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Enterprise Competitiveness Calculation Modelling

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Abstract

The competitiveness of a company is a crucial element for its survival. However, this competitiveness has not always been sufficiently researched. Many authors focus on the competitiveness of sectors, territories, and nations, while neglecting that of the company, which is the primary economic agent driving development. This article proposes a simple formula to calculate a company's competitiveness within an industry. This formula, constructed based on current economic literature on company competitiveness, will facilitate decision-making in professional and entrepreneurial settings.

Keywords: *Business Environment, Competitiveness, Industry, Market Share, Profit Margin, Turnover.*

Introduction

Generally, trading environments are subject to intense competition due to the fact that the number of producers (suppliers) is exponentially increasing in the markets [1]. Due to economies of scale, companies are producing goods and services in increasing quantity and quality [2], creating a fierce competition among producers for a limited market share. This competitive adversity is further complicated by uncertainty in the business environment, making it difficult for companies to navigate and for consumers to make daily choices.

Therefore, the extent of competition, the rise uncertainty, and their impact on business performance make business competitiveness a crucial subject that requires careful consideration. Whether it involves structural competitiveness or not, whether it plays out in a local or international market, each company is required to push itself to develop an acceptable level of resilience in its competition with its peers. The company must be more reactive and proactive in responding to market demand and competitive actions by defining strategies that enable it to maintain or strengthen its position in the market [3] and industry.

However, the concept of competitiveness has long been a theoretical and superficial theme that is difficult to quantify when studied in business. Most economic literature focuses on international competitiveness, national competitiveness at the regional and international levels, or sectoral competitiveness. It is about a country's competitiveness in exports, imports, or both. These indices primarily refer to economic sectors and countries that are less concerned with business competitiveness.

Thus, the Devos 2019 Global Competitiveness Index [4], the Competitiveness Index in the Poultry Sector in Colombia [5], Belgium's Import Competitiveness [6], and the European Commission's Regional Competitiveness Index [7], among others, focus on macroeconomic aggregates while business competitiveness remains distinct from national or sectoral competitiveness [8,9]. The fact that ideas are primarily focused on these levels is a departure from the fact that the main production unit is the

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company, and the consumption unit is the household.

While there are many indices available to evaluate the economic combativeness of nations and economic sectors at various levels, the concern of measuring business competitiveness remains a challenge to be addressed. The indicators and determinants of business competitiveness exist and are known to the public. However, the question of calculating its degree remains a problem. Therefore, this paper aims to propose a simplified and functional model for calculating business competitiveness. This article seeks to offer a simple and modest model that can easily reflect a company's level of competitiveness in its market. It aims at establishing a tool, a decision-making framework, to support stakeholders in entrepreneurial action.

Literature Review

In general, the literature is not unanimous on the meaning reserved for the concept of competitiveness. Although many authors agree on its underlying driving force, which is the existence of competition, they differ on the restricted sense to be attributed to it. Each of them assigns a meaning to it based on their position. Thus, the concept of "competitiveness" has several definitions across writings.

While some find that a company's competitiveness is its ability to be better than its competitors [10], others estimate that it is simply its capacity to achieve superior performance above the average in terms of market share [11]. Let's say that a company's competitiveness is its ability to confront competitors while achieving gains in the market. This can be evaluated based on market share, its evolution and profit. Profit being considered the crucial element in measuring competitiveness [8]. It would also be better for this profit to be permanent. This so-called capacity can be considered from several angles and is said to depend on numerous factors [12].

Types of Business Competitiveness

Competitiveness, as the ability of a company, industry, or country to face competition, can be based on price (production cost) or structure (non-price factors) [13].

The competitive advantages that enable a company to produce at a lower cost and sell at prices lower than those of competitors without compromising product quality lead to price competitiveness [14]. This involves the ability to manage production factors and their combination (production cost) to enhance productivity. This type of competitiveness is considered short-term, as competitors can easily counteract it in a short time [15,16]. This type of competitiveness allows companies to easily implement strategies such as market penetration (low prices), skimming (high prices), or alignment (prices equivalent to those of competitors) [17,18]. However, setting prices excessively can negatively impact a company's turnover in its market [16], and consequently affect profit margins either positively or negatively.

Structural competitiveness, on the other hand, is more dependent on elements other than price. Examples include marketing methods, product quality, brand image, quality of workforce, etc., which enable a firm to establish itself in the market regardless of price [19]. A high product price does not automatically hinder turnover. The market is guaranteed by quality and product differentiation [20,21].

Structural competitiveness takes a long time to build. It requires adequate investments in both quality and quantity. Therefore, it is long-term and often difficult for competitors to counter it. It can better guarantee the sustainability of the company beyond temporary, technical, and technological requirements [18]. Finances and willpower alone are not enough for a competitor to catch up at this level; they also need time [22].

