

Policymakers and Business Models

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Abstract

The paper focused on theoretical issues related to default risk by synthesizing the historical issues on the first theoretical constructions on the bankruptcy risk assessment of firms. Starting from traditional models such as Altman, Conan-Holder, the French Central Bank Balances and we made some comparisons between them imposing the conclusion that all use different economic indicators in the financial statements, but intangible assets were not taken into account in rates of score functions. The purpose of this paper is to highlight the importance of this indicator and which would be the possibility of using it as rate in the analysis of bankruptcy risk.

Keywords: business models, intangible assets, knowledge, decision-makers

JEL: M1, M2

1. Introduction

The reality of economic and social life we live in and operate daily, either as individuals or as economic entities, is increasingly influenced by globalization. Information technology and knowledge revolution of recent decades show that holding information / knowledge is essential in decision making at the level of individuals, families and / or business organizations.

The evolution of management as practice and science strengthened over time by contributions from the founders and supporters of the school of management from F.W. Taylor, H. Fayol, and later by the contribution of P. Drucker, Th. Peters, R. Waterman etc. In parallel, other analysts and thinkers from different fields (economic analysis, statistics, mathematics, computer science, sociology, psychology, finance, law, logic, etc.) have made significant contributions to strengthening management institutions in modern society. According to Drucker, the management institution mainly explains the progress and standard of living in Western countries compared with other categories of countries, such as those with centralized economy or Third World countries [1].

Along with other analysts, Schumpeter is one of the most famous authors who have dealt closely with issues of economic growth and business cycle [2]. The author tries to explain the causes or factors promoting social progress and that factors that drive the whole economic life; for him competition between markets induce certain behaviors of entrepreneurs and decision-makers willing to take risks. Especially in the work *Bussines Cycle*, the author describes in detail the evolution of modern capitalism; he concludes that economic life has a sinuous movement and is closely correlated with the innovation process and behavior of entrepreneurs [3].

2. Literature review

From the historical point of view, intangibles were classified as "goodwill" and intellectual capital as part of "goodwill". However, traditional accounting does not reveal these new intangible assets of an organization. This issue became the subject of worldwide research. Most of these works consider intellectual capital as something that is not visible, including value embedded in the skills of employees, in the organization's processes and in its dealings with customers. Assets that produce knowledge relate to identifiable aspects of an organization which, although intangible, can be considered to add a particular type of value to the organization.

Over time, *the innovation process* was a theme of reflection for many researchers. The man who first raised the subject was the Austrian economist *Joseph Schumpeters*. According to his optics entrepreneurs are motivated by the obtaining of profit to use investment in innovation / invention [3].

Peter Drucker "sees" innovation as a specific tool for an entrepreneur, through which he uses change as an opportunity for different business or service [4]. Peter Drucker identified the main problem for future managers since 1959 in his book "Landmarks of Tommorrow" [5] but the problem was barely realized 50 years later: how do we increase productivity of production resources, "the knowledge workers" (a term coined 55 years ago by Drucker).

E.F. Denison in the paper "*Sources of economic growth in the United States*" concluded that there is some significant share attributable to education and qualification of employees to the economic growth of a country (theoretically, the state must invest in education to ensure growth in the future nationally) [6].

3. Economic models and their rates structure

Both in literature and in terms of practical application of this instrument, the first major model on bankruptcy risk analysis, belonged to EI Altman, who published it in its original form in 1968 and is known as score function. Z. Altman selected 22 potential variables that proved to be significant indicators of financial difficulties based on previous studies (this author was referring to the studies of Beaver, 1966; both specialists have analyzed how flow payments and receipts of a firm evolve and importance / significance of this variable; in Altman's case cash-flow management only holds a certain percentage of the total equation for estimating the bankruptcy)

The 22 variables were then classified into five categories:

- Liquidity;
- Profitability;
- Leverage;
- Solvency;
- General activity.

The original version of Altman model proposed in 1968 is the following [7]:

$$Z = .012X_1 + .014X_2 + .033X_3 + .006X_4 + .999X_5 \quad [1]$$

where:

Z = Overall Index

X₁ = Working capital/Total assets

X₂ = Retained Earnings/Total assets

X₃ = Earnings before interest and taxes / Total assets

X₄ = Market value equity/Book value of total debt

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$X_5 = \text{Sales/Total assets}$

Later in nearly a decade, Altman, Haldeman and Narayanan (1977) developed the initial model by developing a Z function for private companies, which have been grouped for industrial sectors (manufacturing) and for companies in the fields non-manufacturing; the model was later called the ZETA model [8]. During the years that followed, Altman and other collaborators have brought some initial developments to the initial model trying to give a general form to the proposed scoring function so that to be applicable to any company, in any economic sector and irrespective of its size.

Using Conan-Holder model, as field of application and interest in the financial world and stock market in different countries, did not depart significantly from the route of the Altman model. The model was developed in France by Conan and Holder Michel using discriminate analysis as a working principle. The two authors, with the help of a score function, determined the probability of reaching a status of bankruptcy of companies.

