SUBJECT AREA: ORGANIZATIONAL STRATEGY AND BEHAVIOR

Evaluation of a Collaborative Strategy: a case study in the Port wine industry

Avaliação de uma Estratégia Colaborativa: um estudo de caso no setor do vinho do Porto

Evaluación de una Estrategia Colaborativa: un estudio de caso en el sector del vino de Oporto

António Carrizo Moreira[1]
Victor Ferreira Moutinho[2]
José da Costa Pereira[3]

ABSTRACT

The rapid and all-encompassing changes in regional and world wine markets have stimulated us to carry out this study. Accordingly, based on the competitiveness of an important Port wine producer in Portugal, this article analyzes a strategic alliance between this company and another important multinational one that is present in many different worldwide distribution markets. Basically, the article seeks to understand, on the one side, the impact of a strategic alliance on a small Port wine producer when becoming involved with a multinational company, and, on the other hand, to identify differences, before and after the alliance, to the markets where the small company was made present. This work is centered on a case study and involves the use of econometrics methodologies that analyze panel data, in order to grasp differences of strategic pre- and post-alliance actions. The conclusions are important, since they allow one to compare, on one hand, difference between the company´s performance over two different time horizons. On the other hand, econometrics methods are robust, since they allow one to come to relational conclusions, keeping the case study in mind.

Keywords: Strategic alliances. Cooperative strategy. Port wine. Econometric models. Portugal.

1. PhD in Management by the University of Manchester, England. Professor at University of Aveiro, Portugal. [amoreira@ua.pt]
2. Doctoral Student of Economy by Beira Interior University, Portugal. Professor at University of Aveiro, Portugal. [vmoutinho@ua.pt]
3. Master in Management by University of Aveiro, Portugal. [jcosta.pereira@clix.pt]
   Authors' address: DEGEI, Santiago Campus, University of Aveiro, 3810-193 Aveiro, Portugal

António Carrizo Moreira / Victor Ferreira Moutinho / José da Costa Pereira

RESUMO

As rápidas e abrangentes mudanças nos mercados mundial e regional de vinhos estimularam a realização desta investigação. Assim, tendo por base a competitividade de uma importante empresa produtora de vinho do Porto, em Portugal, este artigo analisa uma aliança estratégica entre essa empresa e uma importante empresa multinacional, presente nos diversos mercados internacionais de distribuição. Em concreto, o artigo procura compreender, por um lado, qual o impacto de uma aliança estratégica para uma pequena empresa produtora de vinho do Porto ao envolver-se com uma empresa multinacional e, por outro, identificar as diferenças antes e depois da aliança para os mercados onde a pequena empresa esteve presente. Este trabalho está centrado em um estudo de caso e envolve a utilização de metodologias econométricas que analisam dados em painel, de forma a captarem as diferenças de atuação estratégicas pré e pós-aliança estratégica. As conclusões são importantes, dado que permitem comparar, por um lado, a diferença de desempenho da empresa em dois horizontes temporais diferentes. Por outro, os métodos econométricos são robustos, dado que permitem tirar conclusões relacionais tendo em conta o caso em estudo.

Palavras-chave: Alianças estratégicas. Estratégia cooperativa. Vinho do Porto. Modelos econométricos. Portugal.

RESUMEN

Los rápidos y grandes cambios del mercado mundial y regional del vino han estimulado la realización de esta investigación. Basándose en la competitividad de una empresa productora importante de vino de Oporto en Portugal, este artículo analiza una alianza estratégica entre esta empresa y otra multinacional, presente en los diversos mercados internacionales de distribución. En concreto, el artículo pretende explicar, por un lado, cuál es el impacto de una alianza estratégica para una pequeña empresa productora de vino de Oporto al asociarse con una empresa multinacional y, por otro, identificar las diferencias anteriores y posteriores a la alianza de los mercados en los que ha participado la pequeña empresa. Este trabajo se centra en un estudio de caso y utiliza metodologías econométricas que analizan datos en panel, para captar las diferencias de actuación estratégicas antes y después de la alianza estratégica. Las conclusiones son importantes, dado que permiten comparar la diferencia de desempeño de la empresa en dos horizontes temporales diferentes, así como demostrar que los métodos econométricos son sólidos dado que permiten extraer conclusiones relacionales basadas en el estudio del caso.

Palabras clave: Alianzas estratégicas. Estrategia cooperativa. Vino de Oporto. Modelos econométricos. Portugal.

1 INTRODUCTION

In the context of internationalization, the Port wine sector has focused almost exclusively on exports to foreign markets, in which distributing agents and subsidiaries of large multinational groups, owners of the most prestigious brands, have dominated distribution. However, changes dictated by market globalization implied, amongst other alterations, disinvestment in Portugal by some multinationals operating in the sector, which then led to the concentration of business in family economic groups with local decision-making centers and strong investment capacity and initiative, but lacking their own distribution. This situation has led companies to the need to find alternative solutions to maintain and/or develop the presence of Port wine brands in the global market.

Globalization has brought greater complexity and dynamism to the business, increasing competitiveness, but also instability and risk. Consumers have become more demanding and price sensitive because of the diversity of products available and therefore companies are forced to reduce their profit margins to keep demand (DICKEN, 2011). In this context, competition

is difficult, and this creates a constant need to reevaluate business strategies, either internally or externally. From an internal perspective, strategic options notably include launching new products and/or restructuring production, distribution and management processes. From an external perspective, the quickest way to react and adapt to the constant changes that occur over global markets, maintaining the lead over competitors, may be to establish collaborative strategies whose competitive advantages are based on the principle of cooperation between companies, through a mechanism of mutual exchange of technology, knowledge, competence, market contacts, products and/or financial resources (OLIVER, 2000).

The liberalization of world markets has opened new horizons for most companies, but also provided them with enormous new challenges. This phenomenon has led to strong growth in global business transactions and caused profound changes in business strategies and competitive processes. Accordingly, collaborative strategies currently assume significant relevance in the context of the internationalization of companies, allowing them to penetrate into new markets, acquire new technologies, obtain operational and financial synergies, increase competitiveness, achieve greater bargaining power with market sharing investment costs and risks, and gain access to business opportunities that they would not have the capacity to access individually (BALESTRIN; VERSCHOORE, 2008).

There are, however, marked discrepancies between the objectives of foreign and domestic companies when establishing alliances. Typically, domestic companies seek opportunities to increase their export capacity, whilst foreign companies seek greater access to the domestic markets of the allied company (BUCKLEY; CASSON, 2003; TODEVA; KNOKE, 2005). The tension created by this difference in goals and capabilities amongst international partners is a fundamental reason to seek equal control in order to safeguard the alliance and the company of any inherent

risks. The parties may have different reasons for the same goal, so these agreements should clearly describe the common goals and purposes of the partnership, which should be supplemented by a statement of values, objectives, intentions or vision as a basis for obtaining specific results or as a measure of performance evaluation. On the other hand, the lack of an agreement with common, clear and reasonable objectives substantially increases the likelihood of the partnership failing (TODEVA; KNOKE, 2005).

Not all implemented alliances reach expected results for all parties involved. Some companies may use strategic alliances as a cautious way – that presents fewer risks – to explore opportunities for future mergers or acquisitions. On the other hand, as the business relationship develops, one of the companies may set goals that conflict with those of the other company, either in terms of internationalization, product development or decentralization of production or direction.

