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## Corporate Portfolio Planning: A Framework for Strategic Business Unit Elimination

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Abstract. The portfolio analysis with its planning matrices as the most useful tools is still widely used in corporate strategy's formulation. A stream of literature indicates precisely when a Strategic Business Unit (SBU) should be eliminated, yet does not show how to do so. This paper aims to develop a theory-based model for SBU elimination. A framework was developed through an extensive literature review of portfolio analysis in which each standardized matrix structure, assumptions, strengths-weaknesses and strategic applications were thoroughly outlined. This framework includes four dimensions: cost, revenue, structure of capital and strategic dimension. This proposed framework would be considered as a strategic tool for both professionals and practitioners when time comes to take a decision about SBU elimination.Having a business portfolio may prove to be a dreadful experience if not handled properly. Thus, this study will surely help the business community in the manifestation of structural business planning, analysis and management for the ultimate business success.

Keywords: Business Unit, Elimination, Portfolio Analysis, SBU, Strategy.

### Introduction

In the corporate world, portfolios can be developed to assist corporate managers in formulating strategies for their firms (Zic et al. 2009); and one of the basic concepts associated with portfolio development is portfolio theory. Portfolio theory is concerned with the allocation of an individual's or institution's wealth among the various assets available. Gup (1977) states that the level of risk that investors are willing to accept in order to achieve a targeted rate of return is the fundamental idea in portfolio theory. In his article entitled, "Portfolio Theory – A planning Tool", he outlined the relationship between risk and the selection of investments comprising a portfolio. Risk refers to the variability of an investment's expected return and it is divided into two types: systematic risk and unsystematic risk. Systematic risk impacts all investments in the same manner and cannot be eliminated. In contrast, unsystematic risk does not impact all investments, but, rather, only some. This type of risk can be eliminated by careful selection of the investments comprising the portfolio. Thus, corporate planners should understand and utilize the concept of portfolio theory when attempting to formulate a sound strategy (Markowitz, 1952).

When portfolio theory is used in portfolio development, business units or products are viewed as investments that either require or produce cash. Some products, such as those which have only been recently developed, may have potentially high future cash flows, but are, initially, high-risk investments. The rate of return for other products may be low and declining, and it may be a good time to remove these investments from the portfolio, even though the risk associated with them is lower. Other products within the portfolio may yield high cash flows, which, in turn, can be used to develop new products. Thus, a firm with a broadly diverse investment base from which it obtains revenue, can use portfolio analysis to appraise the overall health of the firm's current business portfolio. It can also use portfolio analysis to diagnose the relative long-term attractiveness of each product in the portfolio, as well as for choosing when and how to upgrade the portfolio to enhance its performance (Grant , 2010; Wind and Mahajan , 1981; Denis et al2002).

In general, a corporation can be thought of as a collection of products, or strategic business units (SBUs). Generally, in the literature, the term SBU is used interchangeably with product, product line, or a specific firm. Within a corporation, allocation of the limited resources available for investment creates a problem. This problem generally involves the allocation of resources among the various SBUs of a company and/or among the various brands within each SBU. Further, determining whether resources should be withdrawn from SBU or invested in existing SBUs or new SBUs can create conflicts. Consequently, in order to determine how the resource allocation should be conducted, a firm must first accurately identify its SBUs, and then evaluate the strengths and weakness of each SBU and its contributions to the portfolio (Armstrong and Borodie 1994).

In spite of the wide use of the portfolio analysis with its existing matrices as strategic techniques for more than four decades, there has never been an attempt to summarize and classify both the conceptual and empirical studies of this stream of research. Moreover, these theoretical and empirical studies have highlighted when and how to invest in aSBU or just maintain it on the portfolio; theyhave not accounted for strategic steps when it comes to SBU elimination. This current study has twofold objectives: first to provide an extensive literature review on portfolio analysis, second to suggest how to fulfill the main gaps in existing literature.

### Literature Review

To evaluate certain SBU in a corporate portfolio, several different factors need to be accounted for before deciding to retain or remove that SBU. These include the relative market share of a product, its anticipated market growth, its life cycle, the experience curve associated with it and its profit impact of marketing strategy (PIMS).

The relative market share of a SBU is defined as the ratio of an SBU's market share to the market share held by the largest firm with which it competes in its industry (Porter, 1986). The anticipated growth of a market for a SBU is also very important. The growth rate for a market is the projected rate of sales growth for the market that is served by a particular business. Although this seems to be straightforward, determining the growth of a market can be tricky, primarily because of the difficulty associated with defining certain terms needed to determine market growth. The main controversies concerning market growth include the definition of a market, i.e., whether the whole market is considered or only a specific segment of the market. There is also some controversy regarding the definition of growth, i.e. annual growth versus real growth (Boyd and Headen, 1978; Schiele et al. 2014).

The concept of product life cycle (PLC) divides the life of a product into four major stages: introduction, growth, maturity and decline (Levitt, 1965). The logic behind this concept stems from the theory of diffusion and adoption of innovations (Chambers et al. 2007). The experience curve relates to the product life cycle, although its concept can be extended to other functions such as advertising, sales and distribution (Alberts, 1989). The concept of an experience curve in its simplest form, suggests that, as production doubles costs associated with production decline by a relatively constant proportion ranging from 20% to 30%.

Methods of portfolio analysis are classified into standardized and customized models, or matrices (Wind and Maharjan, 1981). Four standardized matrices and five customized matrices were identified. However, due to the fact that customized matrices are subjective to specific management needs (Koch, 2006), the amount of literature available about them is limited. The primary focusof this section is devoted to discussstandardized matrices in terms of their: (1) structure; (2) theoretical assumptions; (3) strengths and weaknesses; (4) strategic applications; and(5) implications and limitations.

