THE RISE AND FALL OF B.C.G. MODEL

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ABSTRACT
The B.C.G matrix is considered the oldest, the simplest and the most known matrix of analysis of the portfolio of activities. Based on qualitative research, this paper aims at identifying the causes of rise and fall of the B.C.G matrix, method used in the strategic decisional processes to streamline business portfolios of the diversified enterprises. The research achieved has led us to the conclusion that although the B.C.G matrix underwent a special rise in the managerial theory and practice, it has been frequently subjected to specialized criticisms, and on the background of the development of the managerial science it has been improved and needs to be used along with other managerial methods and techniques in order to efficiently substantiate the strategic decisions on the level of the S.B.U.

KEYWORDS: *Boston Consulting Group (B.C.G.), Market Growth Rate, Relative Market Share, Strategic Business Unit (S.B.U), Strategy.*

JEL CLASSIFICATION ***:*** *D21, D22, L11, L22, M21.*

1. INTRODUCTION

Strategic decisions concerning resource allocation are essential for a firm to obtain sustainable performances in a competitive environment, and the B.C.G. matrix represents a method allowing for an excellent integration of the financial with the strategic aspects. However, in the managerial theory and practice there are numerous criticisms concerning the efficacy of the decisional strategic processes relying exclusively on this matrix.

The qualitative research realized in this paper starts from the following hypothesis: “If the BCG matrix is used together with other strategic analysis methods in the process of substantiation of the strategic decisions, the efficiency of this process on the SBU level increases”.

The strategic conception resulting from the analysis of the activity portfolio based on the B.C.G matrix is very restrictive and does not take into account the actions undertaken by other actors of the business environment, such as clients, providers or competitors. These B.C.G matrix limits led experts to develop a new matrix enabling effective adaptation to the exigencies of strategic decision making in rapidly changing business environment.

Under these circumstances, the aim of our qualitative research is to evaluate the efficacy of the use of the B.C.G. matrix for the substantiation of the strategic decisions on the level of S.B.U, in the present context of the changes from the business environment starting from the advantages and the limits of this matrix.

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In this sense, we have used as research methods: induction, deduction, and analysis of some crucial works of this domain which refer to descriptive case studies that have the role of describing the context and the results of the application of the B.C.G matrix in the strategic managerial processes.

2. REVIEW OF THE SCIENTIFIC LITERATURE

In the early 1970s, research regarding the curve of experience led to the development of a new model that simplifies reality, based on the matrix ”rate of market growth / relative market share”, known as the B.C.G matrix, that enjoyed a wide spread and use as a tool for resource allocation in a diversified enterprise. The B.C.G matrix is considered the oldest, the simplest and the most known matrix of analysis of the portfolio of activities.

This approach was proposed by B. Henderson (1979), the founder of Boston Consulting Group office, and it became well known after the appearance of B. Hedley’s articles (1976 & 1977). B. Henderson answered to the requests of the companies Texas Instruments and Black & Decker and elaborated his own version of the learning curve, which he called the experience curve, to explain the policy of prices and the competitive behaviour on market segments, in strategic areas of activity that are in strong growth. But the first works (B.C.G) that have contributed to the development of the theory, however, were published in 1968.

The B.C.G matrix is based on the following reasoning: if in the competitive environment the level of sales price is determined by the cost of the less efficient producing enterprise, but whose production is essential for the market to meet the total demand (through the costs of the marginal producing enterprise), then there is always interest in operating in strategic areas of activity where the company is able to produce and sell sustainable at the lowest prices and therefore have a competitive advantage. Meanwhile, the enterprise will be able to (Gervais, 2003, p. 66):

- to produce liquidity superior to competitors;
- to invest more or to better withstand in case of recession and, finally;
- to achieve the best performances compared to competitors.

The B.C.G analysis is based on two fundamental hypotheses (Lambin, 1999, pp. 370-371): the presence of the effect of experience and the life cycle of the product.