In this context, and taking into account that most of the research on strategic alliances has been based on large companies, the aim of this study is to analyze and assess the case study of a collaborative strategy involving a Portuguese Port wine producer and a foreign multinational company, in order to answer the following general question: can strategic alliances within the process of enhancing the internationalization of Port wine producers be in any way beneficial to them?

Following this brief introduction on the topic of strategic alliances, and taking into account the Port wine sector, we decided to make the following general question: do long-term stability relationship of prices and quotas in different export markets justify strategic alliances between Port wine producers and distributors?

To complement this general question, we intend, with this article, to also help answer the following more specific questions:

1. will the domestic producer of Port wine's prices and market shares de stable before

and after the strategic alliance with the foreign distributor in its different export markets?

2. will there be impact differentiation on the brand's market share in the various destination countries, caused by the volume of sales before and after the strategic alliance with the foreign distributor in its different markets?

3. will there impact be differentiation on the brand's market share in the various destination countries, caused by the monthly average price before and after the strategic alliance with the foreign distributor in its different markets?

Having no claim to provide a definitive and general solution, we intend to contribute with a small portion of knowledge that is capable of enabling some scientific progress in the focused area, especially in the assessment of internationalization and negotiation strategies amongst the agents who operate in these markets.

The article is divided into seven sections. The first includes the article's introduction. The second section presents a brief characterization of the Port wine industry. The third section presents a literature review on strategic alliances; in the fourth section, the working hypotheses. Data and methodological issues are discussed in the fifth section; results, in the sixth section. Finally, overall conclusions are presented in the seventh section.

2 CHARACTERIZATION OF THE PORT WINE SECTOR

Wine production in Portugal represents 13% of the total value generated by the national agricultural industry (VINE AND WINE INSTITUTE – IVV, 2009).

Port wine is one of its most representative products, and is an icon of the presence and image of Portugal in the world. Portugal has great tradition and relevance within international wine exportation, and Port wine occupies a prominent place in this scenario. The emergence of new producing countries and changes in consumption patterns have, however, led to the stagnation of Portuguese wine exports, which now represent around 40% of total production (IVV, 2009); the European Union (EU) is the market that absorbs 70% of exports in value and 63% in volume (IVV, 2009).

Amongst the many different types of wines that are exported, Port wine represents around 60% of the total, whilst in volume it does not exceed 30%; thus, it is the Portuguese vinous product with highest generated value (IVV 2009). Indeed, the average price of Port wine exports is around € 4.2/l, whereas, for global exports, it is on average € 1.9/liter. Portuguese exports with higher volume expression are concentrated in table or regional wines (63%), with significant transactions in bulk, being traded on average at € 0.8/liter, which does not add value in the same proportion as exports (IVV, 2009).

Port wine occupies a prominent position in the Portuguese wine sector and is a globally recognized symbol of Portugal. In 2008, it represented 0.23% of the country's GDP and 0.58% of its total exports (IVV, 2009).

The competitive structure of the Port wine industry is not limited to companies defined as "exporting companies" – which, as well as marketing the final product, also produce it, store it and age it. Competition within the industry surpasses borders and is now part of a globalized market context, where the ability to negotiate with primary distribution (amongst others: distributor/wholesaler agents and multinational companies), and of the latter with large retail chains, takes on overriding importance in the dispute over the final consumer – and thus much of the Port wine trade is in the hands of distribution, due to the sector's internationalization and concentration, as well as to the creation of own brands. Portuguese wine companies, in general, have not been able to monitor the evolution of distribution and,

although they do have a long tradition referring to wine, are still focused on production, with serious gaps in the field of marketing, sales and distribution (PORTER, 1994).

In this context, companies exporting Port wine, in order to remain competitive facing market changes, have taken strategic decisions that led to an increasing industry concentration (LOPES, 1998).

The marketing of Port wine has expressed a trend, since 2000, towards breaking sales volume, and in 2008 registered its worst performance since 1994, falling 5% below the 2007 volume, corresponding to a drop of 7% in revenue.
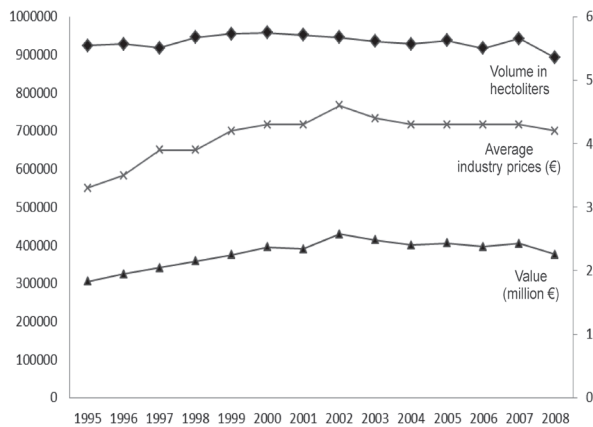
FIGURE 1 – Evolution of commercialization in the Port wine sector

Source: IVV (2009)
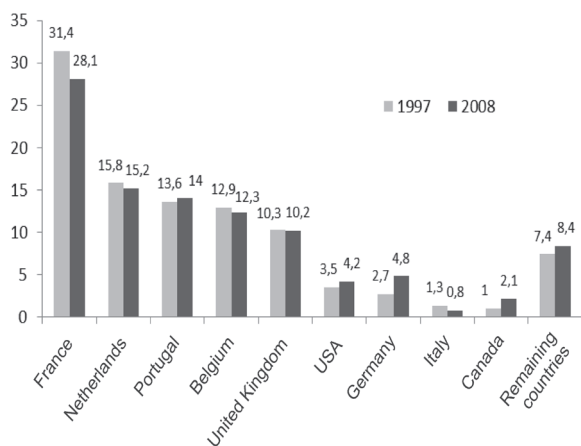
FIGURE 2 – Evolution of Port wine market shares (in %)

Source: IVV (2009)

Figure 1 presents maximum volumes traded and the amount of revenue. In Figure 2, which analyzes the sector market by market, one can observe that France remains the largest export market, and that the five main markets absorb around 80% of the traded volume, revealing a strong concentration of Port wine trade within the European market.

3 STRATEGIC ALLIANCES

The establishment of a strategic alliance requires two or more companies interested in working together, in sharing goals, objectives, responsibilities and knowledge. On the other hand, alliances do not have to be made only between companies of the same size and activity: business size and different fields of activity can also be a basis for a collaborative approach in pursuit of the same objectives (LORANGE; ROOS, 1996).

Alliances are based on partnerships between two or more companies, in order to achieve common strategic objectives, which translate into financial or operational gain (JOHANSON; MATTSSON, 1988). Strategic alliances involve (HARBISON; PEKAR, 1999) a long-term commitment, the sharing of commitments and resources, a relationship based on reciprocity, and the definition of common goals. Under these circumstances, alliances involve mutual needs and contributions, based on trust and mutual dependence, and may be made as a means to: i) implement internationalization strategies; ii) obtain synergies; iii) increase competitiveness; iv) achieve greater bargaining power within the market; v) share risks; and vi) obtain business opportunities which, individually, companies would be unable to.