### The structure of matrices

Different matrices have been designed and developed to augment analytical composition in structuring proper methodology of a certain research. In business, these matrices are useful tools for analyzing product portfolio decisions. The Boston Consulting Group (BCG) matrix product life cycle (PLC) and the experience curve are the two integral concepts associated with the development of the BCG matrix. The BCG matrix is structured using market growth and relative market share. The relative market share is based on the experience curve, which has, as its operating principle, the philosophy of reducing costs by doubling the volume of production, whereas market growth is determined using PLC. However, in the BCG matrix, only the growth and maturity phases of PLC are utilized.

The theory of the experience curve is outlined by Hedley (1976). According to his analysis, a reduction in costs is attributed to four factors. First, the method by which a product is produced is improved due to technological changes, or as a result of a "learning" effect in which new and more efficient methods of production are adopted as the product is produced over a longer period of time. Secondly, there is a displacement of the less efficient factors of production, especially in the areas of investment and capital-for-labor substitution. In addition, modifications and redesign of product can lower costs. Lastly, the scale and specialization changes associated with producing the product can reduce the costs.

The second theory behind the BCG matrix is that the PLC and the growth stage of a product has a considerable impact on the results of the analysis when the BCG matrix is used. According to this matrix, a firm can gain market share while the market is at the growth stage at no cost. Thus, a firm that is able to expand its production might gain a relative cost advantage over its competitors through movement to lower experience curve. Then, when the market for a product reaches the maturity stage, the experience curve slows down. The firm can then use its cost advantage combined with a high market share (Boyd and Headen, 1978).

As a result of the weaknesses inherent in the BCG matrix, it did not take long for new matrices to be developed which would take more factors into account, especially those factors which are crucial in determining industry attractiveness and the competitive position of a firm within its industry.Business Screen, which is called GE matrix, is based on two dimensions. However, in this matrix, industry attractiveness and competitive business position are the two defining parameters; and each one of these dimensions incorporates several factors. For example, industry attractiveness is an expanded version of the concept of relative market growth in the BCG matrix. The competitive business position measures a firm's ability to compete in the market. The GE matrix also requires a firm to identify its SBUs, as well as the factors that are relevant to each SBU's attractiveness within its industry and its competitive position (Kanat and Atigan, 2008).

The GE matrix has not been formulated based on specific theories. However, there may be one or more theory which supports the parameters accounted for in the GE matrix (Wensley, 1981). For example, the basic theory defining market share is the experience curve theory. Since competitive business position takes into account

market share, the experience curve theory is indirectly tied into the operating principles underlying the GE matrix. In the same way, the theory of PLC is the foundation upon which market growth rate is built. Since market growth rate is usually a crucial element in determining industry attractiveness, PLC theory is related the GE matrix.

In 1975 Shell Chemical Company provided directional policy matrix (DPM) to assess an SBU which is very similar to the one provided by the GE matrix (Hussy, 1978). In fact, the major theoretical difference between the GE matrix and DPM is that with regard to the factors influencing a market, DPM focuses on the attractiveness of only a segment of the market, rather than the entire industry (Kerin et al. 2003). It has two main criteria for assessing an SBU, namely, competitive capabilities and prospects for sector profitability. These are analogous to business competitive position and industry attractiveness defined in the GE matrix. The terminologies used in labeling these cells are different than that used in the BCG and GE matrixes. Prospects for sector profitability, shown on the x-axis, are divided into three levels: strong, average, and weak. Competitive position, shown on the y-axis is also divided into three levels: attractive, average, and unattractive. In addition, different analytical techniques are employed when analyzing an SBU using this matrix. Moreover, this matrix can be used for internal or external analysis of an SBU, analysis of the position of each SBU in a firm's portfolio, or to analyze the position of a firm's SBU in relation to its competitors (Robinson et al. 1978).

To offset some of the weaknesses inherent in the GE matrix and DPM, another matrix was developed based on the life cycle theory. This model takes into account the life cycle of the industry in which an SBU operates and needs to be taken into account when its portfolio is being analyzed. This matrix was developed by A.D. Little, and it is known as the Life Cycle Portfolio Matrix (LCPM). Using this matrix, SBUs are classified using a twenty-cell array. In this matrix, the horizontal axis represents the four phases of industry: embryonic, growing, maturing, and ageing. On the vertical axis, the competitive position of an SBU is divided into five levels, dominant, favorable, tenable, and weak (Patel strong, and Younger, 1978). Therefore, the above-mentioned matrices play a significant role in enforcing measures for strategic business units that leads to the well-planned, well-developed, and well-organized system in business portfolio enhancement and development.

#### The Theoretical Assumptions of Matrixes

One of the main objectives of the BCG matrix is to achieve a balanced portfolio in terms of the use and generation of cash. Abell and Hammond (1979) pointed out that there are three major assumptions upon which the BCG matrix is based in order to achieve a balanced portfolio. They also stressed the importance of defining the market in order to maintain the validity of these assumptions. The first assumption is that the cash generated by a firm is a function of relative market share which is attributed to the scale of production and the experience of the producers. The second assumption is that the cash required for production is a function of the

market growth rate and market share strategy of the firm. Lastly, the net cash flow is a function of relative market share, market growth rate, and market share strategy.

On the other hand, according to the literature, no specific assumptions are made with regard to the GE matrix. However, by examining the existing literature, one may draw some conclusions concerning the types of assumptions made when this matrix is employed. For example, measuring industry attractiveness and the competitive position of a business is a complicated task. In order to accurately define these concepts, all factors influencing industry attractiveness and competitive position need to be included and weighted according to their importance in the overall analysis. However, the attractiveness of one industry differs from that of another. Thus, the rates that are assigned to each industry reflect the overall objectives of the firm whose SBUs are being analyzed. Finally, the GE matrix weights each factor used in the dimensional analysis according to its level of importance. The degrees of importance attached to specific factors are ultimately determined by the management of a firm, and are subject to revision in response to the internal and external environment of the firm (Anil and Govindarajan, 1984).

