GAINING COMPETITIVE ADVANTAGE IN A GLOBAL BUSINESS ENVIRONMENT – THE CASE OF SMEs IN EMERGING MARKETS

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Abstract. *Nowadays people discuss more and more about a new, globalized economy, in which organisations integrate different strategies to develop business. The recent economic crisis and the slow recovery after the global downturn put more pressures on companies in emerging markets, in particular on small and medium-sized enterprises (SMEs). Furthermore, the negative implications are visible at macro level (e.g. reducing the number of new jobs created). There are possible solutions for gaining competitive advantage, solutions based on specific elements of strategic management as resource-based view (RBV), dynamic capabilities (DC) or transaction costs economics (TCE). SMEs make decisions for different strategic causes. Strategic decision making is a challenge in a dynamic industrial environment. Knowing the competitor`s reaction represents SMEs capability to generate a good competitive strategy. Today many techniques are used in the process of decision-making. Real option analysis (ROA) is a new paradigm inspired from the classical financial options. It presents the advantage of providing solutions to the problems of investment and the impossibility of understanding in a correct manner the future flows spectrum. The most important aspect offered by ROA is related to the flexibility "ingredient", essential for our application. Games can be used as strategic situations that helps SMEs to perform. Game theory (GT) concentrates on identify the competitor`s reactions and to create a set of actions as a response to the competitors. The mix between ROA and games (option games) could be another solution to cope with uncertainty and to add reliable elements of flexibility. The aim of this paper is to examine the sources of competitive advantage based on the specific mechanisms in order to provide new insights in the optimal use of some strategic management elements to solve problems. Also, the paper provide a framework that include RBV, DC, TCE, GT and a flexible element offered by ROA that help SMEs to understand the strategies needed in rapidly changing markets. Through a innovative concept, the proposed methodology offers new research directions for the development of strategies for SMEs.*

Keywords: *competitive advantage; resource-based view (RBV); dynamic capabilities (DC); transaction costs economics (TCE); Real Options Analysis (ROA).*

Introduction

For SMEs, economic globalisation has generated new competitors but also the opportunity to access new markets and to develop innovative strategies to enhance competitiveness. The ability of SMEs to create, develop and transfer knowledge on global markets represents the essential source of their competitiveness. Understanding competitive advantage requires a multidimensional framework. The new competitive landscape conducted by globalisation is moving towards competition focused on price, quality and the satisfaction of the consumers, all of this based on new strategies.

In this contribution the interest is to understand the dynamic features and mechanisms that permit the creation of competitive advantage in the case of SMEs from emerging markets. The first step is to analyze the possibilities to implement paradigms from strategic management, like resource-based view (RBV) or dynamic capabilities (DC), mixed with an instrument for transaction like total costs economics (TCE) and another instrument that give the flexibility of these processes that are developed in dynamic

environments, useful for modern decision making processes, namely real options analysis (ROA). The output of this contribution is not limited to a new methodology but it will offer an additional tool for deep understanding of mechanisms and critical elements for obtaining a sustainable competitive advantage in the case of SMEs that operate in dynamic and volatile environments.

Strategic management represents an interesting topic for industial organisations especially for technological small and medium-sized enterprises (SMEs). The importance of obtaining competitive advantage has increased over the past few years. In the context of a turbulent external business environment, the focus should be on strategies that generates and develop competitive advantage because strategies represent the foundation of a business. The vision should focus on market changes, trends and the current dynamics of the complex interactions of specific performances and emerging markets.

Over time, the strategic management field concentrate on approaches which emphasize that competitive advantage is gained from external market forces. In these latter days SMEs should invest in their resources and capabilities to develop a "resource-based view" and generate market opportunities. The RBV argues that SMEs gain competitive advantage by identifying, developing and sustaining valuable resources and dynamic capabilities. SMEs increase their performance through their competencies which are connected to strategies that are flexible to market changes. Sustainability is esential and a sustainable competitive advantage allows SMEs to outperform their competitors.

By taking into consideration the two additional tyheories, namely TCE and ROA, SMEs could develop new stratgies that better respond to the actual problems of SMEs as critical investments in a framework characterized by deep uncertainty and competition. The sustainable competitive advantage is situated in a dialectic relationship with superior performance and it also ensures a good placing in the market. The mixing of RBV and DC with TCE and ROA could offer a global view for the strategic decision maker, better anchored to the real world.