Meanwhile, Lorange and Roos (1996) highlight the following critical requirements when making successful strategic alliances:

- to have compatible strategies and cultures;
- to contribute in a comparable or equitable way;
- to internally present compatible forces;
- the inexistence of conflicts of interest;
- to have mutual trust and effective commitment;
- to have determination (and luck).

The most common problems in collaborative strategies are, however, conflicts of interest, management structure that is inadequate to joint developments, lack of information concerning a partner's operations, and problems that refer to responding to market pressure or that result from rapid internal organization changes (ELMUTI; KATHAWALA, 2001). Collaboration tends to be more important and even crucial to the survival of smaller companies. For these, however, fear of failing is more pressing due to frequent and excessive internal focus and consequent limited experience in collaborative contacts – whereas, for larger companies, with stronger financial support and organizational structures, alliances are often one amongst many, giving them thus a better understanding of the collaborative environment. Moreover, in case of disagreement, it is usually the smaller company that is at a disadvantage, since it normally has fewer financial resources that a larger company (BROUTHERS; BROUTHERS; WILKINSON, 1995).

The vast majority of studies that address the relationship between involvement in alliances and level of performance are based on measures such as managers' experience, kinds of alliances, company age and size. Some of these studies demonstrated, however, that many alliances end before reaching outlined objectives, with a high failure rate (ROWLEY; BEHRENS; KRACKHARDT, 2000; MOCKLER, 2001; TODEVA; KNOKE, 2005; XIE; JOHNSTON, 2004).

The ability to manage alliances, since it is a relatively new concept, varies from collaboration to collaboration, and is a critical competence, whose analysis contributes to a better understanding of why different company alliance performances exist; and their success depends on this capacity (DYER; SINGH, 1998; DAS; SEN; SENGUPTA, 2003; ANSLINGER; JENK, 2004).

According to Bae and Gargiulo (2004), companies make alliances to acquire resources which otherwise would not be easily available in the market, such as technological capabilities and access to markets that have high barriers against entry and legitimacy. Also according to the authors, companies that are allied with partners who hold a significant portion of a particular feature of the market, and get privileged access to these resources, achieve competitive advantages over other companies without any such access, or with less privileged access to these resources.

The process of globalization has given a big boost to international alliances, given that they help companies overcome national boundaries, reduce the risks of international involvement, reduce international competition and accelerate international expansion (VIDAL-SUÁREZ, 2000; GARCÍA-CANAL, 2004). Garcia-Canal (2004) proposes a typology that distinguishes three different types of international alliances: local ones, in which a company engages with international partners to explore the local market; global ones, in which a company engages with international partners to explore and coordinate international markets; and household ones, in which a company engages with international partners to explore the latter's destination market.

The importance of strategic and operational issues in alliances is very present in the sharing of resources, in the definition of shared goals, in access to markets and in the intra and interindustrial perspective (VARADARAJAN; CUNNINGHAM, 1995). In turn, Gulati (1998), based on a social and relational perspective, further

explores the issue of strategic alliances to address five main aspects based on two perspectives, the dyadic perspective and the network perspective: the formation of alliances, alliances' governance structures, the dynamic evolution of alliances, the performance of alliances, and the consequences to companies entering them.

Relational issues were once again at the basis of research concerning strategic alliances, and Gulati, Nohria and Zaheer (2000) highlighted the following areas of interest to alliances: the industry structure, the positioning of strategic groups within the industry itself, the inimitability of resources and capabilities of the alliance itself in achieving competitive advantages, and the alliance's dynamic perspective. They conclude that companies that occupy a central place in the network, when compared with more peripheral partners, present superior performances, mainly because of easier access to information and opportunities. They recommend the use of the resource-based perspective to be able to assess and understand the dynamics of the alliance.

The importance of mutual dependence between partners is a topic that helps explain why some alliances fail and others are successful (XIA, 2011). Taking advantage of the resource-based perspective and from an international perspective, he concludes that, in addition to mutual dependence, mutual help amongst partners in the management of dependence facing external constraints is crucial in successful partnerships. Clearly, the complementarity of resources is a necessary condition, but not sufficient.

Partners' experience of the partners was also the object of study (GULATI; LAVIE; SINGH, 2009). Indeed, previous experience in partnerships and experience with specific partners is important in both a general level and at the level of the dyad. They conclude that relational skills are important, since they allow for better tuning into both factors: the contingent and the strategic.

Finally, the relationship between a perspective based on resources and performance was evaluated and validated by a meta-analysis (CROOK *et al.*, 2008); 125 articles and 29.000 businesses involving strategic alliances were analyzed. The authors confirm that directors' main concern must be the adequate identification of companies' strategic resources, since they enable the development and delivery of values to partner companies of the alliance.

Literature has been biased when assessing the alliance as a unit of analysis, and has sought to explore the perspective of resources and alliance's performances. Xia (2011) uses a more pragmatic perspective when analyzing interdependence and the possibility of repeating or replacing partners, giving the alliance a new dual perspective: strategic and situational, in which the alliance has a long-term perspective but is analyzed continuously, emphasizing the resource dependency theory.

This relational perspective that examines the alliance and the performance of each partner was also used by Goerzen (2007) in the evaluation of the repetition of partners. The question is relevant in the study of business alliances, because it has been subject to very little scrutiny, especially when the units of analysis are made in terms of the dyad or relationship, and very rarely concerning the partners in this relationship.

4 CASE STUDY AND RESEARCH HYPOTHESES

A Portuguese company that, for confidentiality's sake, will be hereafter called ALFA, is traditionally notorious for its wine production, and was established in the first half of the last century. After beginning its production of Port wine in Portugal, it diversified its products into table wines from the Douro wine region. In the eighties, it diversified into wine products from other demarcated Portuguese regions. From

the sixties on, it exports its products to various markets. Nowadays, its portfolio of products is present in over 80 countries.

The main explanations for its presence in international markets are the prestige of some of its brands, its weak growth in the Portuguese market, the emergence of a growing global market, and the presence of strong international Port wine competitors in South Africa, Australia and the USA.

In the process of its internationalization, it made agreements with agents/ representatives in various target markets. At the turn of the new millennium, it signed a partnership with a Canadian multinational company, present in various international markets, for commercialization of some of its products. The main reasons for this collaborative strategy are: creating rapid growth strategies for target markets, overcome government restrictions in destination markets, obtain synergies and provide greater overall product visibility in target markets.

Due to discrepancies with the multinational company, the partnership ended in June 2002, from when on ALFA established an alliance with a French company that has global presence in food distribution and retail. This alliance involved marketing the brands of Port wine in the various markets where the multinational is present, as well as the allocation of business resources and marketing in foreign markets, affording it not only a greater degree of control in the global distribution of its products/brands but also greater accountability in achieving goals to be reached in strategic definition. With involvement in this partnership, ALFA sought to complement its relationship with its partner, allowing it to take advantage of its global scope. The latter, in turn, sells Port wine as well as the Portuguese company's portfolio of wines, and both companies take advantage of each other's complementary resources.