The structure of this matrix requires three dimensions to be integrated. Both the horizontal and vertical axes are divided into three areas, low, medium, and high. The circles represent each SBU, and the size of the circle is proportional to the size of the SBU within its industry. The sectioning of individual circles represents the share of the business market contributed by the SBU

As in the GE matrix, no specific theories are used directly in the formulation of DMP matrix. However, there are several factors analyzed in this matrix, each of which is built upon specific theoretical principles. The DPM has seven variables used in the analysis of an SBU. Three of these variables are used in the analysis to determine an SBU's competitive capabilities. The remaining four are used in the analysis to determine the prospects of an SBU for profitability, referred to as "Business Sector prospects". Each of the cells of the DPM is associated with different combinations of investment strategies which are related to the prospects of a business sector and the strengths or weaknesses of an SBU.

Several factors are employed when determining the stage of industry maturity. These factors include the current and potential growth rate for the market, the number of product lanes, the number of competitors for the product, the stability of the market share, buying patterns associated with customers, difficulties associated with bringing a product to market, and the technology considerations (Kerin et al. 2003). These factors possess different characteristics at each stage of growth within an industry (Bloom and Kotler,1975). For example, an embryonic industry is characterized by rapid growth and technological changes, a fragmented and unstable market share, and vigorous pursuit of customers. Mature industries are characterized by stability in several areas, including established customer buying patterns, technological adaptations, and the percentage of market share it possesses (for review, see Kerin et al. 2003).

The investment strategies advocated by DMP matrix are leader, growth, cash generation, custodial, try harder, double or quit, phased withdrawal, and disinvest.

Although the terms of the strategies indicate the recommended investment actions that should be taken, three of these strategies will be elaborated upon. An SBU classified as a leader is the largest producer of a given product and has the lowest costs associated with it. In order to maintain this position, continued investment is recommended. An SBU placed within the phased withdrawal category is one with an average-to-weak position in a low-growth sector and is unlikely to earn any significant amount of cash. With such an SBU, efforts should be made to realize the value of the assets, and then the resources should be put to better use elsewhere. Some SBUs or products classified into the double or quit category have high potential and should be financially and technologically supported. However, other SBUs in this category should be dropped (Braun and Hackethal, 2013). Careful consideration needs to be made with regard to the investment strategy employed in this case.

#### The Strength and Weaknesses of Matrices

The major strength of the BCG matrix is that, by presenting the SBUs that generate more cash than they need, its analysis focuses attention on the cash flows of different SBUs. Strength of the BCG matrix lies in its ability to predict when a firm needs to add or remove one or more SBUs from its portfolio (Davidson, 2005). These are not the only two strengths inherent in the BCG matrix. For example, analysis using the BCG matrix results in a recommendation that a firm avoid investing in a product that has not been profitable. Instead, according to this matrix, such an investment should be directed to a product that has more potential for growth in the future. Thus, the BCG matrix encourages firms to move the profits made from current products into the research and development of new products. In addition, analysis using the BCG matrix results in the recommendation that subsidiary companies not be considered as independent businesses in terms of investment decisions arguing instead that such decisions should made at the corporate level. Moreover, as to the impact of using the BCG matrix on the national economy, it might be argued that the use of the BCG matrix would direct national investments to growing industries, resulting in economic growth (For a review, see Davidson, 2005).

There are, however, several weaknesses associated with the BCG matrix. Three of these shortcomings have been examined by Zhou and Zuo (2010), and Abell and Hammond (1979). First, the matrix is extremely simplistic. For example, assessing the attractiveness of an SBU in terms of just market share and industry growth is misleading, since a host of other factors should be taken into account when determining the attractiveness of an SBU. Second, they doubt the reliability of analyses conducted using the BCG matrix. For example, investing in an SBU which is categorized as a star is not necessarily more lucrative than investing in an SBU which produces a consistent cash flow such as cash cow. Third, they argue that the connection between relative market share and profitability is not as tight as the experience curve implies.

Bhattacharya (2004) identifies four issues that contribute to the overall weakness of the BCG matrix as an analysis tool. For example, in this matrix, all of the market definitions are arbitrary. In addition, an SBU with a high market share is not necessarily more profitable than an SBU with a low market share. Plus, the effect of the market structure may determine the competitiveness of an SBU. Lastly, the theory of a product life cycle is not always valid. However, although he raises these points as weaknesses associated with the matrix, he insists such criticisms are shallow. To correct these shortcomings, he discusses the possibility of establishing and identifying market segments and building separate marketing strategies for each segment. He also argues against misdefining the market by considering the market share of a segment of the market rather than the market in its entirety. He also tries to explain misconceptions associated with the BCG matrix with the structure of the market. Essentially, the structure of the market itself seemed to play a role in determining the competitive position of an SBU.

However, when the market is shared equally by a number of competitors, any attempt by one of them to gain more market share leads to a price war and reduction in profit levels. Bhattacharya (2004) argues that BCG framework does not ask that the market share of an SBU increase at any cost, regardless of whether it is detrimental to the overall market, but rather that an SBU should build market share while the market is in a growth phase. The last point he makes is with regard to disagreements relating to the validity of the product life cycle. Essentially, he argues that the concept of a product life cycle may not be completely valid, simply because interest about a particular product is sometimes rejuvenated, even if that product has entered the declining stage of the product life cycle. In this case, the product often occupies a different niche in the market than it had occupied previously. The debate concerning the strengths and weaknesses of the BCG matrix has not yet been concluded. Varadarajan (1990) states that the BCG matrix was interdicted as an analytical tool to be used only at the corporate level. However, its inappropriate use at lower levels has resulted in the development of a hierarchical family of portfolio matrices. The main problems of using BCG matrix at lower levels are the existence of costs and demands interdependence among the business units at lower levels. This is an example of using the BCG matrix in an inappropriate organizational context. Use of the BCG matrix in this manner should be avoided.

