ACCOUNTING INSTRUMENTS USED IN DECISION ANALYSIS

Florin Boghean

Stefan cel Mare University of Suceava, 720229, Romania

bogheanflorin76@gmail.com

Abstract

The research carried out in this article is a Behavioral Accounting Research, based on the following approach: How do individuals react to various issues in the field of accounting? The main purpose of this type of research is to describe the current decision-making behavior, to evaluate the quality of this process, as well as to develop and test theories in the sphere of psychological processes, which determine the behavior. Therefore, the content of this article will be based on the deductive approach, starting from theory to practice, with some research trends designed to verify the extent to which certain theoretical aspects mentioned above are confirmed by the practice in the field.

Key words: accounting, decisional process, risk management.

JEL Classification: B26, G38

I. INTRODUCTION

The decision is the foundation of the management activities in institutions and companies. On this basis, all actions to achieve the objectives of the system of any legal person are conceived and consciously conducted. All the working stages regarding the formulation, communication, follow-up of the application and evaluation of the results of the adopted decision constitute the decision-making process. Within this process it is operated with the help of decision models. Information overload can become a burden for managers in many organizations, as they are not able to extract and analyze relevant information. A study conducted by CGMA (The Charted Global Management Accountant) in 2016 among managers in 16 countries regarding the quality of information shows that 80% of the managers in the sample made strategic decisions based on erroneous information, and almost one one-third of respondents say that the greatest obstacle to streamlining the decision-making process is the organizational bureaucracy.

72% of organizations admit that they have had at least one strategic initiative failed due to errors in the decision-making process, in the last three years, according to a study by Chartered Institute of Management Accountants (CIMA) and American Institute of Certified Public Accountants (AICPA) published in 2019. Information overload, excessive bureaucracy, lack of confidence and incentives not aligned with business objectives were mentioned as factors contributing to mistakes in the decision-making process by companies around the world.

Among the main causes of the poor quality decisions identified are the information overload: 36% of the respondents say that their organization does not cope with the information surplus, and 32% say that big data has made the situation worse. Only 37% think big data was useful to them. Among the most performing organizations, 86% of the respondents already evaluate the managerial information they need to focus on ways to increase the value of the business model.

II. THEORETICAL BACKGROUND ON THE RESEARCHED TOPIC

Practices regarding decision-making processes have been for a long time tackled in the academic and practitioner literature (Behnam, 2012: 733). The benefits requested went beyond simply reducing the risk by extending performance improvements throughout the company (Grable, Roszkowski, Joo, O'Neill & Lytton, 2009: 396). Numerous studies have shown the need to develop risk-based decision models: Azuma, Daily and Furmanski (2006) and Endsley, Hoffman and Kaber (2007). Moreover, the need for the development of decision models that can describe the risk attitude of people from a systematic point of view is felt (Sankaranarayanan, Chandrasekaran & Upadhyaya, 2007: 256), also (Cordell, 2002: 30). The study of Mai and Tchemeni (1996) through the theory of the agency and the adjustments of the investors' expectations, stops on the voluntary supply of information, forecasts. Using data from 163 companies, the authors showed that, according to the "anticipation adjustment hypothesis", the management of the company presents forecast information to change investors' expectations

regarding future benefits. Following the research done, the authors observed that the forecasts are usually published in 3.07% of the companies, while the 6-year forecasts are elaborated by 49.70% of the companies.

Sometimes, at the first reading of the accounting documents, being unclear, inaccurate and far removed from their basic qualitative characteristic, faithful image, the "reader" cannot find out the real economic performance of the companies (Watts & Zimmerman, 2000). The informational superiority is given by the knowledge of the form of account formation and the possible "manipulations".

III. RESERCH METHODOLOGY

The research is part of a positivist scientific approach, of course not being deprived of some critical and interpretive ideas that aim to explain different concepts, but also to highlight possible solutions to the identified problems. For the scientific examination of the problems and to achieve the objectives and the proposed goals we will use the following research methods:

• *the analytical method* will be used to conduct an analysis of the theoretical approach of decisions and their role in the decision-making process;

• *qualitative and quantitative research method* by collecting data;

• *the method of induction and deduction*.

IV. THE ROLE OF ACCOUNTING IN THE CORPORATE STRATEGY

The corporate strategy is a system consisting of basic objectives, goals or aspirations and of essential policies or plans, formulated so as to define the current or potential field of activity of the company and its current or potential profile (Andrews, 1971). Analyzing the actions of the organization, it can be seen that it must manage your strategies in three main areas:

• Internal resources of the organization;

• The external environment in which the organization operates;

• The ability of the organization to add value to its production.