Structural competitiveness enables the producer to implement several strategies to increase their resilience against competitors and become more productive in various situations [23]. For example, we can list the following strategies: Innovation (developing new products, processes, services...); Market extension (exploring new markets); Diversification (producing multiple products or activities, related or unrelated); Cost domination (producing at a lower cost); Differentiation (doing things differently from competitors); Niche marketing (targeting specific customers); Outsourcing (contracting certain services or tasks); Integration (doing everything in-house); Specialization (providing specific products or services); Internationalization (exporting activities beyond the nation); ...

Determinants of Business Competitiveness

Through economic theories about the competitiveness of companies, it is determined by a variety of factors [24] and the list is not yet exhaustive as discoveries progress. For example, we can mention:

1. Production costs or costs that impact the sale price and therefore the profit margin [13];
2. Exchange rates [25], where a local currency depreciating against foreign currencies allows local companies to gain market share abroad [26, 27];
3. State institutions for constitutional order;
4. Public and private infrastructure, the driving force behind all development (electricity network, transport, communication networks, internet, techniques, and technologies...);
5. Economic, legislative, and security stability;
6. Control over basic health and education;
7. Level of competition in markets that stimulates supply and demand;
8. Flexibility of the labour market;
9. Availability and development of financial markets;
10. Research and development [19];
11. Differentiation;
12. Subsidies and support for businesses [28];
13. Endowments of natural resources [29].

And many others that we can summarize as business strategies (actions taken by the company) and its environment (the context in which it operates), which directly influences its position in the market in terms of profit margin, market share, and turnover. Figure 1 below shows that the environment (both internal and external) indirectly influences the company's competitiveness through its impact on the choice of business strategies (A), while these strategies determine the quality and level of competitiveness through their impact on profit margin, turnover, and market share (B). On the other hand, the environment can directly affect competitiveness without necessarily going through an intermediate influence (C). This is the impact of the depreciation of the local currency on the turnover of local producing companies for example.

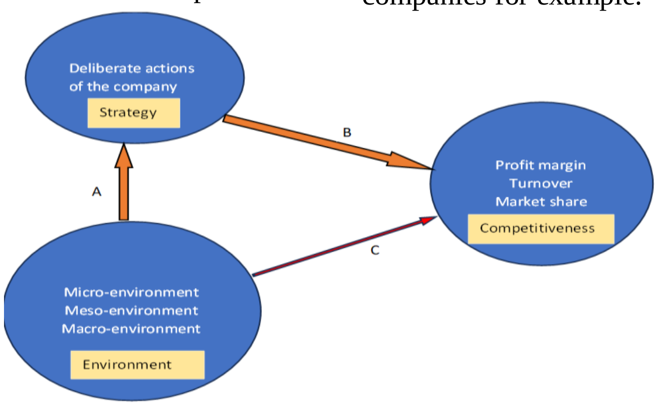

Figure 1. Theoretical Framework of Business Competitiveness

Despite the extensive literature on the subject, a clear and concise function for evaluating a company's competitiveness has not been proposed.

Methodology

This paper is a literature review on the theme of competitiveness. It follows a documentary approach involving a thorough search of documentation to produce a synthesis focused on the determinants of business competitiveness. Several resources have been consulted, and the ideas expressed through economic theories and writings on this theme have been synthesized into a simple model, a function capable of measuring a company's competitiveness based on its calculable indicators and objectively verifiable variables.

The result of this search is outlined on the following pages in three forms namely: text, table, and function.

Results

A company's competitiveness can be identified mainly through three specific elements based on the literature. In fact, several meanings attributed to the concept of competitiveness directly or indirectly involve one, two, or three elements. Competitiveness is achieving better results while maintaining or increasing market share [30]. Lachaal [27] considers that it can be measured by its production cost, generating comparative advantages that lead to improving market share and profit. Dumoulin et al. [31] explicitly highlight the three parameters, namely market share, profit margin, and turnover.

Market Share

This refers to the percentage of sales of a company's products/services compared to the total sales of competitors in a specific market. It indicates the portion that a company holds in a specific market. Market share is considered an indicator of a company's viability [11]. Its maintenance and/or growth is crucial for a company. A declining or continuously decreasing market share is a clear sign of a proven anomaly for the company and should be a strong basis for decision-making. It can lead to a decline in turnover and profit margin.

Profit Margin

The profit margin, the goal of any commercial or industrial enterprise, is simply the difference between the cost price and the selling price. It is also called transactional gain. For a company to be considered competitive, it must be able to negotiate its products and/or services with a desirable profit margin [15]. An improved market share without an adequate profit margin does not make rational sense in the long-term. On the other hand, a low profit margin can lead to a dominant position in any market and vice versa. However, profit margin alone is not enough to prove a company's profitability [33].

Turnover

Turnover, as an amount sum of sales of goods and/or services remains relevant for a company. Growth in turnover accompanied by profitability is an important index for the competitiveness of a company [34]. A changing turnover provides better information on the competitiveness of a company [35]. Turnover is considered a primary indicator of performance for a company [36].