Other weaknesses include the restrictive assumptions made by this matrix. Varadarajan (1990) considers this as the internally contradictory assumptions within this matrix. Market growth, the second dimension used in the BCG matrix, is assumed to be an exogenous variable. Essentially market growth is assumed to be outside the control of the firm and this assumption is not valid in all cases. Sometimes firms have a major impact on the growth of their industry.

In short, most of the academicians who criticize the BCG matrix emphasized its oversimplification of complex problems through its use of only market growth and relative market share as analysis indicators. However, simplifying a complicated issue by using a certain approach is not, in and of itself a weakness inherent in the approach, but it is important to realize that simplification of a situation may have a negative impact on the overall outcome of an analysis. McDonald and Roberts (1992) support this position by stating that: "we accept that the purists among our readers might comment that the matrices we have included here are an oversimplification of complex problems. We would not argue with them on this issue, because intellectually there is much truth in what they say. Nevertheless, when practical decisions are required in a hard and competitive world, any tools which lead to higher quality outputs are not to be spurned lightly".

The GE matrix is very inclusive when compared to the BCG matrix, and as mentioned previously, each dimension includes a number of factors which are relevant to the industry and business .In addition, this matrix is very flexible, recognizing that different industries are affected by different factors which can influence the degree of success a SBU may achieve. These factors can be incorporated into the analysis. Also, by allowing management to determine the relative importance of each factor, a more accurate analysis may result.

Strength of the GE matrix is its terminology. Gupta and Govindarajin (2005) performed a survey of executives who used portfolio-planning techniques and were employed by large firms. The results of their analyses uncovered a widespread dislike of the terminology used in the BCG matrix. The subjects of the study felt that the terminology associated with the BCG matrix resulted in motivational problems, and there was strong support for using the terminology of the GE matrix in place of the terminology used in the BCG matrix. Lastly, the GE matrix emphasizes the effectiveness of product performance, since capital intensity, patent protection, product quality, and marketing skills are included in the analysis (Enis, 1998).

The weaknesses associated with the GE matrix include its subjectivity, static analysis and disregard for the product life cycle. With regards to the subjectivity inherent in the GE matrix, one of the difficulties of this matrix is that it produces (e.g. rink x weights) which provide recommendations regarding investment strategies, but it does not explicitly recognize that the numbers used in the analysis are all subjectively derived. Although this matrix looks at the factors relevant to the current success of an SBU in its industry , and its competitive position within its industry , it does not take into account how these factors may change in the future, leading to a static analysis of the potential success of an SBU. In order to provide a dynamic analysis, these factors and how they may impact the success of an SBU need to be taken into account. Lastly, this matrix does not depict position of an SBU across different stages of the industry-like cycle. For example, the GE matrix does not indicate the changes occurring when a product moves from the entry stage to the growth stage and from the growth stage to the maturity stage (for a review, see Enis, 1998).

The DPM is similar to the GE matrix. Like the GE matrix, the DPM draws its strength as an analytical tool based on its inclusiveness, flexibility and careful definition of terms used in the analysis. Nevertheless, DPM has its own strengths, among them its ability to limit the number of factors used in the analysis, and its ability to aid in developing an awareness of an SBU's competitors. Also there are a limited number of factors contributing to the analysis of an SBU using the DPM and this is yet another advantage of this matrix. Another strength of this matrix lies in its emphasis on a specific market segment rather than the entire market, making it possible to obtain a more accurate overview of the actual position of an SBU within a market. Lastly, unlike both the GE and BCG matrices which provide only one investment strategy for an SBU, the DPM provides a greater variety of investment strategies. By providing more than one investment strategy, more flexibility is provided regarding the investment options available for an SBU. Basically, the DPM is subject to the same weaknesses as the GE matrix, i.e. its analyses are static, the weight of each factor in the analysis is subjectively determined, and the product life cycle is disregarded.

Although LCPM matrix has some strengths in common with the other matrices previously discussed, this matrix possesses several of its own strengths. By showing the distribution of a company's business units or products across different stages of the life cycle of an industry, a firm may be able to predict how its current portfolio may look in the future. This enables a firm to take appropriate actions in order to achieve or maintain a balanced portfolio. Additionally, the life cycle of an industry is a powerful tool for arriving at an acceptable investment strategy. By providing three strategic levels for analysis, i.e. broadly defined categories, specific categories, and generic investment strategies, a firm should be able to select the investment strategy best suited for its SBU.Of course, this matrix has weaknesses, too. The main weakness lies in the fact that it is based solely on the life cycle of the industry, ignoring all of the other factors influencing the attractiveness of an industry (Patel and Younger, 1978).

#### The Strategic applications of Matrices

Not many empirical studies have been conducted to evaluate the implications of the BCG matrix. Three empirical studies, however, support the strength of this matrix. These studies were designed to evaluate the return on investment (ROI), cash flows on investment (CFOI), return per risk (RPR), and market share change (MSC), of various SBUs using the BCG matrix.

Hambrick et al. (1982) conducted an empirical study designed to study the effects of using the BCG matrix. In this study, differences between each of the SBUs classified into one of the four cells of the BCG matrix were studied in terms of their profits, risks associated with investment, cash flow, and market share. Another aspect of the SBUs evaluated in this study was the way in which the SBUs differ in their investment strategies and how these strategies were associated with the performance measures specified by each cell of the matrix. By using data from 1028 SBUs drawn from the PIMS database, the authors performed their tests, and their findings supported the primary assumptions of the BCG matrix. The study showed that the return on investment was higher for higher-share businesses than for lower-share ones. It also showed that there was a significant difference in the ability of each of the categories to generate cash flows. In addition, when the variability associated with a return on an investment was adjusted to a four-year time period, the differences in the amount of return reflected a high market share. This study also