The model is based on the principle that the essential role of the corporate strategy is to allow an optimal allocation between different areas, units of strategic business of the cash flows generated by the enterprise, so that to ensure overall growth, while preserving a global financial balance.

Based on the interest presented by each S.B.U, strategic segment for the enterprise, expressed by the rate of growth of the activity, and the competitive position of the enterprise on strategic segment, the positioning grid B.C.G allows an overview on the portfolio of activities.

The relative market share is measured by a logarithmic scale, going from right to left, from zero to ten, the average value being 1, which places the demarcation line between the activities where the company is leader in volume (relative share of the market is greater than 1) and those where there is at least one higher competitor (the relative market share is inferior to 1).

The two beaches of value (Hedley, 1977, p. 12): 1, as medium value for the variable relative market share and 10 (the rhythm of PIB increasing) for the rate of growth of the sector.

These thresholds, determined empirically on the basis of the opinions of that time by some managers, can be modified according to the problems which arise.

According to the potential of generating cash and competition, the B.C.G matrix revealed four types of activities – strategic areas of activity, strategic units of business: „stars", „cash cows", „question marks" and „dogs" (figure 1).

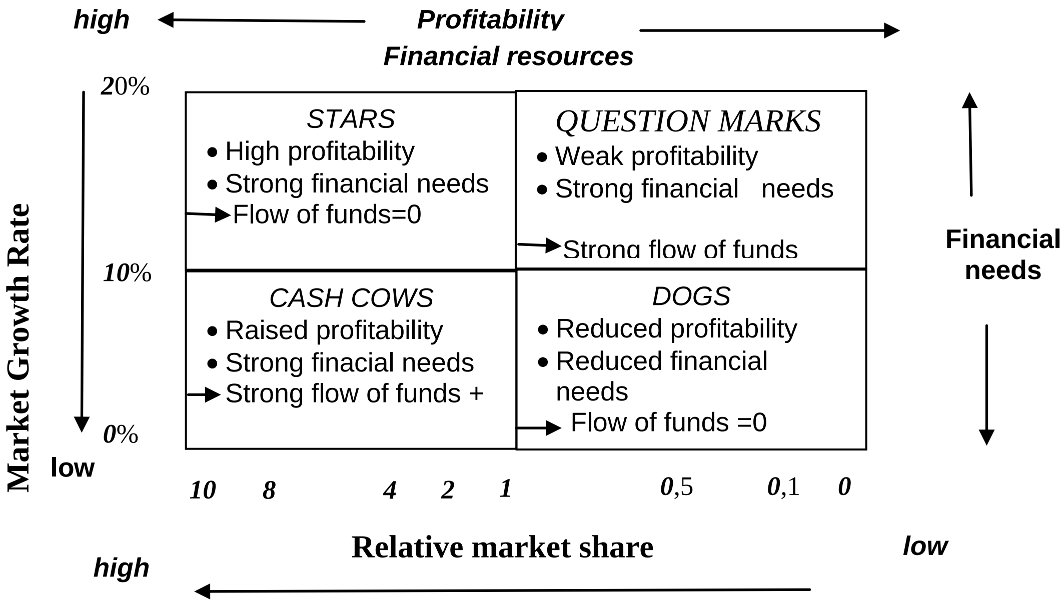

Figure 1. B.C.G. Matrix

Source: adapted from Strategor (2005, p.273).

In the B.C.G the activities are represented on the chart, through circles with a surface proportional to the part that they have in the turnover of the company. A S.B.U, within its life cycle, goes through four successive areas (Jones&Butler, 1988, p. 2): first it is „question marks" (the start-up), then it becomes „stars" (the development phase), to become then „cash cow" (mature stage) and finishes its existence as S.B.U „dogs" (the decline phase).

They go through each category as the market growth rate decreases: the speed of these changes depends on the technology and competitiveness of the sector. This underlines the importance and usefulness of viewing the enterprise in terms of S.B.U, as well as the need to constantly look for new types of activities, and to manage the existing ones (Gupta&Govindarajan, 1984, p. 25).