Table 1. Recap of the Indicator-Company Competitiveness Relationships

Indicators	**Sign and meaning**	**Defenders**
Profit Margin (PM)	Positive and/or progressing	[35], [33], [15]
Turnover (R)	Positive and/or progressing	[34]; [35]; [26]

Market Share (MS)	Positive and/or progressing	[11] ; [32]

Source: Personal compilation

Enterprise Competitiveness Function

Considering the three competitiveness indicators in Table 1, we obtain the following function:

$$\boldsymbol{Y_t = a + PM_t + MS_t + R_t} \qquad (1)$$

Where:

$\boldsymbol{Y_t}$ = Competitiveness of a company at time t

$\boldsymbol{a}$ = Independent term representing autonomous or natural competitiveness

$\boldsymbol{PM_t}$ = Profit margin of a company at time t

$\boldsymbol{MS_t}$ = Market share of a company at time t

$\boldsymbol{R_t}$ = Turnover of a company at time t

Interpretation:

$\boldsymbol{Y_t} > 0$: indicates the existence of competitiveness

$\boldsymbol{Y_t} < 0$: indicates the non-existence of competitiveness

$\boldsymbol{Y_t} = 0$: indicates a break-even point

Note: The values of these parameters should be greater than 0 to support the existence of real and sustainable competitiveness.

Considering that the competitiveness of a company is largely dynamic and ever-evolving, it is more convenient to evaluate it in its temporal dimension within a dynamic or rapidly changing market. Therefore, the index of variation of the parameters over time is added to the variable parameters of the equation, which becomes:

$$\mathbf{Y'_t = a + \Delta PM_t + \Delta MS_t + \Delta R_t} \qquad (2)$$

Under the same conditions of positivity of variables.

With:

$\mathbf{Y'_t}$ = Competitiveness of the company

$\mathbf{a}$ = Autonomous or natural competitiveness or its variation

$\mathbf{\Delta PM_t} +$= Variation of the company's profit margin

$\mathbf{\Delta Ms_t}$ = Variation of the company's market share

$\mathbf{\Delta R_t}$ = Variation of the company's turnover

Interpretation:

$\mathbf{Y'_t} > 0$, competitiveness progress

$\mathbf{Y'_t} < 0$, competitiveness regression

$\mathbf{Y'_t} = 0$, stagnation

The value of Y will thus help rank companies according to their degree of competitiveness, and the value of Y' will order them according to their degree of progress. A very high value of Y or Y' reveals a high competitiveness of a company compared to one with a lower value over a certain period.

Discussion of Results

Functions (1) and (2) significantly deviate from the theory that advocates for competitiveness in a one-dimensional approach, such as the Unit Cost of Boston Consulting Group's products (Siggel and Cockburn, 1995), productivity per dollar (Wolff, 1993), market share (Mandeng, 1991), and labour unit cost (Hickman, 1992), all cited by TALMENSSOUR [24]. For these authors, the competitiveness of a company would be determined by a single element, whereas this is not the case currently. However, they corroborate with the multidimensional approach, which considers that the competitiveness of companies depends on multiple factors simultaneously, as mentioned in the works of Porter [37], Cho [38], and Coskun [39] and others who believe that competitiveness arises from multiple factors at once. This is in line with the idea of Zammel, M., and Brédart, X., that a company loses its competitiveness when its turnover deteriorates at the same time as it loses its market share [40]. However, none of these authors have ever proposed a functional formula that could facilitate the calculation of this competitiveness.

Conclusion

Enterprise competitiveness is an essential determinant of its sustainability. It remains a crucial indicator capable of proving that a company is viable and reliable in any market and industry. This competitiveness is a direct function of the strategies adopted by enterprises and their respective environments. In fact, business strategies (their choices, applications, and successes) are subject to the environment. Thus, the environment can act directly on competitiveness or indirectly through its effects on strategies and their choices. However, to avoid the static nature that a function might have, contrary to the dynamic nature of the variable to be interpreted, which is competitiveness, considerations of the evolutionary trend of parameters have been considered with great relevance.

The evolution of profit margin, sales, and market share is a very pertinent aspect for assessing the sustainability of a company's competitiveness. Although a company may present good results for these three parameters at a given time, if the overall trend is downward, it already indicates a loss of momentum and therefore a loss of long-term competitiveness.

Behind these three parameters are all the strategies and their determinants in enterprises, according to the various economic models presented in the literature. In function (1), all parameters must be positive so that the result of the entire equation is positive. The value of the result makes it possible to decide on the height of a company's competitiveness compared to another, with a higher value reflecting higher competitiveness.

Function (2) demonstrates that it would be pointless to implement strategies to increase profit margin if the same strategies significantly decrease market share or turnover, unless it is a deliberate strategy for a specific goal at a specific time. This function sheds light on the company’s competitiveness trends over time. Because a variation is only useful and effective if it can improve the overall outcome of the entire function over a period of time.

Conflict of Interest

The authors hereby declare that there is no conflict of interest issue related to this research work.

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