I consider on the basis of the studied works that the corporate strategy can be considered as a process that makes the connection between the management of the internal resources of the organization and the system of its external relations with the clients, suppliers, competitors and the social - economic environment in which it operates. The organization develops this system of relationships, starting from its capabilities and resources. It draws on history, skills, resources, knowledge, and varied conceptions to explore future actions.

There are studies carried out in different countries, studies that have shown that there are considerable differences regarding the decision system adopted by organizations. Thus, in the UK, top managers do not have sufficient knowledge to make decisions about, for example, launching a new product. They leave this decision responsibility on the shoulders of marketing specialists. On the other hand, in France, general managers have a multilateral training and therefore prefer to take responsibility for decisions. The Nordic countries focus on the quality of the production and the technical aspects and less on the managerial aspects and the Japanese when making an important decision involve everyone in the organization, who will be affected by it. The main motivation is the tendency to globalize the activities of multinational companies, the global company being characterized by economies and by an organizational culture beyond the national cultures (Filip, 2012: 116).

CFO Europe Research Services applied a series of questionnaires to approximately 193 directors of European companies. All respondents came from companies with more than $ 750 million in annual worldwide revenues. The purpose of this study was to highlight the quality of managerial decisions. 75% of the managers of the companies want the financial department of the entity that they manage to offer more support in making decisions and focus less on the actual processing of transactions. As can be seen in Figure 1 in the top of choices regarding the barriers affecting the financial information presented later to the managers there are:
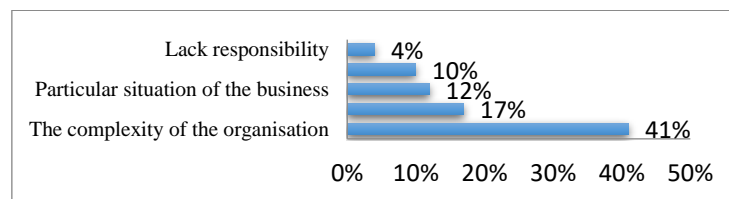

Figure 1 - The top choices regarding the barriers that influence the financial information of the companies
Source: procesing by Management information and performance: CFOs face new demands for high-quality data that drives decisions

In practice, it has been observed that European financial analysts are increasingly using market-oriented methods, trying to take into account factors such as the geographical distribution of turnover and the state of the sector. To meet this idea come also the International Financial Reporting Standards (IFRS) that wish to ensure comparability between the financial statements of the different economic entities and to overcome the difficulties that arise.

Once established, the mission of the company must be communicated to managers and all other employees in a clear and inspiring manner. The mission is always limited in time, because different influencing factors cause changes in the structure of markets and technologies, in the gestures and preferences of consumers. The formulation of the mission must also follow the new trends, because a well-chosen mission prepares the company for the future. In an increasingly changing environment, the preparation of the strategic mission of the organization operates with two extremes (Grable, 2008):

1. The financial accounting information available is rich enough to allow precise strategic actions;
2. the most frequent attitude is expectation until the net trends are identified.

The latter becomes more dangerous as the fluency of change increases visibly (Poeter, 1990). The company in this situation faces the following dilemmas:

• if they wait for certainty to increase, they may be surprised by a crisis;
• if satisfied with the information available, they are too vague to trigger definite strategic maneuvers.

The decision is made based on information; the most important thing is to improve the information provided to the decision maker. It is neither fair nor possible to support the primordiality of one or the other determinant (technological or organizational), the influences being reciprocal, and it is necessary to ask questions (and of course find the appropriate answers before making choices).

V. DEVICES FOR DECISIONS SUPPORT ASSISTANCE

The methods most often used in making decisions under risk conditions are the following (Stancu, Nora, 2005, taken from Burciu, 2008):

• the method of mathematical hope;
• the decision tree;
• Markov chains;
• Monte Carlo simulation.

The method of mathematical hope - it involves weighing the consequences by applying the probabilities of occurrence on the matrix of results:

$$S_j = \sum_{k=1}^{n} c_{ij} * p_i$$

where:

S_j - mathematical hope, $j = 1, ..., m$;
P_i - probability of occurrence of the states of nature, $i = 1,...., n$;
c_{ij} - results matrix.

The calculation of the expected value of the results implies the estimation of the probabilities of the occurrence of the states of nature. There are two approaches in estimating the probability of occurrence, namely: the deductive approach (the decision maker determines the probability of the occurrence of a result by cause-effect analysis) and the empirical approach (based on statistical analysis of the empirical data).

The decision tree based analysis can be used when management is faced with a choice between several alternatives for future action; this development appears in the form of a diagram, which presents the information in a clear and useful way, which allows to highlight the probable consequences (Dessler, 2004).