Once the place of each S.B.U was fixed, according to the matrix of the portfolio of activities, it becomes possible to establish those S.B.U as units „sources of income, of cash" and „units using cash funds" (Dessler et. al., 2004, p. 200). More precisely, the management of the enterprise has to decide which of the four alternative strategies should be used in each S.B.U (Burnett, 1983, p. 1).

Summarizing, we can say that the requirements imposed by the B.C.G matrix target resource allocation and establish the strategies for the appropriate strategic areas of activity.

The analysis of the portfolio of activities must be done also from the perspective of its dynamics (figure 2), highlighting the progress or drift, over time, for each product-market couple.

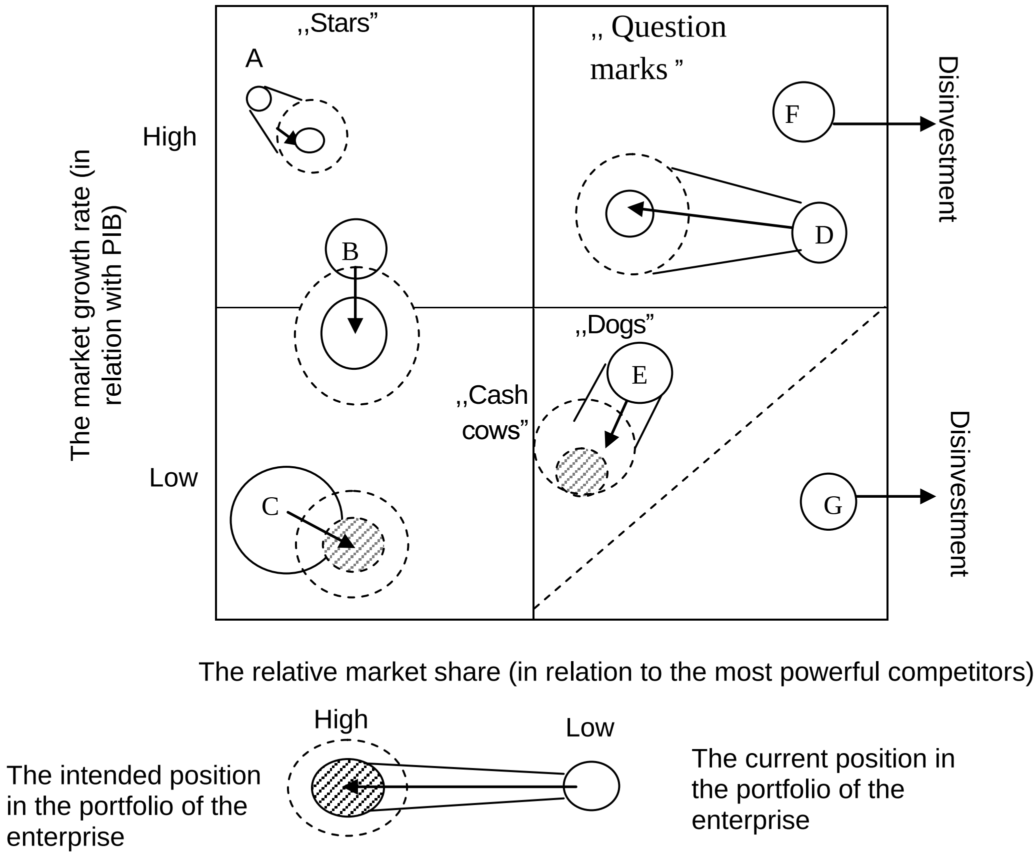

Figure 2. The dynamic analysis of the S.B.U portfolio
Source: adapted from Day (1977) Lambin (1999, p.372) and Thompson&Strickland (1995, p.391)

According to the dynamic analysis of the portfolio there are two paths of success and two failure trajectories (figure 3):

- *the innovator's path*, that uses financial resources generated by S.B.U „cash cows" to invest in C& D and which enters on the market with a new product that replaces the existing stars products;
- *the stalker's path,* that uses the resources brought by S.B.U „cash cows", that enters as S.B.U „ question marks" on a market dominated by a leader and which adopts an aggressive strategy of growth of the market share;
- *the trajectory of disaster*", in which a S.B.U „stars" reduces its market share as a result of some underinvestment and which becomes S.B.U „ question marks";
- *the trajectory of permanent mediocrity, which reflects the situation of a* S.B.U *„*question marks*"* that continues to vegetate without managing to increase its market share and that will be found in the quadrant „dogs".