Background: an exploration of different elements of strategic management

The key issue in strategic management is the creation, development and sustainability of SMEs-level competitive advantage.

Organization capability is defined as "a high-level routine (or collection of routines) that, together with its implementing input flows, confers upon an organization's management a set of decision options for producing significant outputs of a particular type" (Winter, 2003, p.991). In this context, routines refers to the "behavior that is learned, highly patterned, repetitive or quasi-repetitive, founded in part in tacit knowledge" (Winter, 2003, p.991). For example, decision rules are routines but to gain competitive advantage SMEs should focus on their resources.

In "resource-based view" (RBV) the unit of analysis represents the importance of routines and resources. Resources are defined in the literature in different approaches. As Barney (1991) and Wernerfelt (1984) had shown, resources represent human, physical and organizational assets that implement value-creating strategies (Nickerson, Yen & Mahoney, 2012). Resources are "the foundation for strategy and unique bundle of resources generate competitive advantage leading to wealth creation" (Bush, Greene & Hart, 2001, p.64). In the context of the heterogeneity of SMEs (unique capabilities) is essential the behavior assumption of bounded rationality (Barney, 2001; Simon, 1997). The interest is to find relationships between SMEs` competencies and its global performance and to test the mechanism to obtain rents from resources.

There are some critics of RBV that refer to the: tautology that express the fact that competitive advantage is based on VRIN (valuable, rare, inimitable, non-substitutable) resources but the economic value of the resources is based on competitive advantage (Priem & Butler, 2001); the link with the consumer branch that impacts the value creation of resources (Adner & Zemsky, 2006); the simple identification and

selection of VRIN-resources (Barney, 1991) and to the lock of design procedures (Priem & Butler, 2001).

Dynamic Capabilities (DCs) represent "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece, Pisano & Shuen, 1997, p.509). DCs express the capability to react and to cope whit change and represent the critical element for sustainable performance in volatile environments and are based on the ability to build and adapt the internal/external competences (Teece et al., 1997). Other approaches emphasize that "dynamic capability is the creation of difficult-to-imitate combinations of resources, including effective coordination of inter-organizational relationships, on a global basis that can provide a firm a competitive advantage" (Griffith & Harvey, 2001, p.598).

It is essential to understand the mechanics of building DCs and the optimal path toward competitive advantage (Zollo & Winter, 2002). In this context, Eisenhardt and Martin (2000) argue that the value of DCs is based on their connections with SMEs performance. In this approach, there are multiple equivalent paths and it is possible to consider the imitation of benchmarking`s practices. It is essential for managers to "avoid bias, delusion, deception and hubris" in order to extend the borders of knowledge (Teece, 2007, p.1333).

The critics of the literature on DCs are related to their impact on persistent performance differences among SMEs (Easterby-Smith, Lyles & Peteraf, 2009; Eisenhardt & Martin, 2000; Teece et al., 1997), the use of DCs approach in uncertain and volatile environments and to the selection of alternatives and factors in the process of building DCs.

TCE is another paradigm that could be integrated in this framework. Williamson introduced the critical assumption "asset specificity" (Williamson, 1996, p.377) and he explained its importance in building strategies for "transformation" (Zajac & Olson, 1993, p.134). Transformation is a concept linked with change and transaction is defined in the context of Commons` principles: conflict, mutuality and order (Commons, 1932). The use of transaction is a unit of analysis that contributes to a better understanding of the mechanisms throughout SMEs select and mix their governance alternatives (market, hybrid contracting and hierarchy). Williamson (1985, p.18) proposed to "align transactions to governance structures in a discriminating way". The main behaviour assumption is the bounded rationality (incomplete contracts in complex uncertain real world) and the opportunism (the strategic misrepresentation). The critics of TCE are related to the mechanisms of building asset specificity and the explanation of the performance between different SMEs (Walker, 2007).

Now, the need is to offer an argument for flexibility, something to match with DC. Game theory (GT) analyzes "the nature of competitive interaction" (Smith & Trigeorgis, 2004, p.24) between rival SMEs. GTs aim is to explain under which circumstances SMEs can "influence the behavior and actions of rival SMEs and thus the market environment" (Smith & Trigeorgis, 2004, p.24). It structures competitive situations and generates different types of business behavior.