noted that actively growing markets increased their overall market share when compared to the market share of markets which had matured. Finally, they also found that the average SBU which had been categorized as a dog using the BCG matrix had a positive cash flow. In fact, they found that the SBU cash flows produced by the average "dog" exceeded that of the average SBU categorized as a question mark. Hambrick and McMillan (1982) explored the relationship between the strategic attributes of an SBU and its profit performance within each one of cells in the BCG matrix. At first the authors built four profit scenarios including high growth businesses, low growth businesses ,and high and low market share businesses, and analyzed them using the BCG matrix. For example, in a high growth scenario most profits are likely to be generated from increased revenues rather than by reducing costs. In a low growth scenario, a reduction in costs is achieved by increasing the efficiency associated with operation and cost reduction is the major factor in generating profits. Secondly, they hypothesized the coefficient signs of twenty-three strategic attributes of each of the four cells, and used data drawn from 1011 SBUs from the PIMS database to test their hypotheses. Their results show that capital intensity, value added, and manufacturing costs are the attributes contributing the most to the profitability analysis in all four cells. As expected, the results show that the profitability of mature businesses is strongly associated with efficiency and quality. For low share businesses, the results indicate that businesses benefit from narrowing their business domain and concentrating their assets on small segments of the market. Interestingly, this study reveals that market share leaders, i.e., those SBUs classified as stars or cash cows, do not have to lower their prices to maintain their competitive positions; these SBUs charge premium prices.

With no major variation from the previous studies and using data from 1028 SBUs from the PIMS database, Hambrick and MacMillan (1982) published their third study in California Management Review. The results of this study indicate that some SBUs, when analyzed using the BCG matrix, were classified as dogs. However, according to this study, some of these SBUs were actually strong businesses and long-term generators of cash. Based on this finding, the authors draw several conclusions. They conclude that "dog" SBUs actually perform better than analysis using the BCG would indicate, with some of them performing very well. When certain factors, such as low capital intensity, attention to efficiency, a narrow focus, low to moderate prices, and high product quality, are carefully monitored, "dog" SBUs are associated with high profitability. They also conclude that the top management of a company has a direct effect on whether dog SBUs achieve their potential as long-term, reliable cash generators. Among the ways management can affect profitability is by avoiding draining the resources within the SBU and maintaining moral of the employees by using rewards. Additionally, excellent managers should be appointed to lead dog SBUs in order to maximize their potential, (p.94).

To analyze an SBU using this matrix, an analyst needs to assess both the industry attractiveness and competitive position of the SBU. Industry attractiveness

is assessed using four criteria. These four include identifying a set of criteria to be used in the analysis (e.g. growth, size capital intensity, and competitive intensity) and assigning a weight to each of these criteria. The weight is determined by evaluating the overall importance of a factor in determining industry attractiveness, and the sum of all of the weights should equal 1.0. The attractiveness of each industry in the portfolio (e.g. on a scale of 1to 5) also needs to be taken into account, and a total score for each industry in the portfolio needs to be tabulated. Essentially, these are the same steps a firm takes to calculate the competitive position of an SBU within its industry. There are several key factors contributing to the success of a venture which should be taken into account when assessing the competitive position of an SBU within a market. These factors include market share, the level of technology associated with the product, post-sales service etc. attractiveness of an industry and the competitive position of a business. Abell and Hammond (1979) reported a comprehensive list of factors used in assessing the competitive position of an SBU. These factorsare divided into categories including market factors, competition, financial and economic factors, technological factors, and sociopolitical factors in an environment.

To a certain degree, the recommendations obtained regarding an SBU are very similar to those obtained from the BCG matrix. The investment strategies using the GE matrix are labelled "invest/growth", "selective", meaning to invest selectively and manage earnings appropriately, and "harvest/divest". In the GE matrix, SBUs falling into the "high-high" category are considered good candidates for increased investment. SBUs in the "medium-high" or "high-medium" categories are also considered good candidates for growth and increased investment, but investors should proceed cautiously. Any SBU falling into the "high/low", "medium/medium" or "low/high" need increased levels of support if they are to become viable SBUs. Finally, harvesting or withdrawing and divesting are recommended strategies for dealing with SBUs which fall into the "medium/low", "low/medium", or "low/low" categories. Thus, recommendations regarding resource allocation remain quite similar to those obtained by analyzing an SBU using BCG matrix.

The GE matrix also provides policy makers with an idea of the level of balance contained within a business portfolio. A balanced portfolio has been defined as one consisting mainly of SBUs in the "invest/growth" category, as well as a few SBUs which are anticipated to be classified in the "invest/growth" category in the near future. A balanced portfolio should also contain a few SBUs which are already producing profits, thereby generating the cash flow necessary to support developing SBUs (Hofer and Schendel, 1978). Such a portfolio is balanced because it provides solid profits and a good perspective for growth, while avoiding strain on overall cash flow of course; there are advantages and drawbacks to GE matrix. On the one hand the GE matrix can be viewed as an improvement on the BCG matrix simply because it is more comprehensive and avoids the simplifications and unwarranted assumptions contained within the BCG matrix. For example even though the tow dimensions of the BCG market growth and market share are important components of the GE matrix, it has nevertheless included other internal and external variables

in the dimensions used in its analysis. However, the assumptions made in the BCG matrix impact an analysis conducted using the GE matrix if certain factors such as market growth and /or market share, are weighted very heavily (Schiele et al. 2014).

Analysis using DPM results in the classification of an SBU into one of nine categories. According to Robinson etal. (1978), two basic issues need to be evaluated when structuring a DPM analysis.First, the main criteria by which the prospects of success for a specific business sector need to be classified as either favorable or unfavorable. Second, the criteria by which a company's position in a sector is determined must be classified as either strong or weak. In contrast to the GE matrix, which incorporates many different factors, the parameters defining the dimensions of a DPM analysis include only a few highly related variables. Some of these factors may be difficult to quantify. However, quantification of these factors may be accomplished by answering a number of related questions. Previous authors provide several thought- provoking subjects which, when carefully evaluated, may help determine how these factors relate to the SBU. These subjects include whether or not the sector has record of high, stable profitability and whether profit margins can be maintained when the manufacturing capacity exceeds demand. Whether or not the product is resistant commodity pricing also needs to be considered, as it does whether or not the technology associated with the production of the product is freely available or restricted to those who participated in its development. These subjects can easily be placed into question format, and if positive answers are given for all or most of these subjects, then the market quality for an SBU would score four to five stars. Then, the analyst assigns weights to each of these factors. Finally, once the scores for all of the firm's SBUs have been tabulated, they are located in the nine cells of the array.