The general form of the function score on which is based the Conan-Holder model [9] is close in form and structure to score function of the Altman model; but the weight and structure of each variable are different; the general shape of the score function is the following:

$$Z = 0,24 * X_1 + 0,22 * X_2 + 0,16 X_3 - 0,87 * X_4 - 0,1 * X_5 \quad [2]$$

where:

$X_1 = \text{Total gross operating surplus / Total debt}$

$X_2 = \text{Permanent capital / Total asset}$

$X_3 = (\text{Current Assets} - \text{Inventories}) / \text{Total asset}$

$X_4 = \text{Financial expenses / Turnover}$

$X_5 = \text{Staff costs / Value added}$

Nationally, Gheorghe Baileşteanu, starting from models Altman, Argenti, Conan and Holder, proposed in 1998 a model for Romanian firms consisting of four installments which comprises the following structure: general liquidity, solvency, profitability, recovery of clients and cost-effectiveness [10].

$G_1 = \text{current assets / current liabilities}$

$G_2 = \text{solvency} = (\text{net profit} + \text{depreciation}) / (\text{rate loan repaid} + \text{interest})$

$G_3 = \text{clients recovery} = \text{turnover} / \text{clients}$

$G_4 = \text{cost-effectiveness} = \text{profit} / \text{cost} \times 100$

The score function of these rates is:

$$B = 0,444 G_1 + 0,909 G_2 + 0,0526 G_3 + 0,0333 G_4 + 1,414 \quad [3]$$

Ion Anghel proposes in 2002 a model using a sample of 276 economic entities in 12 branches of the national economy. These entities were chosen randomly, for each economic entity was processed the accounting information in the 1994-1998 period based on data from the Annual Accounts. There were used a total of 20 indicators grouped into five user groups as follows: activity, liquidity, indebtedness, profitability and other information. Finally there were detained four installments [10]:

$X_1 = \text{Net profit / Revenues} - \text{represents revenue performance}$

$X_2 = \text{Cash Flow} - \text{debt coverage ratio with cash flow};$

$X_3 = \text{Debt / Asset} - \text{asset leverage};$

$X_4 = (\text{Liabilities / Turnover}) * 360 - \text{the period of payment of obligations}$

The score function associated with this model is:

$$A = 5,676 + 6,3718 X_1 + 5,3932 X_2 - 5,1427 X_3 - 0,0105 X_4 \quad [4]$$

Over time, there were developed financial analysis models to predict business failure and which can be considered as "early warning systems" for the decider; they are extremely useful for managers, organizations, banks and other interest groups. Also, these models are able to help financial institutions makers to evaluate and select companies to collaborate on business projects on long intervals. The analysis carried out by us in the

content of this research shows that different authors have studied a significant number of companies (based on data from the past financial accounting firms that have gone bankrupt and a similar group of companies that have prospered in business), on this basis proposing a particular model to estimate the risk of bankruptcy which is made up of a series of economic indicators in the financial statements.

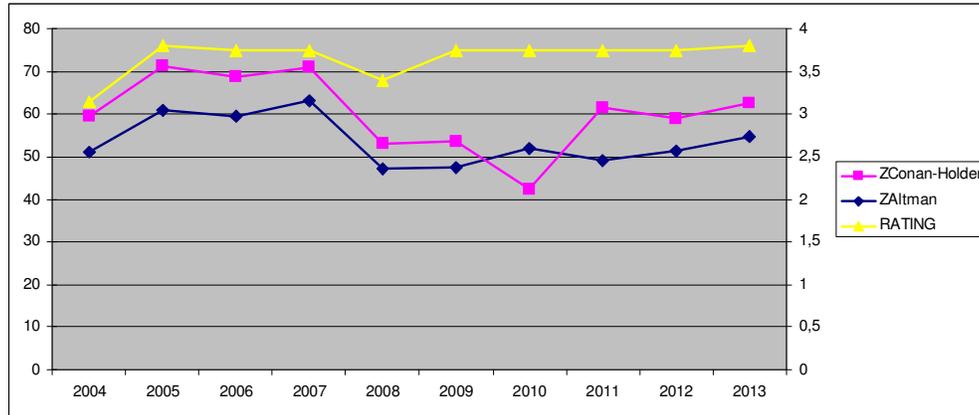


Fig. 1 Score function associated to Altman, Conan-Holder models, rating for Antibiotice Iasi

If we analyze the financial accounting data for different companies for "n" years we find that a firm's business evolves tortuously, unpredictable and not linearly upward [11]. Thus, in Figure 1 and 2 can be seen the evolution of the the two companies using as score functions those associated to Altman, Conan-Holder and French Central Bank Balances models.