As Trigeorgis (1996) demonstrated, the real option (RO) perspective could contribute also to the process of understanding the resource accumulation, the building of capabilities and decision in deep uncertainty and applications like critical decison for investments in deep uncertainty need to reconsider the managerial flexibility in a creative manner. RO uses the conventional options theory "to evaluate physical or real assets as opposed to financial assets or stocks and bonds" (Mun, 2002, p.79) and it is based on the assymetry between the possibility and obligativity of a real transfer according to the movements in markets. The conventional techniques could not integrate neither the strategic value (from technology or management) or the interdependencies or synergies between projects or competitive interactions, that are typical in the case of technological SMEs. The discounted cash flow analysis "assumes a static investment decision and assumes that strategic decisions are made with no resources to choose other pathways or options in the future" (Mun cited by Nembhard & Aktam, 2010, p.8). In real world, the integration of new information is proceed in a gradual, continue manner and the response for defense against losses or targetind opportunities need an operational flexibility, that could be represented by options. Real options include tools from economy and management in applying options

theory in valuing assets in a global and dynamic business environment where decisions are flexible in the context of strategic investment decision making.

RO describe a flexible methodology because they put together the strategic planning and the capital budgeting. Using real options, SMEs obtain a strategic advantage because they can identify the optimal timing for a project. As has been shown (Mun, 2002), the real option approach presents a learning model that helps managers to make better and more informed strategic decisions when some levels of uncertainty are resolved through the passage of time. In this case ROA represents a critical tool that help SMEs to make better strategic decisions and it could be matched with DC because it responds to disruptive dynamics regimes with the argument of flexibility in a natural but consistent way.

The critics of the literature sustain that RO are difficult to value with certainty and the methodology is complicated but Mun (2002, p.82) argues that "traditional approaches assume a statistic decision-making ability, while real options assume a dynamic series of future decisions where management has the flexibility to adapt given changes in the business environment". The volatility is often the variable that has the most important impact on the option value. As has been shown (Miller & Park, 2002), there are three approaches to estimate the volatility: twin security information, Monte Carlo simulation and closed-form expression. Contrary to real option theory, Smith and Trigeorgis (2004) argues that GT proves that it is not always a good choice to keep options open. On one hand, ROA represents only an academic tool and it is not practical in the business and on the other hand ROA "ends up choosing the highest-risk projects as the higher the volatility, the higher the option value" (Nembhard & Aktam, 2010, p.12).

Research methodology

Manufactories have been required to adapt to changing business environment. The changes involve significant challenges with the aim to gain, develop and sustain competitive advantage because the business environment has several sources of uncertainty such as capital structure, cost structure, SMEs portofolio of corporate activities and resources, input price volatility, unsecured supply, support on green technologies and new environmental standards. Competitive strategies should be analyzed using combinations of option valuation, resources and capabilities. In an increasingly turbulent global business environment, strategic flexibility has become essential.

Implementing real options analysis represent a decision-making process that improve the traditional decision analysis approaches. This application is represented by a simple strategic decision of SMEs that have the right to contract, expand, delay, switch or abandon a manufacturing project. The research is based on documentation methods, observation methods and real option analysis for SMEs that are unsure of their technological efficacy according to the market changes; especially the attention is focused on volatility.

Suppose that manufacturing SMEs decide to hedge themselves through the use of strategic options. They have the option to choose among strategies: continue to use their current technologies or acquire new technologies according to the volatility. Suppose that the present value underlying assets is 100 TEUR. Volatility of the logarithmic returns on the project future cash flows is 10%, 25%, 40% and the risk-free rate on a riskless asset for the next five years is 5%.

To identify the best strategy, the analysis follows some steps.

Step I. Determinate the underlying asset lattice
The first step signify the calculation of the value of the contraction options using a binominal lattice which is a tree that represents possible paths that should be followed by the variables over the life of the option.

100.00	149.18	222.55	332.01	495.30	738.91
	67.03	100.00	149.18	222.55	332.01
		44.93	67.03	100.00	149.18
			30.12	44.93	67.03
				20.19	30.12
					13.53

Figure 1. Underlying asset lattice

Figure 1 presents the lattice evolution of the underlying with a volatility of 40%. Using the binominal approach, here is calculated the value of the contraction options following a five time-steps. All the calculations and steps are based on the up factor, down factor and risk-neutral probability analysis.

Step II. Determine option valuation lattice
The second step is to calculate the option valuation lattice using the values calculated in Figure 2.