The type of competitive positions occupied by an SBU is determined qualitatively, and no numerical values, such as market share, are used. For instance, if an SBU is able to follow strategies of its own making and it is the industry leader with respect to market share, then it has a strong competitive position (Jacobson 1988). Alternatively, a business unit has a tenable position if its profits are maintained by operating in a niche market.

The investment strategies suggested for an SBU depend on its location within the matrix. Hax and Majluf (1984) outlined a three-step methodology which, if followed, should lead to the adaptation of an appropriate investment strategy using LCPM. First, a firm's SBUs need to be classified into one of the four broadly defined categories, develop naturally, develop selectively, prove viability, and withdraw. The second step is to classify an SBU into a specific, more narrowly defined category based on the selection made in the first step. For example, if in the first step, an SBU was classified as a "develop selective" SBU, then in the second step, the SBU is categorized into one of three more specific categories, exploit, niche, and hold niche. The final step is to choose a generic strategy. For example using a harvesting strategy, five possible choices exist, hesitation, little jewel, pure survival, maintenance, and unit abandonment. If a strategy of harvesting is selected as the specific category for an SBU, then maintenance can be selected as its generic strategy (Koch, 2006).

## The Implications and Limitations of Standardized Matrices

When evaluating matrices for their applicability to certain business situations, it is helpful to differentiate between the strategic analytical tools, such as matrices, which can be used to evaluate the SBUs within a portfolio and the investment strategies recommended to maximize investments in different SBUs. By now, it should be clear that each one of these matrices meets different needs, and, that each matrix has strengths and weaknesses associated with it. Portfolio analyses using these matrices are dependent, not only on the reliability and validity of the matrix, but also upon an analyst's ability to select the matrix best suited for analyzing an SBU and to develop investment strategies accordingly. In essence, an analyst must have the ability to determine the most relevant factors related to the SBU which need to be included in the parameters with which the matrix is defined. He or she also needs to be able to determine how each of these factors should be weighted according to their relative importance in the overall operation of the SBU. He or she should also be very familiar with the limitations or boundaries of the market, as well as with how market share and market growth can be monitored and determined. Without careful definition of the parameters with which the matrix is defined, it is unlikely that a competitive investment strategy will result. Thus, it is not only the matrix which determines investment strategy; the analyst is an integral part of the overall analysis of a portfolio.

The preceding discussion leads to two important conclusions.First, if a portfolio analysis provides results in the recommendation of several different investment strategies using different matrixes, it should not necessarily be criticized. Each type of matrix discussed here has its pros and cons and yields different information about the strengths and weaknesses of a firm's portfolio. Thus, a strategist may analyze a portfolio using all of these matrices in order to obtain information from different perspectives. Second, the variety of measurements taken into account in each of the difference matrices should not automatically be considered a weakness. Rather, that different matrices define different quantities and factors in a variety of ways enhances their overall strength as an analytical tool. Wind et al. (1983) provide support for these two conclusions. It is obvious that the results of analyzing the same SBU using different matrices should not be the same. Otherwise, there would be no reason to have more than one matrix available for use in portfolio analysis. The authors stress this point by saying that"If the various models yield the same results (in terms of the classification of the business and the strategic guidelines for each business), the question [of their empirical comparison] is not as critical and the models can be viewed as interchangeable", (p. 90).

By analyzing the portfolios of fifteen SBUs using data from the PIMS database using different matrices, they showed that each SBU was categorized differently, depending on the matrix used in the analysis. Exceptions to this are seen only when the SBU is extremely strong or weak in terms of market growth, market share, etc. Although having several matrices from which to choose is a strength overall, the existing literature on this subject seems to conclude that the variety of operational measures taken into account in the different matrices is actually a weakness associated with using matrices in portfolio analysis (Kerin et al. 2003). This author respectfully disagrees with that conclusion simply because if a matrix has fixed parameters with which analysis is to be conducted, every analyst will use the same strategic guidelines to determine the investment strategies. But, not all businesses are the same and, by using the same guidelines for every industry, specific factors which may impact one industry but not another, are not taken into account. Thus, the use of matrices as a tool in developing investment strategies is negated. Essentially, the use of matrices would no longer be useful, since the factors influencing, or, in fact, defining, an industry would no longer be accounted for when an SBU is analyzed. Any tool used in determining strategies should allow the strategist to select the operational parameters according to his or her view in terms of the internal and external environments which may potentially affect the SBU. For instance, if two firms, identical in SBU type and competitive position, were analyzed using the BCG matrix and the parameters defining the matrix, such as the cut-off point between low and high market growth, were fixed, then the strategic recommendations made for each SBU would be the same. However, since the BCG matrix permits the evaluation of different operational measures, each one of the analysts involved in the portfolio assessment could potentially select different evaluation parameters. In such ase, only the analyst who selected right strategic elements, or operational measures, for use in the BCG matrix would achieve encouraging results. Wind et al. (1983:90) further emphasized the importance of operational measures in the evaluation of an SBU using a matrix by stating that "it is quite surprising, however, that most of the portfolio literature has focused on the selling of specific approaches and discussions of the strategic implications of a "dog" or a "cash cow", for example, rather than on the fundamental measurement and validation issues involved".

Wind et al. (1983) also concluded that the results of standardized portfolio analysis would vary depending on the operational definition of the parameters used in the analysis, the guidelines by which a parameter could be divided into low and high categories, the method by which the different variables were weighted to indicate their importance in the overall analysis, and the type of matrix used in the analysis.