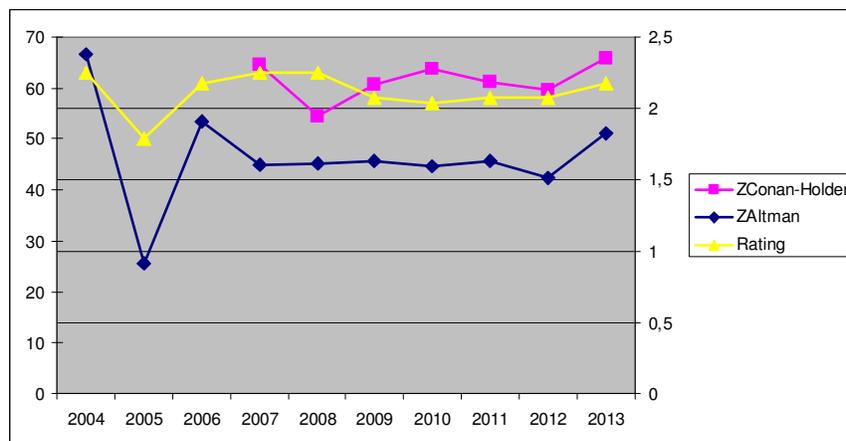


Fig. 1 Score function associated to Altman, Conan-Holder models, rating for Remedia

We come to a conclusion quite significant, that all traditional patterns use a series of accounting financial indicators, but none of the models considered in including in predicting the risk of bankruptcy of what we call non tangible assets.

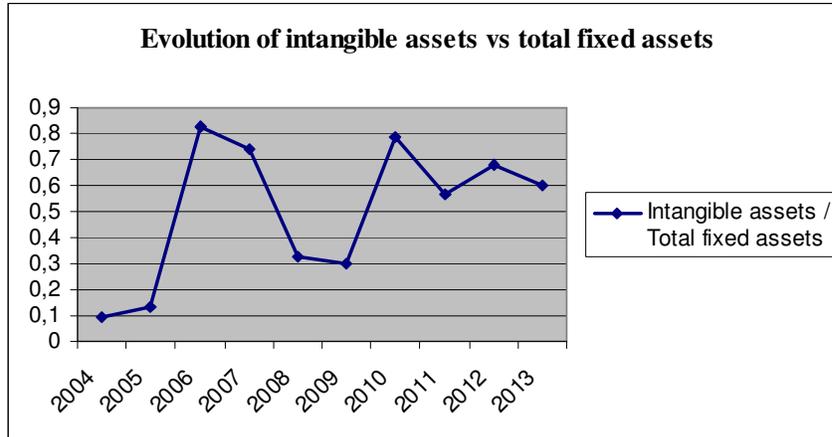


Fig. 2 Evolution of intangible assets compared to total current assets at Antibiotice Iasi

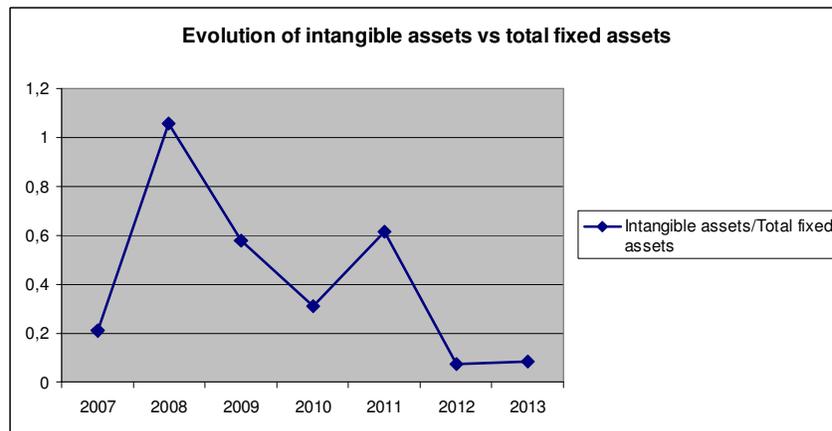


Fig. 3 Evolution of intangible assets compared to total current assets at Remedia

The market value of a company began to be increasingly given by the value of non tangible asset value available to that organization, assets that can be summarized by the term "*knowledge*" representing the creative capacity of employees regarded as inventions, innovations, patents, trademarks, designs and symbols. Therefore, knowledge is often the benefit that a company can have over competitors, and this knowledge is derived from intellectual capital. As can be seen, intellectual capital is used to create the company a competitive advantage, especially when it comes to knowledge; the *tacitness* degree of new knowledge created by employees is what makes the difference between two or more competitors in a given market.

4. Conclusions

Risk assessment models, through the information they can transmit to the manager, have the advantage that they provide a global significance on the company's financial condition and the likely trend of its development. In other words, based on the score resulting from the application of each model to estimate the risk of bankruptcy (score which will be interpreted by the decider in the light of experience, intuition, imagination of further relevant information etc.), top management of a company make an overview on the

situation of the organization at the time of analysis and, on that basis, can anticipate, predict accurately the directions they should take to influence the future course of the organization. Among other conclusions that we reached, we emphasize the idea that the most important part of intangible assets of a company is established /strengthened over time through the acquisition and processing of new knowledge (is the reason why we analyzed in a distinct paragraph this idea). Various models and strategic suggested by KM to exploit knowledge by companies are theoretical and / or pragmatic solutions, as appropriate, to identify specific areas of action to turn the information / data into knowledge.

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