SUBJECT AREA: ORGANIZATIONAL STRATEGY AND BEHAVIOR

# Determinants of Export Performance of Small and Medium-sized Manufacturing Brazilian Enterprises from the Perspective of Resource-based View and Uppsala Model

*Determinantes do Desempenho Exportador de Pequenas e Médias Empresas Manufatureiras Brasileiras sob a Perspectiva da Visão Baseada em Recursos e do Modelo de Uppsala*

*Determinantes del desempeño exportador de las pequeñas y medianas empresas de manufactura brasileñas desde la perspectiva de la visión basada en recursos y del modelo de Uppsala*

Edson Wilson Torrens[1]
Mohamed Amal[2]
Gérson Tontini[3]

## ABSTRACT

Studies of the determinants of export performance include companies located in developed countries and emerging economies. A predominance of studies focusing on large companies in developed countries was observed. The studies tested the RBV and the Uppsala model in isolated ways. The combined use of variables in the models of RBV and Uppsala studies of Brazilian SMEs appear as a gap to be filled in organizational research. This research contributes to theoretical and empirical knowledge involving the phenomena related to the internationalization of Brazilian SMEs by proposing a model integrating these approaches. This research aims identify the determinants of export performance of SMEs in the perspective of RBV and the Uppsala Model. On a survey with 84 SMEs were employed multiple statistical techniques (factor analysis, linear and logistic regression and structural equation modeling). Resources influenced by the idiosyncrasies of the company and its stage of internationalization affected the export performance. Managerial resources were prevalent on organizational resources. Stage of internationalization and exporting time influenced the relationship

1. Doctor in Accounting Sciences and Management from Regional University of Blumenau (FURB). [edson.wilson@univille.br]
2. Doctor in Production Engineering from Federal University of Santa Catarina (UFSC). [mohamedamal.amal@gmail.com]
3. Doctor in Management from California State University (CSU) – USA. [gersontontini@gmail.com]
   Authors' address: University of Joinville Region. Unit: Joinville Campus – Department of Management
   Rua Paulo Malschitzki, 10 – Campus Universit./Zona Indl., CEP: 89219-710  Joinville – SC – Brazil

511

Edson Wilson Torrens / Mohamed Amal / Gérson Tontini

between export performance and resources. Size and technological intensity not mediated export performance. Resources and stage of internationalization affect the export performance of SMEs. The following question was developed: What are the determinants of export performance of Brazilian manufacturing SMEs? SMEs in emerging countries arouse the attention of governments worldwide since its economic, employment and income opportunities that provide and challenges facing to innovate, promote sustainability, establish and consolidate its internationalization.

**Keywords:** Export performance. Uppsala model. Small and medium enterprises. Resource-based view.

## RESUMO

Estudos envolvendo os determinantes do desempenho exportador abrangem empresas localizadas em países desenvolvidos e inseridas em economias emergentes. Verificou-se a predominância de estudos centrados em empresas de grande porte de países desenvolvidos. Os estudos testaram a RBV e o Modelo de Uppsala de forma isolada. O emprego combinado das variáveis dos modelos da RBV e de Uppsala nos estudos das PMEs brasileiras apresentam-se como uma lacuna a ser preenchida em pesquisas organizacionais. Esta pesquisa contribui com conhecimentos teóricos e empíricos que envolvem os fenômenos relacionados à internacionalização de PMEs brasileiras pela proposta de um modelo integrador destas abordagens. Objetiva-se, nesta pesquisa, identificar os determinantes do desempenho exportador de PMEs na perspectiva da RBV e do Modelo de Uppsala Sobre um levantamento com 84 PMEs, foram empregadas técnicas estatísticas múltiplas (análise fatorial, regressão linear e logística e, modelagem de equações estruturais). Recursos influenciados pelas idiossincrasias da empresa e seu estágio de internacionalização influenciaram o desempenho exportador. Recursos gerenciais foram preponderantes sobre os recursos organizacionais. Estágio de internacionalização e tempo exportando influenciaram a relação entre desempenho exportador e recursos. Tamanho

e intensidade tecnológica não mediaram o desempenho exportador. Recursos e estágio de internacionalização afetam o desempenho exportador das PMEs. Foi elaborada a seguinte pergunta: Quais os determinantes do desempenho exportador das PMEs manufatureiras brasileiras? As PMEs de países emergentes despertam a atenção dos governos mundiais visto sua importância econômica, oportunidades de emprego e renda que propiciam, bem como desafios que defrontam ao inovar, promover a sustentabilidade, estabelecer e consolidar sua internacionalização.