ALFA's great advantage is that, in its first collaborative strategy with the Canadian multinational company, it sought to minimize risks and obtain synergies, as well as global brand positioning and visibility. In the alliance with the French company, as well as the abovementioned factors, it sought to be present in more international markets, at lower costs than if it had established subsidiaries abroad. Clearly ALFA, according to the typology of García-Canal (2004), moved from a collaborative multi-domestic strategy to a global alliance.

According to literature review, it is generally concluded that there is ample research on alliances in their social and relational perspective, taking into account the formation, structure and performance of the alliance. The resource perspective has been widely used as a theoretical basis to study the dynamics and performance of the alliance; the latter or the dyad is research's unit of analysis. Reciprocity between partners, repetition and/or replacement of partners has, however, been little studied in this area, and in this case, partner(s) are the unit(s) of analysis.

Taking into account the sector of Port wine and the reality of a Portuguese producer that made a strategic alliance with a foreign multinational company, so as to be able to capture larger shares in the international market, we intend with this study to verify if there is a positive cause-effect relationship between the development of the strategic alliance and the generation of performance increments, in international markets, by the production company. Based on the gap in the previously carried out literature review, we will not analyze the partnership or alliance, but the performance of the production company of Port wine in its relationship with both multinational companies. Thus, we also considered two sub-periods: a pre-alliance and a post-alliance period, the first of which includes data from January 1997 until June 2002, and the second, from July 2002 to December 2008, allowing us to differentiate pre- and post-alliance performances.

Keeping this specific case in mind, we propose the following research hypotheses:

H1: The strategic alliance between producer and distributor is largely associated with the increase in market shares;

H2: The strategic alliance between producer and distributor causes the supplier's commercial policy to adapt to that of the distributor:

a. in export volume;

b. in market shares.

H3: The strategic alliance between producer and distributor is a source of resources that allow for the development of relational capital and a consequent increase in share earnings and expansion within shared markets.

5 DATA AND METHODOLOGY

This study uses a quantitative exploratory approach, making use of variables that reflect internationalization strategies taken on by the company.

In the analysis carried out, we used monthly observations of the prices and traded volumes, in value and quantity, of the ALFA brand Port wine, which is the case study, for the markets of France (Fr), Netherlands (Nl), Belgium (Be), UK + Ireland (Uk + Ie), USA (Us), Germany (De), Canada (Ca), Switzerland (Ch), Italy (It), Japan (Jp), Greece (El) and Rest of the World (Rm). The sample also includes data referring to volumes traded by the entire Port wine industry.

The database used is considerably vast and cover the sample period, from January 1997 to December 2008. We used the following variables in the market of the ALFA Port wine brand:

- **dependents**:

  Y_1 − sales volume of company ALFA Port wine compared to volume of sector Port wine, i.e. market share relative to the sector.

  Y_2 − sales volume of company ALFA Port wine compared to volume of ALFA Port wine, i.e. ALFA market share.

- **independents**:

  Volumes traded in the industry by market in thousands of liters

- **explanatory**:

  X_1 − average monthly price of ALFA in €

  X_2 − volume of brand traded by market in thousands of liters

The most relevant data resulting from the development of the proposed models are the price of the ALFA Port wine brand in international markets, their relative market shares, and volumes traded in the different markets.

Considering that sample data make up a panel, i.e. temporal and cross-sectional data, and assuming that the volumes of Port wine exported to different countries are not constant, we will examine the following aspects:

1. size effect is present and will influence the calculation of variance. Thus, the violation of the assumption of variance equality is present in the cross-sectional component of the sample;

2. assuming the presence of cross-sectional dependence in the sample, given that the alliance's *intermarket* trade policies are not independent conditions;

3. temporal evolution, both of international prices or of traded volumes, lead us to admit the possible existence of serial correlation of data variables.

Thus, diagnosis tests were carried out concerning the presence of heteroscedasticity, dependence and autocorrelation in sample data. As such, we chose to estimate the proposed equation by applying Panel Corrected Standard Errors (PCSE). Thus, the econometric methodology employed in this

study involved the following steps: analysis of the presence of heteroscedasticity and contemporary autocorrelation to panel data; the application of the PCSE estimation; and the use of random effects' and fixed effects' assessors of robustness.

To diagnose the presence of dependence in the sectional sample with panel data, we used Frees' semiparametric test (1995; 2004) and the Pesaran parametric test (2007), whose evaluators are used in regressions, either in fixed effects or in random effects.

The Wooldridge test was used to test for the presence of autocorrelation in which, under

the null hypothesis, the absence of 1st-order autocorrelation is rejected. The modified Wald test followed by Baum (2001; 2004) was used to diagnose the presence of heteroscedasticity based on regression fixed effects' residuals.

In this study, we use the Static Panel as a econometric model to estimate. The defined econometric model comprises the following multiple linear regression, which aims at explaining the behavior of the producer's shares with marketing of ALFA brand Port wine:

$$Y_{1i} = \alpha_0 + \alpha_1 Lnx_1 + \alpha_2 Lnx_2 + \alpha_3 FrLnx_1 + \alpha_4 NlLnx_1 + \alpha_5 BeLnx_1 + \alpha_6 (Uk + Ie)Lnx_1 + \alpha_7 UsLnx_1 +$$
$$+ \alpha_8 DeLnx_1 + \alpha_9 CaLnx_1 + \alpha_{10} ChLnx_1 + \alpha_{11} ItLnx_1 + \alpha_{12} JpLnx_1 + \alpha_{13} ElLnx_1 + \alpha_{14} RmLnx_1 + \alpha_{15} FrLnx_2 +$$
$$+ \alpha_{16} NlLnx_2 + \alpha_{17} BeLnx_2 + \alpha_{18} (Uk + Ie)Lnx_2 + \alpha_{19} UsLnx_2 + \alpha_{20} DeLnx_2 + \alpha_{21} ChLnx_2 + \alpha_{22} ItLnx_2 +$$
$$+ \alpha_{23} JpLnx_2 + \alpha_{24} ElLnx_2 + \alpha_{25} RmLnx_2 + \varepsilon_t$$

Y1 is the dependent variable, relative share of the mark, given by the expression $Y_{1i} = \frac{Ve_i}{Vt_i}$; the numerator is given by (Ve_i) = monthly average in thousands of traded liters of the brand for market i, and the denominator (Vt_i) = Total volume in thousands of liters traded by the Port wine sector, exported to foreign market i. Regarding explanatory variables, we consider the variable (X_{1i}) = monthly average unit price, in euros, of Port wine, calculated by the ratio given by the monetary value of sales and the value of the volume traded in quantity for each foreign market, and also the variable (X_{2i}), given by traded volume of the brand in thousands of liters for each market.

To complement the econometric analysis presented above, we used convergence coefficient calculation for the set of countries considered in the sample.

This measurement, called beta-convergence, allows for the study of changes in the temporal effects of variables for the set of countries in the sample over time, whose index was calculated according to the following expression (BOYLE; MCCARTHY, 1997):

$$\sigma = \left(\frac{var \dfrac{x_{ti}}{m\acute{e}dia(x_{ti})}}{var \dfrac{x_{t0}}{m\acute{e}dia(x_{t0})}} \right)$$

This index, in its graphic reading, allows for assessing the existence or not of convergence in the two different periods (before and after the alliance).

As a calculation tool, we used the econometric software STATA 11.