Conceptually, Wind and Mahajan (1981:157) highlight the problems of selecting a matrix for portfolio analysis, as well as the problems associated with the selection of the factors that should be incorporated in the parameters of the matrix. They proposed a seven–step process, which if utilized correctly, would assist in the selection of the best matrix with which a portfolio should be analyzed. The following information need to be established: the level and unit of analysis, the definitions of the operational parameters, the relative importance of each parameter, how the matrix is to be constructed, the location of each SBU within the portfolio, the projected position of the product within the portfolio, and the SBUs comprising

the portfolio need to be selectively determined. It can be checked that existing literature have not provide strategic steps in helping to eliminate certain SBU from a corporate portfolio.

## Framework for an SBU Deletion

The literature concerning portfolio analysis provides some insight about its limitations. All of the matrices discussed give the rate of growth of the market a high degree of importance. Asker and Day (1986) explain the perils of high-growth markets, pointing out that high market growth does not always correlate with profit. Based on the information provided by Asker and Day (1986) and Kerin et al. (2003) prepared a summary which explains the limitations of high-growth markets. For example, one of the commonly held beliefs is that increasing market share while a market is growing results in an overall increase in long term profits. This premise is dependent on the ability of a firm to maintain, not only its market share over an extended period of time, but also the price of the product and the costs associated with its manufacture. The second limitation stems from the fact that, in the case of poor performance of an SBU, portfolio analysis ignores other alternative strategies which may be available to remedy the situation. Using portfolio analysis, a poorly performing SBU may be recommended for deletion rather than recommending that a less drastic measure be taken. Deletion of a poorly performing SBU may not always be the best strategy and, in 1985, Sheth provided some different options which may result in an increased level of performance from troubled SBUs. For example, a firm may find a new market or new uses for its product. The interdependent nature among SBUs often plays a role of critical importance in evaluating SBUs viability. For example, in a vertically integrated firm, one poorly performing SBU may act as a supplier to other SBUs. Portfolio analysis may recommend that the supplying SBU be divested. However, because it acts as a supplier for another SBU, divesting may not be an acceptable option, especially if lower production costs are a benefit of internally supplying the products needed for manufacture. In this case, the recommendation that a poorly performing SBU be deleted from a firm's portfolio is made without providing a comprehensive framework for discussion of other alternatives. Thus, the development of a tool which would take into account the underlying factors behind the poor performance of an SBU would be a powerful resource one. In order to remedy this deficiency, a framework should be developed which is designed to carefully evaluate the factors relating to the poor performance of an SBU. This framework could then be utilized to provide a more accurate assessment of the performance of an SBU, prior torecommending its deletion from a portfolio, and a matrix based on this framework could be developed.

When anSBU is recommended for divesting or deletion from a portfolio due to its poor performance, it becomes necessary to investigate a variety of factors affecting the SBU. These factors include interconnectedness among a series of SBUs, including the cost and demand relationships they may share (Robinson and Wiersema 2003). Other factors include the availability of venture capital, as well as other strategic factors. Some of these factors have been highlighted by different authors, including Bhattacharya (2004), Day (1997), Kerin et al. (2003), Lewis (1982,1984), Sheth (1985), Varadarajan (1990), Wensley (1981), and Yip (1992).

The suggested framework, which can be applied to mental analysis to support any of the matrices discussed, integrates these factors into four dimensions as shown in Figure 1. These dimensions are associated with costs, revenue, financial resources, and the strategies relevant to the SBU. Ideally, if analysis of an SBU using these four parameters does not support deletion of theSBU, then the SBU remains in the portfolio. In fact, deletion is only an option if analysis using these parameters supports this recommendation.



Figure (1). A Framework for Strategic Business Unit Elimination

Although various aspects of an SBU are evaluated using the parameters established there are several aspects that are not evaluated using these parameters, and it is important that they be delineated. First, the performance of the SBU in question is not evaluated in this framework; instead, the framework assists the analyst in accepting or rejecting the recommendation that an SBU be deleted from a portfolio. Essentially, the framework provides additional information regarding the validity of a recommendation of an SBU deletion. Second, the cost and revenue dimensions represent the cost and revenue that are associated with any other SBUs. Third, the factors incorporated into these dimensions are not static; other factors may be included in the analysis.

The interdependent nature of the SBUs in a portfolio, especially with regard to the costs shared amongst them, cannot be disregarded when determining whether an SBU should be deleted. Varadarajan (1990) points out that deleting an SBU from a portfolio should not be pursued until its cost interdependencies with other SBUs is determined. For instance, when several SBUs are involved, costs associated with manufacture, research and development, physical distribution facilities, and advertising may be distributed amongst several SBUs including the candidate for deletion. If the SBU is deleted, its share of these expenses will be distributed amongst the remaining SBUs.Such an increase in the other SBUs costs may result in a decrease in their competitive positions in their industries. Thus, keeping a troubled SBU may assist in reducing the cost burden on the other SBUs in the portfolio. And, based on this assessment, it may be concluded that the sharing of costs among various SBUs can affect the decision about whether one of those SBUs should be removed from the portfolio.

Both Kerin et al. (2003) and Varadarajan (1990) mention that the consequences of deleting an SBU where there are interdependencies amongst the SBUs in a portfolio can be severe. These consequences stem, not only from the cost aspects discussed previously, but also from revenue considerations. An SBU recommended for deletion may have indirect revenue. For example, it may be that this SBU has, among its products a well- known brand name and products from other SBUs may be distributed under that name. In this situation, the removal of the SBU may impact the revenue associated with other SBUs, directly or indirectly. Thus, the impact of removal of an SBU on the revenues of the other SBUs needs to be considered prior to its deletion.