**Palavras-chave:** Desempenho exportador. Modelo de Uppsala. Pequenas e médias empresas. Visão baseada em recursos.

## RESUMEM

Los estudios sobre los determinantes de lo desempeño exportador incluyen las empresas ubicadas en países desarrollados y en economías emergentes. Se identificó lo predominio de estudios centrados en las grandes empresas de los países desarrollados. Los estudios evaluaron la RBV y el modelo de Uppsala en forma aislada. El uso combinado de las variables en los modelos de RBV y Uppsala ne estudios de las PMEs brasileñas son raros entre las investigaciónes de la organización. Esta investigación contribuye al conocimiento teórico y empírico que implica los fenómenos relacionados con la internacionalización de las PMEss brasileñas, proponiendo un modelo de integración de estos enfoques. Lo objetivo de esto estudio es identificar los factores determinantes del desempeño exportador de las PMEs en la perspectiva de la RBV y el Modelo de Uppsala. Sobre un levantamento con 84 PMEs se emplearon varias técnicas estadísticas (análisis factorial, regresión lineal y logística y modelagen de ecuaciones estructurales). Recursos influenciados por las idiosincrasias de la empresa y su estagio de internacionalización afectado el desempeño de las exportaciones. Recursos de gestión prevalecieron sobre los recursos de la organización. Estagio de internacionalización y tiempo de exportación influyó la relación entre las exportaciones y

recursos. El tamaño y la intensidad tecnológica no medió de las exportaciones. Recursos y etapa de internacionalización afectan el desempeño de las exportaciones de las PMEs. Se desarrolló la siguiente pregunta: ¿Cuáles son los factores determinantes del desempeño exportador de las PMEs industriales brasileñas? PMEs de los países emergentes despertan la atención de los gobiernos en todo el mundo por su importancia económicas, empleo y oportunidades de ingresos que proporcionan y desafíos de innovación, promover la sostenibilidad, establecer y consolidar su internacionalización.

**Palabras-clave**: Desempeño exportador. Pequeñas y medianas empresas. Visión basada en recursos. Modelo de Uppsala.

## 1 INTRODUCTION

As emerging economies countries have been receiving more attention, small and medium enterprises (SMEs) in these countries have drawn the attention of its governments, due to its economic importance for jobs generation (BRASIL, 2012) and due to the challenges that these enterprises have to face (ALÉM, GIAMBIAGI, 2010; UNCTAD, 2010). In relation to challenges, these companies face the need to innovate, promote sustainability and achieve and consolidate its internationalization. Specifically in relation to internationalization, expanding the international market share beyond exports is challenging for small and medium-sized Brazilian companies (ALMEIDA, 2007).

Internationalization requires from SMEs a better knowledge of foreign markets, transferable competitive advantages, skills development for the dominance of political and economic characteristics of destination countries, involvement of sometimes scarce resources and constant technological development. According to Kaleka (2012), for companies that are

present in a global era, the export performance contributes to the general performance of the organization and to the continuity of its activities. This research aimed to identify Brazilian SMEs export performance determinants based on the Resource-based view (RBV) and on the Uppsala model. The question was raised: What are Small and Medium Enterprises export performance determinants from RBV and Uppsala Model perspectives? This research differs by gathering Uppsala model (JOHANSON; VAHLNE, 1977) and RBV (BARNEY, 1991) variables in a single study, in order to identify the impact of resources and of the internationalization stage on the export performance of Brazilian SMEs. The use of the two approaches is here justified by the presence of variables related to organizational resources in the Uppsala model and to managerial resources in the RBV.