6 RESULTS

The presentation of results is separated into three subsections in order to facilitate the interpretation of data. In this way, the first section presents a descriptive analysis of the data obtained, the second presents the set of results obtained with the economic model, and the last presents results with the variation coefficient.

6.1 Preliminary analysis of data and descriptive statistics of relevant variables

Tables 1, 2 and 3 present the results of descriptive statistics, according to data used, for the ALFA company's combined markets, as well as for the pre- and post-alliance periods. Table 4 presents data for the different markets, covering the magnitude of differences in the behavior of market shares in the study of company ALFA, from January 1997 to December 2008.

TABLE 1 – Descriptive statistics for the set of markets over the analyzed period

Variables	Average	Standard deviation	Minimum	Maximum
Y_1	0.2062	0.2631	0	1
Y_2	0.0834	0.0930	0	0.55
X_1 – Average price	6.218	2.373	2.78	25.95
X_2 – Volume	41.727	51.920	0	446.4

Source: the authors.

TABLE 2 – Descriptive statistics for the set of markets in the pre-alliance period

Variables	Average	Standard deviation	Minimum	Maximum
Y_1	0.1905	0.2541	0	1
Y_2	0.0833	0.1020	0	0.55
X_1 – Average price	5.948	2.695	2.78	24.77
X_2 – Volume	45.575	61.553	0	446.4

Source: the authors.

TABLE 3 – Descriptive statistics for the set of markets in the post-alliance period

Variables	Average	Standard deviation	Minimum	Maximum
Y_1	0.2195	0.2697	0	1
Y_2	0.0833	0.0848	0	0.47
X_1 – Average price	6.438	2.025	3.96	25.95
X_2 – Volume	38.657	42.262	0	202.27

Source: the authors.

On average, over the whole period, as shown in Table 1, there is a relative 8.34% ALFA brand Port wine share across the 12 major markets (including the Rest of the World), an average global market price unit of 6.22 euros, and an average volume of the product in all countries of the sample close to 41,727 thousands of traded liters.

To explicit the impacts of differentials on global effects over the analyzed period, attention should be paid to compensatory contributions, following the strategic alliance, to market shares, although in this post-alliance period the volume of ALFA brand Port wine traded in the set of countries in the sample reveals a decrease in values (38,657 thousands of gallons sold by the brand in the market after the alliance, against 45,575 thousand liters sold before the strategic alliance).

Regarding information about estimates for the same magnitudes (see Table 4), when considering foreign markets individually, the

contribution of France and Belgium as destination markets with a strong exporting tendency of ALFA brand Port wine should be noted. On average, the share of Port wine ($Y_2$2) to the French, Belgian, Italian and Dutch markets represent 21.47%, 26.84%, 7.43% and 6.74%, respectively. This demonstrates the strong dependence of the brand on those countries, and a weak dependence on markets such as Canada, Japan and Germany.

TABLE 4 – Statistics for main markets over the entire analyzed period

	Variables	Average	Standard deviation	Minimum	Maximum
France	Y_1	0.0477	0.0210	0	0.11
	Y_2	0.2147	0.0791	0	0.5
	X_1 – Average price	4.9255	0.2026	4.46	5.54
	X_2 – Volume	107.416	54.092	0	356.44
Netherlands	Y_1	0.0275	0.0229	0	0.14
	Y_2	0.0674	0.0506	0	0.34
	X_1 – Average price	4.9308	0.4294	3.74	5.95
	X_2 – Volume	30.995	21.952	0	132.05
Belgium	Y_1	0.1506	0.0731	0	0.41
	Y_2	0.2684	0.1110	0	0.55
	X_1 – Average price	5.2632	0.4582	4.19	6.33
	X_2 – Volume	142.296	78.439	0	446.4
UK+Irl	Y_1	0.0443	0.0326	0	0.21
	Y_2	0.0595	0.0418	0	0.24
	X_1 – Average price	6.4171	1.3334	3.68	10.73
	X_2 – Volume	31.610	29.271	0	154.67
USA	Y_1	0.1649	0.0885	0	0.54
	Y_2	0.0922	0.0455	0	0.21
	X_1 – Average price	8.8154	1.6921	5.93	18.64
	X_2 – Volume	47.746	27.572	0	130.04
Germany	Y_1	0.0496	0.0431	0	0.28
	Y_2	0.0261	0.0310	0	0.3
	X_1 – Average price	4.9953	0.0573	3.63	7.08
	X_2 – Volume	10.216	5.313	0	25.56
Canada	Y_1	0.0502	0.0455	0	0.32
	Y_2	0.0158	0.0134	0	0.08
	X_1 – Average price	5.8063	1.8935	3.21	13.47
	X_2 – Volume	8.146	8.2299	0	49.23
Switzerland	Y_1	0.2546	0.2079	0	0.93
	Y_2	0.0276	0.0211	0	0.08
	X_1 – Average price	6.0797	1.4209	2.78	11.11
	X_2 – Volume	13.857	10.883	0	52.11
Italy	Y_1	0.4460	0.2275	0	0.97
	Y_2	0.0743	0.0339	0	0.18
	X_1 – Average price	4.8553	0.7655	3.04	7.47
	X_2 – Volume	38.153	23.200	0	128.73
Japan	Y_1	0.4536	0.3095	0	1
	Y_2	0.0202	0.0174	0	0.08
	X_1 – Average price	9.8465	5.0792	4.31	25.95
	X_2 – Volume	9.452	8.219	0	41.85
Greece	Y_1	0.6665	0.3786	0	1
	Y_2	0.0193	0.0344	0	0.39
	X_1 – Average price	6.7637	1.0701	4.91	10.69
	X_2 – Volume	7.916	7.657	0	56.7
Others	Y_1	0.1185	0.0374	0.03	0.23
	Y_2	0.1146	0.4685	0.03	0.32
	X_1 – Average price	5.9130	1.0778	4	9.56
	X_2 – Volume	52.923	21.368	12.61	120.74

Source: the authors.

With regard to average sales prices, there is a great price variability within different markets, especially in the European market, with some exceptions in prices levels over the analyzed period in Germany, France, Netherlands and Belgium.

6.2 Estimated econometric models according to PCSE

The initial results of specified diagnosis tests for analysis of the presence of heteroscedasticity, 1st order autocorrelation and sectional dependence are described in Table 5. Values of Pesaran and Frees tests and Wald statistics allow us to reject the null hypothesis of the respective tests, to the statistical significance level of 1%, for the two analyzed periods, so that there is enough statistical evidence to accept the existence of heteroscedasticity and dependence amongst the considered countries. We also found evidence of 1st order autocorrelation at a significance level of 5%, according to the evidential value of the Wooldridge test, which allows one to confirm this statistical inference.

TABLE 5 – Diagnosis tests

Period: 1997- June 2002 (pre-alliance)	Pooled	Random effects	Fixed affects
Wald Statistics (χ2)			512.76***
Pesaran Test		9.573***	9.638***
Frees Test		0.705***	0.708***
Wooldridge Test F(N(0.1))	4.279*		
Period: June 2002-2008 (post-alliance)	**Pooled**	**Random effects**	**Fixed affects**
Wald Statistics (χ2)			1516.63***
Pesaran Test		9.133***	9.120***
Frees Test		0.561***	0.565***
Wooldridge Test F(N(0.1))	4.591**		

Notes: The Wooldridge Test follows a normal reduced distribution N(0.1) and tests the null hypothesis of absence of serial 1st order autocorrelation in residues. Significance levels of 1, 5 and 10 % are marked with ***, ** and * respectively. The Wald Test follows a Chi-Square distribution.