50.79	90.10	155.42	259.62	419.20	658.91
Continue	Continue	Continue	Continue	Continue	Execute
	21.66	42.23	80.17	146.46	252.01
	Continue	Continue	Continue	Continue	Execute
		5.94	13.46	30.52	69.18
		Continue	Continue	Continue	Execute
			0.00	0.00	0.00
			Continue	Continue	End
				0.00	0.00
				Continue	End
					0.00
					End

Figure 2. Option valuation lattice

The figure presents the option valuation lattice with a volatility of 40%. The sample terminal node reveals a value which can be obtained through the value maximization of continuation versus execution or ending.

Step III. Determinate sensitivity
Real options valuation involves sensitivity analysis of its inputs that have impacts on input parameter changer on profitability. According to the inputs, the research is based on Tornado chart that is useful to determinate the sensitivity analyze that compares the relative importance of variables.
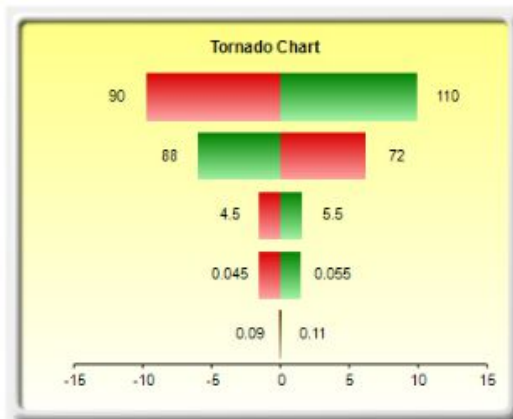

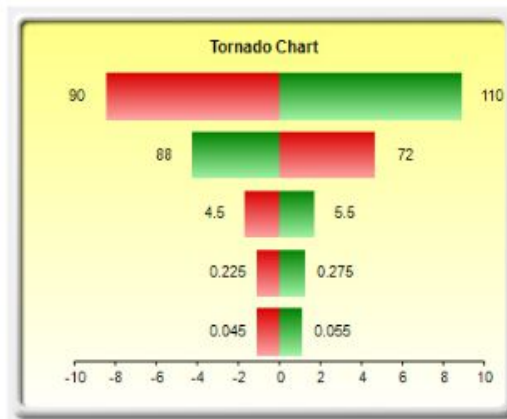*Figure 3. Tornado Chart with 10% volatility*

Figure 4. Tornado Chart with 25% volatility

This analysis runs a quick static sensitivity of each input variable of the model at a time and lists the input variables with the highest impact to the lowest. The lattices result a good convergence. The first figure (Figure 3) illustrates the Tornado Chart with 10% volatility that suggests an input downside of 0,09% and an input upside of 0,11% with a base case value of 0,10%. The second figure (Figure 4)

illustrates Tornado Chart with 25% volatility that shows an input downside of 0,23% and an input upside of 0,28% with a base case value of 0,25%.
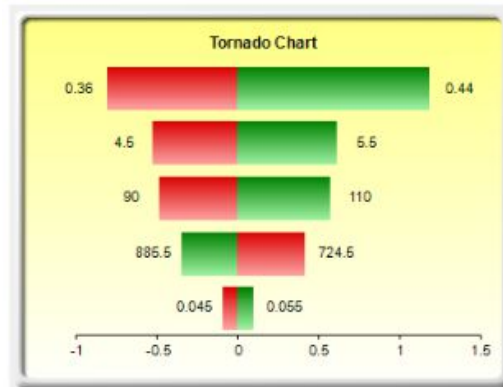

Figure 5. Tornado Chart with 40% volatility

The third figure (Figure 5), illustrates the Tornado Chart that suggests an input downside of 0,36% and an input upside of 0,44% with a base case value of 0,40%.