National studies involving export performance in which the unit of analysis were companies focused on large-sized companies (CARNEIRO; ROCHA; SILVA, 2011). Among national studies focused on large companies, there is the work of Forte and Moreira (2007). There is also an identifiable lack of studies (ARMARIO; RUIZ; ARMARIO, 2008; PANGARKAR, 2008; CAMISÓN; VILLAR-LOPEZ, 2010) bringing RBV (BARNEY, 1991) and Uppsala models (JOHANSON; VAHLNE, 1977, 2009) together in the study of SMEs export performance. This research has as its theoretical contribution meeting the two models variables and evaluating the combined influence of these variables on export performance, since previous studies surveyed in this research presented analyzes of these variables in isolation. Multiple statistics techniques were employed due to the relations between data and the type of dependent variables to be evaluated.

This research had as its panorama an emerging economy country, and its presence in global economy has attracted the attention of international bodies that observe the movements of global economy, due to its economic importance

for jobs and income generation and due to the challenges faced by both governments and companies incorporated into this (UNCTAD, 2010), which increases its relevance as an empirical contribution. After this introduction, literature review, research hypotheses, the methodology employed in the study, results discussion and the conclusion of the research are presented.

## 2 LITERATURE REVIEW

Theoretical support to the central theme of this work was attempted through the literature review. The literature review was divided into two parts, with the first part dealing with the export performance and the second involving the literature around the adopted theoretical model and the support to the hypotheses developed for the study.

### 2.1 Determinants of export performance

With the objective of identifying the determinants of export performance and the indicators used to measure performance in research on the topic, a survey was developed between 2006 and 2011 in 19 international journals with outstanding scientific relevance, among which 11 had presented empirical works related to export performance, in which the unit of analysis was the company.

Among the identified determinants, networks were more frequent, followed by commitment to exports and company size. The manager's experience, innovation, entrepreneurship orientation, market orientation, research and development also showed to be significant. The moderating effect was identified in seven variables, which were trust, explicit contracts, global strategy, integration with target markets, non-imitable resources, non-replaceable resources and company size, all with one occurrence.

In Babakus, Yavas and Haahti (2006), Racela, Chaikittisilpa and Thoumrungroje (2007) and Singh (2009), based on the RBV, networks have proven to be determinants of export performance. Musteen, Francis and Datta (2010) showed that the geographical diversification of the networks the company has conducted relations guided to a superior performance of these companies. However, the manager's personal networks have adversely affected the export performance. Networking involving business partners positively influenced the export performance (MAUREL, 2009).

Camison and Villar-Lopez (2010), based on the RBV and in the Uppsala model, presented a study in which intangible assets determined the export performance. It was identified by Morgan, Vorhies and Schlegelmilch (2006) that non-imitable resources exert a moderating influence in the relation between specific resources level and the company's performance on its market, and non-replaceable resources moderate the relation between specific resources and the company's performance on its market. They proved also to be determinants of the export performance of structural resources available for export (export department, managers in charge of exports and the existence of a specific budget) and of scale resources (total employees number and the number of employees related to export functions) in a resource-based view approach (RUZO; LOSADA; NAVARRO; DÍEZ, 2011).

Company size influence on export performance was verified in Roper, Love and Hígonn (2006), O'Cass and Weerawardena (2009) and Singh (2009), and in Martin-Tapia, Aragón-Correa and Rueda-Manzanares (2010), in a study involving SMEs, company size moderation in the relation between corporate strategy and export performance has been identified. Pangarkar (2008) and Papadopoulos and Martin (2010) studies, with theoretical support in the RBV and in the Uppsala model, found that the export performance was determined by the

internationalization degree of the companies studied, composed by samples formed by SMEs in both studies.

The company's commitment to exports proved determinants of SMEs export performance in the studies of Armario, Ruiz and Armario (2008), Maurel (2009) and Navarro et al. (2010), with the first study using both RBV and Uppsala model as theoretical bases, and the last two studies RBV alone. Manager experience was present as a determinant of export performance in the studies of Sousa and Bradley (2008, 2009) and Ruzo et al. (2011). Managers training or education has been verified as a determinant in Roper, Love and Hígonn (2006).