Source: the authors.

Results in Table 6 were based on an estimate using standard error correction models with panel data, because they ensure greater consistency and efficiency. In the specific case of the sample analyzed, the data make up an unbalanced panel with no heteroscedasticity and autocorrelation of residues.

From these same results, we observe that, in the pre-alliance period, the elasticity of the Port wine brand share, in comparison to the international price for the set of countries in the sample, is elastic, since, in absolute terms, its value is greater than the unit; this does not occur in the post-alliance period, which is inelastic. Such evidence is statistically significant and indicates that the brand's market shares were much more volatile and ranged in reverse direction and more than proportionally to the unit price increase of 1% in world markets over the period prior to the alliance, rather than after it.

This result confirms the importance of the alliance, since ALFA gains market shares through the alliance in global terms (set of countries) to the same levels of traded volumes of Port wine at different world prices.

In terms of the impact of the traded volume for the set of markets, for the same levels of global prices charged over the two analyzed periods, we found that the elasticity of the brand share remains inelastic over both periods, although with a slight difference in magnitude.

TABLE 6 – PCSE Results

Dependent Variable: Ln Brand Share	PCSE	PCSE	PCSE	PCSE	PCSE	PCSE
	1997-2002	1997-2002	1997-2002	2002-2008	2002/2008	2002/2008
Independent Variables	(I) Corr AR(1)	(II) TSar1	(III) Hetonly	(I) Corr AR(1)	(II) TSar1	(III) Hetonly
Ln X1	-1.6544 (0.000)***	-1.61066 (0.000)***	**-1.6544 (0.000)*** **	0.59946 (0.001)****	0.63942 (0.001)****	**0.59946 (0.002)**** **
LnX2	0.83133 (0.000)***	0.51146 (0.000)***	**0.83133 (0.000)*** **	0.74544 (0.000)***	0.624577 (0.000)***	**0.74544 (0.000)*** **
France * LnX1				-2.25077 (0.000)***	-2.24647 (0.000)***	**-2.25077 (0.000)*** **
Netherlands * Ln X1	0.002424 (0.990)	-0.35388 (0.865)	**0.002424 (0.992)**	-2.17032 (0.000)***	-2.17002 (0.000)***	**-2.17032 (0.000)*** **
Belgium * Ln X1	1.178676 (0.000)***	1.170764 (0.000)***	**1.178676 (0.000)*** **	-1.58300 (0.000)***	-1.59302 (0.000)***	**-1.58300 (0.000)*** **
England * Ln X1	1.01024 (0.000)***	0.766948 (0.000)***	**1.01024 (0.000)*** **	-0.71467 (0.000)***	-0.749825 (0.000)***	**-0.71467 (0.000)*** **
USA* Ln X1	1.42983 (0.000)***	1.41374 (0.000)***	**1.42983 (0.000)*** **	-1.09068 (0.000)***	-1.10139 (0.000)***	**-1.09068 (0.000)*** **
Germany * Ln X1	1.54746 (0.003)***	1.452056 (0.003)***	**1.54746 (0.003)*** **	-0.876865 (0.001)***	-0.937545 (0.001)***	**-0.876865 (0.001)*** **
Canada * Ln X1	1.46777 (0.000)***	1.476335 (0.000)***	**1.46777 (0.000)*** **	-1.04988 (0.000)***	-1.03213 (0.000)***	-1.04988 (0.000)***
Switzerland * Ln X1	2.28854 (0.000)***	2.274617 (0.000)***	**2.28854 (0.000)*** **	-0.51052 (0.004)***	-0.52649 (0.004)***	**-0.51052 (0.006)*** **
Italy * Ln X1	2.34356 (0.000)***	2.381812 (0.000)***	**2.34356 (0.000)*** **	-0.11407 (0.504)	-0.07519 (0.665)	**-0.11407 (0.575)**
Japan * Ln X1	2.108329 (0.000)***	2.076622 (0.000)***	**2.108329 (0.000)*** **	0.12937 (0.439)	0.106848 (0.524)	**0.12937 (0.459)**
Greece * Ln X1	3.24434 (0.000)***	3.211063 (0.000)***	**3.24434 (0.000)*** **	0.56034 (0.005)***	0.66566 (0.000)***	**0.56034 (0.007)*** **
Rest of the World * Ln X1	1.81927 (0.000)***	1.813395 (0.000)***	**1.81927 (0.000)*** **			
France * LnX2	-0.007433 (0.903)	0.310893 (0.000)***	**-0.007433 (0.922)**	0.04549 (0.758)	0.167502 (0.193)	0.04549 (0.769)
Netherlands * Ln X2	0.113993 (0.230)	0.449392 (0.000***)	**0.113993 (0.267)**	0.102367 (0.544)	0.22678 (0.133)	**0.102367 (0.565)**
Belgium * Ln X2	-0.179584 (0.004)***	0.14090 (0.094)*	**-0.179584 (0.019)** **	0.026757 (0.855)	0.153369 (0.223)	**0.026757 (0.862)**
England * Ln X2	-0.130923 (0.193)	0.307702 (0.003)***	**-0.130923 (0.189)**	-0.47434 (0.002)***	-0.33128 (0.017)**	**-0.47434 (0.004)*** **
USA* Ln X2	-0.028975 (0.613)	0.292173 (0.000)***	**-0.028975 (0.685)**	0.088263 (0.467)**	0.21274 (0.092)*	**0.088263 (0.467)** **
Germany * Ln X2	-0.241745 (0.144)	0.135106 (0.456)	**-0.241745 (0.180)**	-0.15245 (0.607)	0.020642 (0.911)	**-0.15245 (0.607)**
Canada * Ln X2		0.310238 (0.001)***		0.082060 (0.266)	0.192813 (0.142)	**0.082060 (0.266)**
Switzerland * Ln X2	-0.06459 (0.429)	0.262966 (0.008)***	**-0.06459 (0.413)**	0.18258 (0.773)	0.31335 (0.027)**	**0.18258 (0.773)**
Italy * Ln X2	-0.181010 (0.009)***	0.12253 (0.171)***	**-0.181010 (0.078)** **	-0.04674 (0.932)	0.05799 (0.662)	**-0.04674 (0.932)**
Japan * Ln X2	0.257613 (0.014)**	0.59120 (0.000)***	**0.257613 (0.014)** **	0.01398 (0.930)	0.15488 (0.272)	**0.01398 (0.930)**
Greece * Ln X2	-0.342035 (0.000)***		-0.342035 (0.001)***			
Rest of the World* Ln X2	-0.359706 (0.000)***	-0.04205 (0.668)	**-0.359706 (0.000)*** **	-0.534841 (0.001)***	-0.41269 (0.004)***	**-0.534841 (0.001)*** **
Constant	-4.29108 (0.000)***	-4.35250 (0.000)***	**-4.29108 (0.000)*** **	-4.07212 (0.000)***	-4.14793 (0.000)***	**-4.07212 (0.000)*** **
Observations	679	679	679	929	929	929
R^2 / Pseudo R^2	0.8635	0.8794	0.8635	0.8824	0.8772	0.8824
Wald (2)	23902 (0.000)***	27663 (0.000)***	5199 (0.000)***	9535 (0.000)***	11082 (0.000)***	9535 (0.000)***

Notes: The Wald Test follows a Chi-Square distribution and tests the null hypothesis of non-significance of explanatory variables; *p-values* are in parenthesis; asterisks ***, ** and * indicate levels of significance at 1, 5 and 10 %, respectively; models indicate that there was correction, assuming that residues (standard errors) presented in model (I) a common autocorrelation AR(1) and that panel residues (unbalanced) were correlated; in model (II), there was specific 1st order autocorrelation and the unbalanced panel's residues were correlated; in model (III), there was common autocorrelation AR(1) and the unbalanced panel presented heteroscedasticity.

