their position (in 62.95% of cases). Only the 13.25% becomes a star or excellent company, and the 11.40% becomes a company at the beginning of decline.

Companies less stable but not in crisis (classified in the third and the fourth quadrant) are characterized by greater movement within the informative matrix, in other words, by a greater change of their situation. Indeed, it is considered that the third and the fourth quadrant represent an intermediate situation of the companies in the short term period.

In particular, only 38.67% of the companies at the beginning of decline (the third quadrant) remains like that. On the contrary, the 21.41% becomes a mature company (the second quadrant); the 18.63% becomes a company in crisis (the fifth quadrant). Only 9.43% of them improves their situation and becomes a Star and Excellent company.

With reference to the companies in development (the fourth quadrant), only 38.45% remains classified like that. In contrast, 26.02% improves its position by becoming a Star and Excellent Company (the first quadrant), the 11.3% becomes a company at the beginning of decline (the third quadrant) and 10.99% goes into crisis (the fifth quadrant).

The allocation of the company in one of the two quadrants (the 3<sup>rd</sup> and the 4<sup>th</sup> quadrant) should be for a company an incentive for adopting a series of measures to reduce debt or increase the profitability of its business. Then, depending on the timing of intervention and effectiveness of the measures undertaken, the company would be able to improve its situation (migrating towards the quadrants considered as the best one, meaning the first and the second quadrant) or towards quadrants typical for the companies in crisis (the fifth quadrant) and in reorganization (the sixth quadrant).

The fifth quadrant defines the companies in crisis. The trend shows that a big part of the companies in crisis remains within the fifth quadrant (40.97%) and the situation of an important part of the companies deteriorates again, resulting as a company with a negative EBITDA (15.11%). Only 22.2% of the companies goes into decline, and 5.5% improves its position becoming star and excellent companies.

The evolution of the companies placed in the sixth quadrant (companies in reorganization) shows, that the reorganization policies adopted by the company are not always effective. Indeed, 17% of them, after two years, are classified as the companies in crisis, because of worsening the profitability, while situation of the 22.8% has deteriorated as they have obtained a negative

EBITDA. The 46.56% keeps the status of a company in reorganization and only the 18,22% becomes a company in development. A modest 7,44% becomes a star and excellent company.

Overall, during the period 2011-2013, it increased the number of companies, whose core business has not generated resources necessary to repay the debt.

The research is characterized by theoretical and practical implications. Theoretical implications are linked to the contribution to the scientific debate for a series of reasons:

- the research provides a model of virtuous paths that companies must follow to improve their economic and financial situation;

- therefore, the model permits to evaluate the company's situation and verifies its evolution over time, stimulating a series of corrective actions to improve abovementioned situation;

- in this way it is possible to prevent the crisis situation, which is so common nowadays. Indeed, the theme of phenomenon of the crisis has become extremely topical due to the current environment in which the companies operate (Bresciani and Oliveira, 2007), characterized by an increasing number of companies in crisis. In addition, the speed of changing the status from the decline to the crisis has led the experts to think of about the phenomenon of crisis in deepened way;

- in addition, the crisis is often characterized by a certain gravity, which can compromise on the survival of the company; as the last, the decision-making process on actions to be undertaken in a crisis situation must take place in the conditions of urgency;

- concluding, the companies could commit themselves to undertake a path toward virtuous positions, in terms of economic and financial situation. To this end, the research illustrates the most probable paths undertaken by the companies that has once determined its current condition. In addition, the research provides to the individual company a useful tool to understand the appearance of the situations which require corrective actions (the third quadrant) and reorganization (the fifth quadrant).

- Practical implications are referred to the companies (in particular the management and the owners) and to the stakeholders:

- the created model can support management and/or owners both in making an early diagnosis of the business situation before the crisis will be fully manifested, and in the establishment of timely actions appropriate to real business conditions in order to facilitate the improvement of the company's condition;

- with reference to stakeholders, the model permits them to know in advance the conditions of the company: for instance the funders, the company's suppliers and employees, as they are involved in the company's results. These information help them in a conscious decision making process according the evaluation of the company. In particular, the proposed model allows them to reach a positive or negative consensus on the company's business, which impacts on the availability of stakeholders when granting new resources to the company;

- for both the management and/or owners, on

one side, and the stakeholders, on the other, the presented research permits to analyses evolution of the company's situation in time, in terms of different criteria (growth, profitability, and capacity of financial debt's repayment). Therefore, the company can understand its position and, at the same time, be encouraged to adopt a series of measures to improve its situation in terms of growth, profitability and capacity of financial debt's repayment.

During conducting the present research some limitations were assumed, however they do not have significant impact on the conclusions:

- in order to assess the company's economic and financial condition, three following indicators were used (growth, profitability and ability of repaying financial debt, because they are significantly correlated with the company's performance. To represent the peculiarities and certain characteristics for the companies analysed, a system of indicators can be used.

- the model does not take into consideration the qualitative variables (for example, the brand's originality, investment projects, market share), but is based only on the quantitative ones;

- the company's ability to migrate toward different quadrants of the matrix is assessed by considering the company's position in the single year and not by its allocation based on the average values over the three years: in this way the evolution of company's growth is not assessed. In other words, to evaluate changes in terms of growth, it would be necessary to determine the allocation of the company in the matrix quadrants on the basis of average values for the period 2011-2013 and after re-determine the placement of the same companies in the next three years, for example 2012-2014. In this way, it is possible to observe not only the change over time in profitability and debt, but also in the average growth.

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