Step IV Simulation process
The figures represent the simulation of the option taking into account the present value, the implementation costs and the volatility.
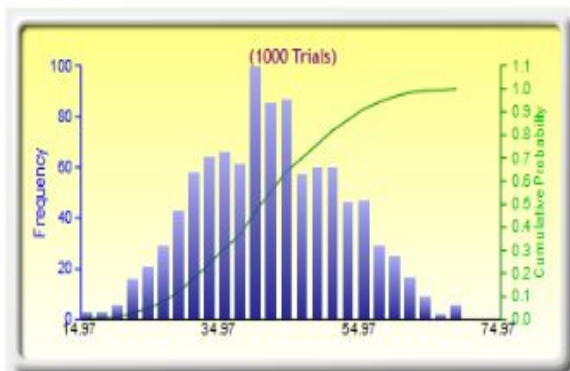

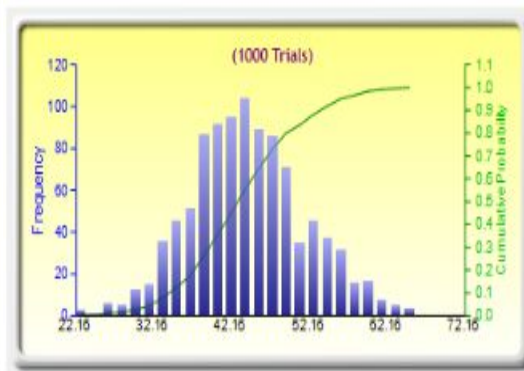*Figure 6. Simulation with 10% volatility*

Figure 7. Simulation with 25% volatility

The first figure (Figure 6) illustrates that at 1000 trials with 10% volatility, the mean is 38.37, the standard deviation is 11.19 and the range is 60.52. The second figure (Figure 7) shows that at 1000 trials with 25% volatility, the mean is 43.16, the standard deviation is 9.55 and the range is 59.89.
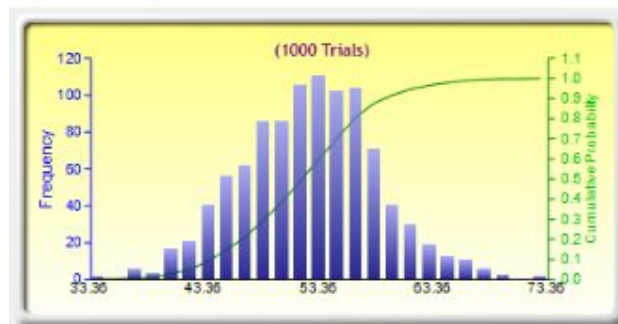

Figure 8. Simulation with 40% volatility

The third figure (Figure 8) represents the simulation of the process with 40% volatility. In this case at 1000 trials the mean is 51.37, the standard deviation is 8.67 and the range is 58.19.

In conclusion, from Figure 6 till Figure 8 it can be seen the importance of using ROA in high volatile environments, with impact on protection against high uncertainty elements, that are typical in major investments decisions for SMEs in emerging markets.

By using ROA, SMEs can value the flexibility that exist for different operations and they can gain competitive advantage by choosing the optimal strategy. Real options approach shows the additional value of uncertainty. The scenario presented suggests that ROA can be used in decision making managerial process for SMEs. Real options offer a longer maturity and increase strategic option value by flexibility. The value of strategic options is given by variables that are conducted by competition, demand and management.

Conclusions and directions for future research

The recent crises and turbulences hit the SME industry and the recovery drive by macroeconomic improvements and the integration of the technological progress was not sufficient. The problem is now very complex because the socio-technical systems need another type of management, capable to respond to the additional issues and constraints. The integration of strategic management paradigms like RBV or DC should be reconsidered in an extended framework that works together with other paradigms that contain flexibility elements.

The way toward a better understanding of the mechanisms of interactions between technical, social and managerial tasks in the case of SMEs should reconsider the elements of performance, the viability, compliancy, efficiency and effectiveness in a pragmatic way that manage better the agility elements necessary in this SME industry.

The integration of the paradigms from strategic management like RBV and DC together with TCE and ROA contribute to a new synergic framework better adapted to the development of SME capacity to respond adequately in high uncertainty environments that characterize emerging markets.

The paper offers not only an exploration of traditional and modern strategic management perspectives for gaining competitive advantage.Through a innovative concept, the proposed methodology offers a new research directions for the development of strategies for SMEs in emerging markets. In addition, it is essential to understand the mechanisms to improve the strategic direction, elements in order to fuel the synergic development of sustainable competitive advantage in all types of environments, especially in the extrem volatile and turbulent ones that characterize emerging markets.

Further studies will be carried out in the future on larger samples and integrating advanced data filtering processes, conducting separate studies on large organisations, capitalizing and diversifying the national, regional and global comparisons by detailing the study of the shock type mechanisms to the price level of resources.

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