Source: the authors.

The price effect alone justifies economic and financial efforts associated with the costs of the alliance (assuming, with some reason, that there is, in the price, in its component, a variable referring to the inclusion of the offsetting effect on the rate of return required by the shareholder of the company producing Port wine), so the same price effect associated with the size effect on the traded volume justify the success of the alliance, with clear gains in the world export market by the Portuguese producer. Thus, it was assumed that there would be a clear trade-off of competitive positions in some of the export markets, hence the inclusion, in the regression, of the cross effects via price and via traded volume, with the individual effect of one single country of export destination.

In this PCSE modeling, either before the alliance or after it, most estimates associated with the estimated parameters show statistical significance for a significance level of 1%. However, before the alliance there are significant individual differences in the elasticity of the ALFA Port wine brand's joint share.

Before the alliance, there were significant differentials in the elasticity of the market share compared to prices charged in the different export markets; the markets of Switzerland, Italy, Japan, Greece and Rest of the World compared to prices charged in France (country of reference) show differences in increase in elasticity higher than the unit, so the unit price increases of 1% in ALFA brand Port wine induce a more than proportional and positive variation in the share's increase.

Before and after the alliance there are less significant absolute differences in the elasticity of the share, compared to the volumes exported in different export markets (inelastic elasticity). Taking Canada as a reference exporting country, increases of 1% in volumes exported of the Port wine brand to Germany, Belgium, Italy, Japan, amongst others, led to a decrease in the share differential in the set of countries analyzed. After

the alliance, in these countries, compared to Greece, the share of the Port wine brand increased, which reveals the positive effect of the alliance to these export markets.

6.3 Levels of convergence of variables and research

Figures 3, 4, 5 and 6 present variations in the levels of inter-temporal convergence of variables. It appears that there was a clear dispersion reduction in all parameters following the alliance.

In the case of a relative market share facing the Port wine sector (Figure 3), it appears that there is greater convergence, generally, following implementation in the markets of Germany and Canada in 2005. In the case of a relative ALFA market share (Figure 4), it appears that there was a convergence after the alliance, which implies greater control of trade policy in the countries analyzed, which also holds for the volume of traded Port wine (Figure 6).

An analysis of Figure 5, referring to prices traded in international markets, shows that, although there is greater stability after the alliance, some important variations still persist, notably in Canada, the United States and Switzerland, mainly because of factors such as currency risk. However, an exception is Italy, which differs in relation to the others, implying there is an important price change in this market, when compared to prices charged in other markets.

We can assume, for the set of analyzed variables, that the convergence coefficient tends to reveal great heterogeneity in the pre-alliance period and that, from 2002 on, it shows greater homogeneity. Thus, we can state that equiproportional variations observed in the post-alliance period are the result of greater control of the alliance´s trade policy, when compared with variability in the pre-alliance period.
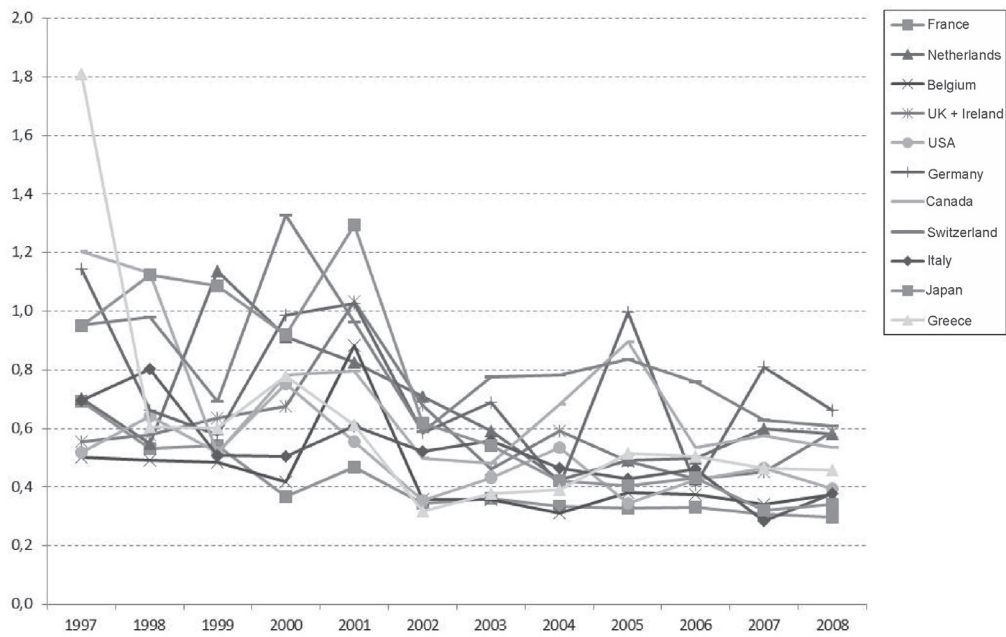
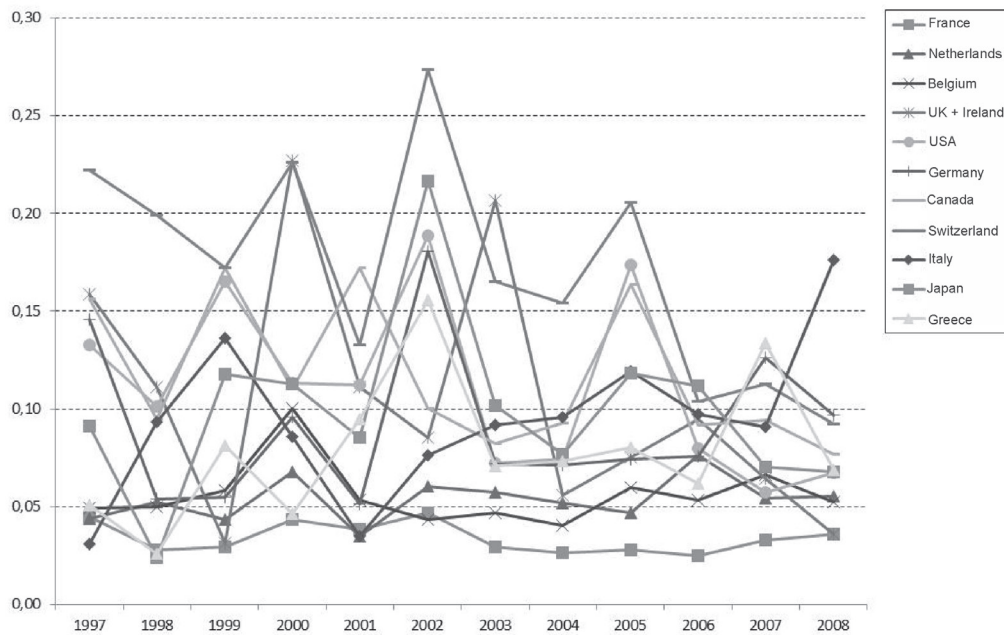**FIGURE 3** – Evolution of the beta-convergence of Y_1