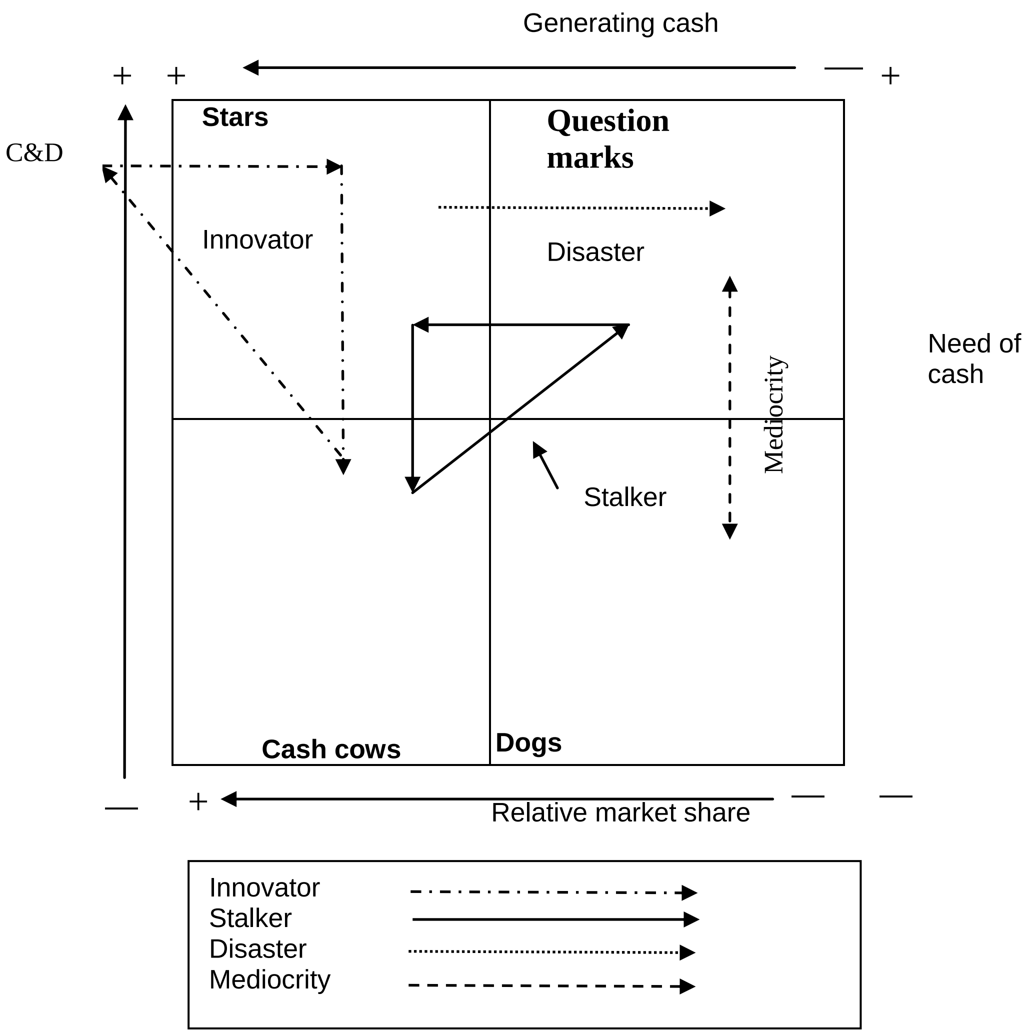

Figure 3. The main development scenarios

Source: adapted from Lambin (1999, pp.373-374) .