Managing decisions that involve risks are often taken in stages, with sequential decisions and events that depend on the outcome of previous decisions and events. The order of the managerial decisions and the expected results for each state of nature can be represented graphically by decision trees. The root of the tree corresponds to the reference moment, and each branch of a decision node corresponds to a decision alternative and includes the performance associated with the decision. Each branch that results from a chance node is associated with a state of nature. By multiplying the probabilities along each path, one can determine the outcome associated with each action.

Markov analysis is often presented as a "behavior change" decision method over time. More generally, Markov analysis is used as a method of analyzing the current behavior of some variables in an effort to predict its future evolution. The variables of interest change dynamically, the advantage of the method being remarkable in forecasting techniques, such as (Lawrence & Pasternak, 1998):

• the probability of finding a system in a certain state, at a certain moment;
• probabilities for each state of nature.

Monte Carlo analysis is one of the most valuable analysis tools available to a manager. The Monte Carlo analysis technique allows us to consider a simple budget, a work schedule or an inventory model - just about anything can be represented on an electronic spreadsheet - and run it through a thousand iterations as if it happened a thousand times. Monte Carlo simulations can become very sophisticated when applied to complex situations. Probably the most sophisticated use of Monte Carlo simulations is used in population defense, where the technique is used to simulate nuclear reactions. In this case, the simulation must include random disturbances of thousands of variables. Usually, Monte Carlo simulations of business scenarios are quite primitive. A significant constraint that the analyst faces is that of poor quality of business data and does not guarantee sophisticated modeling. Another constraint is the existence of a major uncertainty regarding the variables that should be included in the model and the relation between them.

How complex should we be in developing Monte Carlo simulations? Obviously the answer is closely related to how good the data we have and how experienced we are when it comes to the processes that are modeled. Financial analysts who have developed sophisticated investment econometric models and have obtained reliable data on securities exchanges can develop Monte Carlo simulations that can be performed in parallel with simulations in the real sciences. Monte Carlo simulations require specifying statistical distributions in order to generate simulated data. Most Monte Carlo simulation software packages offer a standard number of distributions for this purpose, including normal, logarithmic, beta, PERT beta, Poisson, uniform and gamma distributions. The list of available distributions can be intimidating for non-statisticians, but in practice, the most commonly used distributions in risk analysis can be made using either the normal distribution (for well-defined events whose results are symmetric) or the PERT beta distribution (when all what you have is an idea about the results in the most optimistic, typical and pessimistic case).

For example, I will present in time estimation of the securities listing for an issuer at the BSE using the Monte Carlo method. This study involved:

• Determining the average variation, obtained as a simple arithmetic mean of the daily variations of the closing quotation, as follows:

$$\overline{X} = \frac{-1,34}{121} = -0,01117$$

- Calculation of the mean square deviation::

$$\sigma^2 = \frac{\sum\left(X_i - \overline{X}\right)^2}{n} = 1,6666$$

- Calculation of Dispersion:

$$\sigma = \sqrt{\sigma^2} = \sqrt{1,6666} = 1,3114$$

- Estimation of quotation based on the relationship:

$$P_t = P_a * (1 + norminv(row(), average, dispersion))$$

where:

P_t - future price;
P_a – price today.

The calculations were performed using the SPSS 22 program and 10 simulations were run for a period of 182 days, the results obtained being represented in the Figure 2:
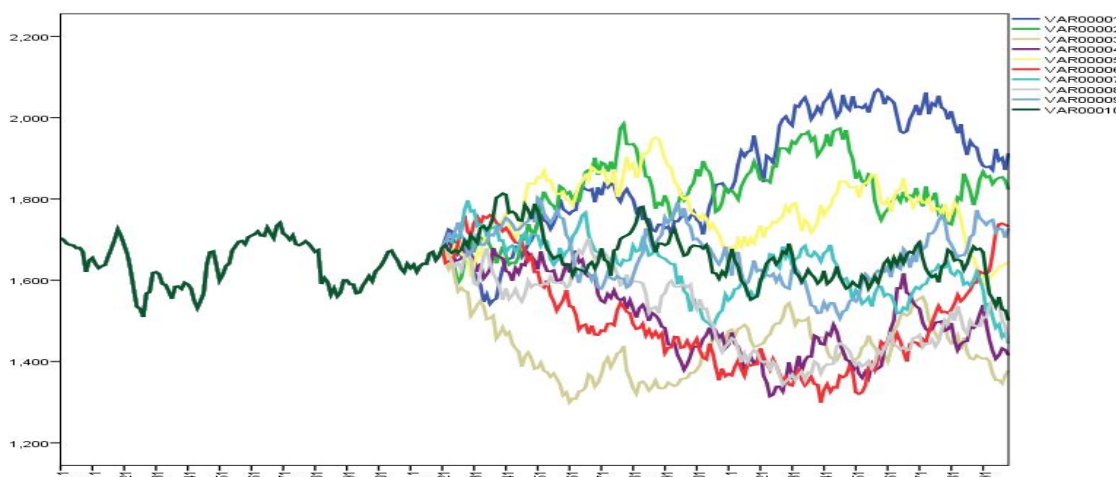