Source: the authors.
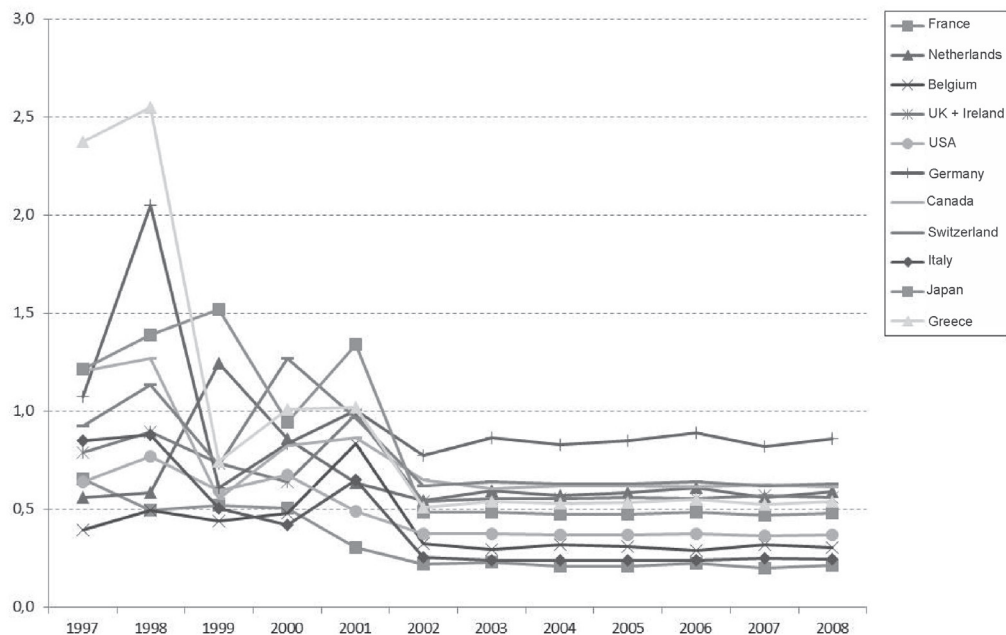
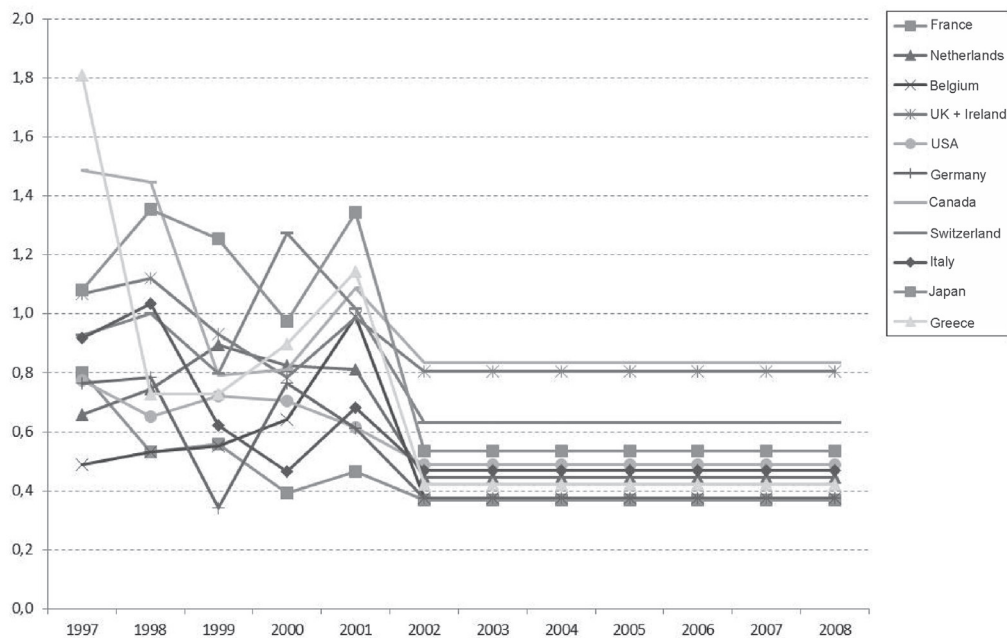**FIGURE 4** – Evolution of the beta-convergence of Y_2

Source: the authors.

FIGURE 5 – Evolution of the beta-convergence of average monthly prices of ALFA in international markets

Source: the authors.

FIGURE 6 – Evolution of the beta-convergence of traded volumes of ALFA in international markets

Source: the authors.

7 CONCLUSIONS AND FINAL CONSIDERATIONS

In sum, this empirical study allowed us to validate the theoretical framework presented and proposed, and can be a tool of analysis to validate the impact of strategic alliances.

The empirical results revealed and positively validated hypothesis 1, confirming that the strategic alliance can lead to increased market shares for the producer of ALFA brand Port wine brand, mainly in markets in France, Netherlands, Belgium, USA, Canada, Switzerland and Japan. They also confirmed that there is a differential impact on the ALFA brand market share before and after the strategic alliance.

Also, the pre-and post-alliance comparison in terms of export volume and market shares have differentiated performances, as corroborated by the analysis of beta-convergence, positively validating hypothesis 2.

The results demonstrate that company ALFA predominantly carried out two strategies: on the one hand, one of gains in competitiveness, through the establishment of network relations, with a view to distributing ALFA brand worldwide; and, on the other, one of the search for resources, notably for distribution along the value chain, as a way of extending its scope.

One conclusion is obvious: different strategies produce different results, clearly dismissing, for the studied case, any kind of opportunistic behavior by the multinational company with which ALFA made the strategic alliance. Furthermore: it is possible to generate dynamic complementarities within the alliance, in which the producer achieves an international scope it would not otherwise have, and the distributor increases the range of products offered at international level, taking advantage of its distribution capacity. Hypothesis 3 is thus confirmed.

From the results obtained, it appears that the creation of a strategic alliance with the French multinational proved to be a success for the ALFA company, measured by differential impacts, either in their entirety or by the export markets. It seems clear that strategic alliances can strengthen the internationalization of Port wine producers, provided there is caution in selecting and managing the partner.

One limitation of this study refers to the fact that it was considered an alliance business without any technological foundation. Thus, the generalization of the findings to all kinds of alliances should be made with caution. To complement this study, it will be interesting to deepen the analysis of strategic alliances from the temporal point of view, considering the maintenance or replacement of partners, as well as include various sectors of activity, in order to enrich the knowledge within strategic alliances.

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