In the 1970s, a strong inflation, associated with a poor growth, an increased competition of traditional sectors, additional regulations as well as a booming in international trade have changed again the rules of the game. Strategies designed to highlight market shares were confronted with unexpected difficulties, while experts in problems of segmentation were appearing and various competitors were achieving economies of scale. The companies that managed the best were achieving their success by anticipating the evolution of the market and creating unique and justifiable advantages, superior to the advantages of the competitors, in the new environment (Hax& Majluf, 1983).

This conclusion led to the rethinking of the ways of analysing the sectors, to the abandonment of the dogma of universality of the effect of experience – the B.C.G matrix being abandoned by the B.C.G itself, after this date – although many specialists in management have not shared this conclusion. In an article published in 1983, after M. Porter (1982) formulated the three competitive strategies, was presented a new model of the B.C.G matrix regarding the strategic planning and, particularly, in the context of competitive systems.

It is about the matrix „volume-differentiation”. In this new variant of the model „rate of growth/competitive position”, the experts from B.C.G pointed out that the effect of experience should be looked only in the particular case of activities, where the volume of production is a decisive competitive advantage and when the possibilities of differentiation are limited.

2. RESULTS AND DISCUSSION

The 1970s were years characterized by a strong turbulence. The crisis of the 1973-1975, triggered by a strong increase in oil prices, has put into question the very principle of strategic planning. Under these conditions, the B.C.G matrix came, at the right moment, to help a confused management. The indications of the matrix gave to the presidents – general directors of major companies a tool to strategic control planning and capital budgeting. They were able to allocate resources having a clear image of the strategies: support S.B.U „cash cows”, investing in S.B.U „stars”, offering opportunities S.B.U „question marks” to become S.B.U „stars”, before the development rhythm of the sector to slow down, and abandonment of S.B.U „dogs”. (Pellicelli, 1988, p. 391).

The rise of the BCG matrix was due, principally, to the following advantages:

- The excellent integration of the strategic and financial aspects. The main merit of the method conceived by B.C.G lies, in the robustness of theoretical development that sets a rigorous connection between the strategic positioning and financial performance.
- The starting hypothesis, although restrictive, if checked carefully, allow to establish a correct strategic diagnosis and to make recommendations whose normative value is high (Lambin, 1999, p. 374).
- The synthetic and visual character, that allows simultaneous representation of various S.B.U of a portfolio of diversified enterprise.
- The B.C.G model does not require a precisely environment; it can be applied, as well in a situation of growth, and in an uncertain and stagnant environment.
- The simple, pedagogical character that offers the managers a comprehensive grid of analysis of their options. The B.C.G matrix is a very simple model, it uses few variables and the use is easy.
- The method clearly shows that the success of an enterprise depends, at the same time, by its ability to achieve a sustainable competitive advantage, by the capacity to achieve a balance between the generating segments and the segments consuming liquidity and its ability to use the resources in areas where their efficiency is greater.

The decline of the B.C.G matrix was caused by its numerous limitations highlighted by the managerial theory and practice that can be summarized as:

-Despite its simplicity, the B.C.G logic is based on very strong hypothesis, which are far from being always checked (Strategor, 2005, pp. 275-277):

The first hypothesis consists in choosing only one variable – the relative market share – to measure the competitive position of the enterprise. There can be other factors that have been ignored, especially, the intensity of competition and the expectations of the prospective buyer. The option of an only variable it is not relevant in the situations where the effect of experience is substantial – in the competitive sectors of volume – and when the cost is the only source of competitive advantage. However, these are fields of activity – artistic, fashion – where the experience has no or little effect on costs. The same problem arises in the case of the arbitrage of consumers motivated by other criteria than costs, such as quality, image, technology, service.

The second hypothesis concerns the choice of the second variable – the rate of growth – to measure the attractiveness of the sector, which is often wrong, as there are sectors that have a strong growth, but which are not attractive at all, and not because they would be deprived by barriers at the entrance, but because the number of the competitors present in this sector is very high, and the profitability endemically low. For example, the global market of the microprocessors has experienced for many years a strong growth without enterprises like Apple (the creator of this sector) or I.B.M to get special gains. Reducing the detailed analysis of the environment of each area of activity to a single variable – the rate of growth – is, often, a mistake.