Kerin et al. (2003) and Wensley (1981) criticized portfolio analysis for implicitly assuming that the cash flow of the SBUs in a portfolio is closed in terms of external financial resources. All of the matrices recommend that when an SBU performs badly and operates within an unattractive industry, it should be removed from the portfolio. Once the SBU is deleted, the cash generated through the deletion process is invested in an SBU possessing potential for growth. Such a suggestion would be completely legitimate if the firm has no access to external financial resources, such as venture capital, and if there were no interconnectedness between SBUs within a portfolio. However, internal and external factors affect capital costs, which impact the firm's ability to finance through equity or debt. Internally, there are the capital structure ratios, as well the firm operation ratios. External factors would include interest rate, the capacity of the financial market, and the cost of issuing equity or debt. Thus, a firm obtaining financial resources from outside the company can be considered once the internal and external factors are carefully evaluated. This leads to the third conclusion, i. e., that the ability of a firm to obtain financial resources from outside the company may affect the recommendation to delete an SBU.

According to Yip (1992), for a firm pursuing a global marketing strategy, the decision to add or delete an SBU depends on the contribution of the SBU to the portfolio of the firm. Because of the interrelatedness among SBUs, one SBU which is not profitable by itself, may make positive contributions to the portfolio overall. Porter (1996) stresses the concept of this synergy among SBUs in his value–chain framework. In a global context, an SBU may operate inefficiently in an unattractive market, but strategically, this SBU should be maintained to keep the competition from expanding to other new promising markets. Day (1977) gives examples of firms which acquired SBUs so that the performance of its existing SBUs could be enhanced indirectly. As an example, he states that "for example, a large Italian

knitwear manufacturer owns a high-fashion dress company selling only to boutiques to help follow and interpret fashion trends" (p.33).

A firm may also want to keep an unprofitable SBU in its portfolio, since, by keeping it the performance of the other SBUs can be improved. Sheth (1985) advocates this sort of alternative strategy rather than deleting an SBU. Bhattacharya (2004) suggests that deletion of SBUs classified as dots can present a firm's competitors with an opportunity to attack the firm in different market segments. Since strategic factors affect the decision to delete an SBU, a firm should consider several different strategies along with their possible ramifications before deleting an SBU from its portfolio.

#### Conclusions

The research in portfolio analysis using standardized approaches has increased our knowledge to a certain degree, but no positive contributions have been added recently. Since this approach was first introduced, only a few empirical studies have been conducted and many challenges have been raised against the concepts discussed in these matrices. However, according to the results of a survey conducted by Haspeslagh (1982) more than half of a sample of Fortune 1000 use matrices as strategic tools to evaluate their portfolios.

Although the BCG matrix is the matrix upon which the other matrices discussed in this paper is built, papers and commentaries published in the literature continue to investigate its assumptions, validity, and reliability (Varadarajan, 1999) and Kennedy (1998:26) stressed the importance of the BCG matrix by stating" a number of portfolio models or approaches exist, but the Boston Consulting Group's (BCG) matrix provides the basic building blocks upon which all other portfolio approaches, including G.E 's are built".

The analysis of marketing portfolios is taught world-wide and it may still be useful as a planning tool, although, at this point, there is no consensus regarding its practicality. Also, the existing literature provides several examples of new matrices which have been developed by adopting some parts of the BCG matrix while modifying other parts to increase the overall usefulness of the matrix. However, it may be that the matrices used need to be empirically tested again. Based on the results of such study, it may be valuable to structure a new matrix for use in portfolio analysis or to disregard this approach (Lee et al. 2010).

Finally, this study firmly anticipated to be a useful and effective aid for business professionals and business society in general, in choosing the best approaches in administering strategic business units and to overcome obstacles that hinder business success and prosperity.

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تخطيط محفظة أعمال الشركات: أنموذج لحذف وحدة أعمال استراتيجية

فهد صالح العليان جامعة الملك سعود المملكة العربية السعودية

ملخص البحث. يعد منهج تحليل محفظة الاعمال باستخدام النماذج النمطية من أهم وأكثر الأدوات الاستراتيجية استخداما لصياغة استراتيجيات الشركات القابضة وقد أوضحت النماذج النمطية عند استخدامها في تحليل الحالات التي يحب فيها حذف احدى وحدات الاعمال الاستراتيجية دون أن يبين أياً منها الخطوات والابعاد الاستراتيجية التي يجب تحليلها من اجل اتخاذ قرار الاستبعاد أو المحافظة. لذا هدفت هذه الدراسة الى تطوير انموذج يمكن الاعتماد عليه عند اتخاذ مثل هذا القرار وذلك من خلال تتبع أدبيات هذا الفرع من علم الإدارة الاستراتيجية بشقيه النظري والتطبيقي وتحليل البناء الهيكلي، الفرضيات، نقاط القوة ونقاط الضعف والتطبيقات الاستراتيجية يلك النماذج النمطية. هذا وقد توصلت هذه الدراسة إلى صياغة أنموذج استمل على أربعة أبعاد أساسية: التكلفة، الإيرادات، هيكل رأس المال والموقف الاستراتيجي لمحفظة الاعمال بشكل عام. هذا الأموذج يمكن اعتباره كأحد أدوات التحليل الاستراتيجي خاصة عندما تستوجب الحاجة استبعاد احدى وحدات الانموذج يمكن اعتباره كأحد أدوات التحليل الاستراتيجي خاصة عندما تستوجب الحاجة استبعاد احدى وحدات الأعمال الاستراتيجية من محفظة الأعمال لأصار الاستراتيجي خاصة عندما تستوجب الحاجة استبعاد احدى وحدات الموذج يمكن اعتباره كأحد أدوات التحليل الاستراتيجي خاصة عندما تستوجب الحاجة استبعاد احدى وحدات الشركات واستمرارية نجاحها.

الكلمات المفتاحية: الاستراتيجية، وحدة الاعمال، محفظة الاعمال، تحليل محفظة الاعمال، حذف.