Figure 2 - Estimation of closing quotation by Monte Carlo simulation
Source: own processing

According to the obtained results we appreciate that the quotation estimated over 20 days, based on the quotation on May 8, 200N is between a minimum of 1,580 and a maximum of 1,811.On 29.05.200N the closing price was 1,6200, value during our simulation. The data on the BSE site show us for August 4, 200N the existence of a closing price of 0.8650, which is not between the minimum and the maximum obtained by applying the Monte Carlo method, this fact once again shows us that the market capital is unpredictable in the medium and long term.

V. Conclusion

The only inexhaustible resource, information has today become a real power factor, a social good that directly influences the prosperity of a nation. The most profound change that the economic entities in Romania go through is the one related to the generation, collection, elaboration and dissemination of information. Economic organizations cannot exist outside of communication, which they largely generate and mediate. The point of view accepted by the majority of the decision makers gathers opinions according to which the accounting has the role to provide information that faithfully represents the financial position, the performances and the changes of the financial position (39.13%), in a method and form as useful to those who use accounting information to substantiate their decisions. Accounting information plays a decisive role in testing the decision factors with essential elements of ensuring a judicious economic mechanism that will favor, in the medium and long term, the profitable integration of the economic companies in the competitive market environment.

To make decisions by the management team in order to achieve the objectives of the unit, it is necessary to know precisely its situation. Managers, concerned about knowing the real situation of the unit, want to get answers to the following questions:

• *Is the enterprise viable?* The balance sheet allows the assessment of the profitability if proceeding to a structuring of the asset positions according to the criterion of increasing liquidity and to a classification of the positions of liabilities according to the criterion of increasing exigibility. This traditional view of the assets, of the solvency of the company tends to be replaced by another, based on a functional structuring of the balance sheet and on the use of the financing table.

• *What are the performance of the company?* In order to appreciate the performance obtained by an enterprise, the means used must be compared with the obtained results. This is evidenced by the result indicators, especially the intermediate management balances, dealt with in Chapter Three.

• *What is its stage of development?* You need to know how much the activity of the company increased during the reporting period.

• *What are the risks to which the entity is exposed?* This is to see what is the risk of bankruptcy, as a result of the cessation of payments for example or the risk of interruption of supplies, the risk of narrowing or losing the markets, etc.

By getting an answer to these questions and of course also to other related to the organization they are interested in, managers can make an image about the future of the organization they lead and make a decision. But the question arises as to the quality of this information on the basis of which the manager will make the decision.

Accounting information becomes a primary and primordial resource of decision-making processes, used both for the elaboration of strategic development plans in accordance with the organizational culture of each economic entity, and for the projection of operational plans in harmony with the medium and long-term development strategy. The decision is based only on the information available when it is taken, and a good decision means maximum protection against adverse outcomes. In many cases, a manager on the verge of making a decision may gather additional information, but one important detail should not be forgotten: additional information leads to additional costs.

There are dozens of approaches regarding the complexity / difficulty of decision-making contexts in today's economy; some specialists propose a new framework for substantiating business decisions; they discuss simple, complicated, complex and chaotic contexts; leaders, they say, are not only able to identify the context in which they work, but they are able to adapt their behavior to the characteristics of that context.

We must not generalize: in practice, managers never face a single decision, and the information system provides a wide range of information. Therefore, the cost-profit approach must be focused on the collective effect of the decisions of a company. For example, a complex and costly accounting system for accounting can provide sufficient data and even functionality for budgeting. In simpler situations (let's say the supply requirement), a cheap application implemented on a microcomputer or even a user-designed model in a common development environment can provide enough data to substantiate the decision, in terms of economic efficiency.

Accounting information, as a stake in the social game, in which the users of accounting information are involved, represents the result of the production of accounting information, which has as its first recipient the managers of economic units. Accounting information thus becomes a primary and foremost resource of decision-making processes, used both for the elaboration of strategic development plans in accordance with the organizational culture of each economic entity and for the projection of operational plans in harmony with the medium and long-term development strategy.

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