The third hypothesis is that of total independence between the strategic fields of activity. By definition, it can disinvest in a S.B.U, for example S.B.U "dogs", and no other strategic segments to bear negative consequences. The major part of diversified enterprises are present in areas that maintain between them technological and commercial links. Depriving an activity of investment, even if it is not profitable, may cause the disappearance of a competence necessary to the success of another activity extremely profitable. The mistake lies in the denial of the existence of synergies that are, though, the reason of the majority successful diversifications.

The forth hypothesis is that of homogeneity or the lack of the cost of capital. According to the B.C.G matrix one US dollar invested in water supply in a city has the same value as the dollar invested in a film production, which is absurd. The level of risk is quite different.

The costs, on which is built the curve of experience of a S.B.U, are not all specific to that S.B.U. There are costs shared by several S.B.U, such as, for example, the costs of the sale force or the administrative services and, according to the keys of allocation used, the reliability of the curve of experience may become questionable. Although the graphical representation is, undoable, able to offer a useful support to thinking and debate, the B.C.G matrix based on the curve of experience, lies more on knowledge and significant rationality compared to the matrixes of McKinsey and ADL (Martinet& Thietart, 2001, p. 178).

The high relative market share is not a sufficient condition to achieve a profitability superior to the average on the sector. It is true that, if it has been achieved with the price of some costly and time consuming efforts, profitability of the namely investments may be weak. A study made on 649 enterprises (Woo, 1984-1985, p. 21) showed that a modest relative market share has not prevented some enterprises to get a profitability of capital of 20%.

The explication of these results lies in:

- the competition has the tendency to stabilize itself in mature sectors, while the demand is not weaken;
- the standardization avoids large investments in research and marketing, which are required by the rapidly evolving sectors;
- the quality plays an important part in the sectors of industrial goods compared to individual consumption, where publicity and size gets often a special importance (Koenig, 2004, p. 410).

The connection between the relative market share and profitability, (incomes) is not as strong as the effects of the curve of experience show. The importance of achieving experience in production to reduce costs differs from one sector to another, from an area of activity to another. Sometimes, a large market share transforms in an advantage on the basis of a low cost, sometimes it does not. Results the need for circumspection in the choice of the strategy that assumes that the curve experience is a sufficient factor to offer a competitive advantage. Gaining experience involves, actually, repetition, which is not able to modify the innovation and change. For example (Barnett & Crandal, 1986, p. 1), in the industry of steel from USA, companies with a low relative market share and which used technologies with low rates – mini mills – got unitary costs smaller than the companies that had high relative market share and which used advanced technologies – integrated mills. According to the B.C.G matrix activities of lamination on mini mills should be considered S.B.U „dogs", although in reality, their performance in the 1990 was characterized as S.B.U „stars".

The B.C.G matrix is relevant only in the industrial sectors where the effect of experience is important. This view has been supported in the work of Johnson et al., (1995, p.340). The model assumes that determination of a dominant market share allows getting a higher profit. But when the effect of experience is limited, the market share is not a guarantee of profitability anymore, and a leader enterprise may become less profitable than the next competitors. Thus, the B.C.G matrix is valid only in the sectors where the competitors rely more on strategies of differentiation, rather than on strategies of volume. If the matrix can be used without special problems in steel industry or electronics, not the same can be said about educational institutions, consultancy offices, enterprises producing luxury goods, etc., where the leaders are not those enterprises that are the most profitable.

Besides the problems of segmentation, moreover, proper to all the models of the management of the portfolio of activities, using the B.C.G matrix has specific inconveniences, that should be avoided during the process of segmentation. Indeed, the ease with which it can be used may lead to being taken without cautions and to be used in situations where it may give wrong results.

The B.C.G method is not exclusively based on the notion of internal competitive advantage and it does not take into consideration the external competitive advantage, of which can benefit an enterprise or a brand, using successfully the differentiation strategy. These S.B.U, that are called, „dogs" and have a weak market compared to leader products, may be profitable if they offer distinctive qualities valued by buyers willing to pay a higher price to compensate the difference in cost (Lambin, 1999, p. 375).

The excessive simplification gives rise to some problems concerning the use of financing sources. Representative is the case *Cabot Corp* (*Forbes*, 1992), that was considered a victim of applying the matrix from this point of view. In the 1970s, B.C.G recommended to the managers of the company to fit some S.B.Us in the category "cash cow" and to redistribute their cash-flows to financing different strategic areas of business, identified as diversified "stars": the production of metals, ceramics, semiconductors, gas distribution in Texas. In this way, the profits obtained previously in chemical production, were transferred to various diversified S.B.Us where the company had no experience, depriving, at the same time, the units of chemical production – key business– of the capital necessary for the innovation in the production processes and products. This decision had as consequence the demotivation of the S.B.U key, permanent reduction of profitability of the company until the end of the 1980s, when the new P.D.G changed the strategy recommended by the B.C.G. The restructuring of the company has resulted in increasing its profits, increase dividends of action, requites in stock.

B.C.G matrix is a schematic model, which needs to be compared to the results obtained through the use of other methods that approach the matter from other perspectives, such as the A.D. Little matrix or the GE McKinsey matrix. This comparison is absolutely necessary, because, if the enterprise contents itself only with the use of the B.C.G method, that would mean having to be strategically positioned and to make adequate decisions only on the basis of two indicators. If the analysis realized based on other methods yields similar conclusions, then the reliability of the conclusions is great.

4. CONCLUSIONS

The rise of the B.C.G matrix was due to its advantages and made it for this to be used by various offices of consulting and by enterprises of all sizes. The use of the B.C.G matrix relies on several reasons:

- excellent integration of the strategic aspects (growth, investment, disinvestment) and the financial aspects;
- its visual and synthetic character, permitting the simultaneous representation of numerous SBU of a diversified enterprise portfolio;
- the simple pedagogic character, offering the managers a comprehensible analysis grid of their options.

On the whole, the B.C.G matrix remains confined in areas for which it was designed: the arbitrage between strategic fields of activity of large conglomerates that use strategies of volume and self-financing. It knew, however, a glory beyond this specific context, since it left to believe that it was possible to simplify the options as complex as the definition of a portfolio of activities; but the complexity of strategic decisions cannot be reduced to an arbitrage between four quadrants divided on two axes. Despite these limitations, often not enough, sometimes even poorly known and bad understood, the B.C.G matrix remains a method, commonly used, whose terminology is, now, firmly anchored in the everyday language of managers (Johnson, ş.a, 2008, p. 341).

Although the B.C.G matrix experienced a great success in managerial theory and practice, the limits and critics brought to the method amid the instability of the business environment and the development of management science have led B.C.G experts to develop a new model of the matrix, that allows the removal of the limits assigned to the initial model and it is in agreement with the strategic decision-making mechanism specific to businesses according to the characteristics of real competitive systems.

Considering the dynamics and the complexity of the present business environment, the excessive use of a prescriptive business portfolio analysis – and such is the BCG matrix – for the substantiation of the decisions on the level of an SBU is inacceptable. Thus, an efficient substantiation of the decisions on the SBU level needs to be made complete using analyses and forecasts of the macro-environment factors, the analysis of the forces of the competitive context, the analysis of the resources and skills, but also the analysis of the organizational culture and the study of the human capital's behavior.

The prescriptive character of the strategies recommended and the simplicity of the BCG matrix have constituted sources of inspiration for numerous innovative analysis models, developed in the managerial theory and practice.

In conclusion, the B.C.G method should be considered a support of analysis: it cannot be substituted for either in – depth work of reflection, or for reasoning. Moreover, reasoning in terms of portfolio of activities makes sense only if the sources of competitive advantages identified have a real basis.

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