## 2.2 Theoretical model and hypothesis

In the episemolgical trajectory of the models evaluated in this study, it was observed the influence of Simon in the origin of Uppsala model development line (SIMON, 1979) and the influence of Marshall (1982) in the origin of RBV development line. The tangential point between the two models is the theory of the growth of the firm (PENROSE, 2006), which emphasizes resources as the main feature of a firm to advance into new foreign markets, in accordance with the Uppsala model, as well as being the foundation of the competitive advantage advocated by RBV. The Theory of the Growth of the firm assumes that growth analysis applies to the expansion of foreign investments, in which growth processes, the role of learning, the theory of expansion based on internal resources (human and others), the management role, production diversification and the role of mergers and acquisitions are all relevant (PENROSE, 2006).

Small and medium-sized enterprises, in the early stages of internationalization, have resource dependence unique characteristics (in relation to larger companies) that impact with more intensity on its export performance (STOIAN; RIALP; RIALP, 2011). Camison,

Villar-Lopez (2010), based on the RBV and in the Uppsala model, presented a study in which intangible assets determined the export performance. It was identified in Morgan, Vorhies and Schlegelmilch (2006) that non-imitable resources exert moderating influence on the relation between specific resources level and the company's performance on its market, and non-replaceable resources moderate the relation between specific resources and the company's performance on its market.

According to the RBV, strategic resources are distributed heterogeneously between companies and these differences are stable over time (BARNEY, 1991). The way they exploit their differences (forces) may put a company in advantage in the competition for the opportunities generated by the environment, neutralizing threats.

A major focus of the RBV is the scope of sustained competitive advantage, defined as the moment in which a company implements a value-creating strategy not simultaneously to the implementation by a current or potential competitor, and these competitors are not able to duplicate the benefits this strategy (BARNEY, 1991). The managerial implications of RBV bases is that companies should focus their analysis primarily on unique resources and skills, rather than on the competitive environment (DIERICKX; COOL, 1989).

The Uppsala model of internationalization of companies had its origins based on a case study involving four Swedish companies - Sandvik, Atlas Copco, Facit and Volvo - Jan Johhanson and Finn Wiedersheim-Paul developed a longitudinal study that tried to explain the internationalization trajectory of these companies (JOHHANSON WIEDERSHEIM-PAUL, 1975). According to Johhanson and Wiedersheim-Paul (1975), companies internationalized gradually and progressively, and it is possible to identify four stages: 1) sporadic export activities; 2) export via independent representatives (agents); 3) sales

subsidiaries; and 4) production or manufacturing. These stages are relevant because they differ in the degree of involvement of the company with the market, and the market uses it as a reference. This stages sequence was called establishment chain. These aspects represent the starting point for the development of what was later known as the Uppsala Model, presented by Johanson and Vahlne in 1977.

The internationalization stages differ among each other regarding the degree of involvement of the company with the market, and are often related to people in the negotiations. There are two aspects to consider about the degree of involvement (JOHANSON; WIEDERSHEIM-PAUL, 1975): a) The four stages represent the company resources commitment with a particular successively larger market; b) stages also lead to increased information and experiences of an unknown market for the company. Thus, as the company commits its resources to the market, it increases its knowledge and information about this market, changing its mode of action and thus changing its internationalization stage.

According to Johanson and Vahlne (2009), the 1977 internationalization process model was revised due to changes in business practices, as well as due to the theoretical advances since its release. Basically, the 1977 model change mechanism was retained, but building confidence and knowledge creation that is incremented in relations were added. For the authors, the business environment is currently seen as a relations network instead of customers and suppliers isolated. Johanson and Vahlne (2009) also state that, more relevant than the psychic distance, now networks are the main factor influencing the organization's relation with the outside. The dimensions measurement variables related to the constructs used in this study are shown in Figure 1.
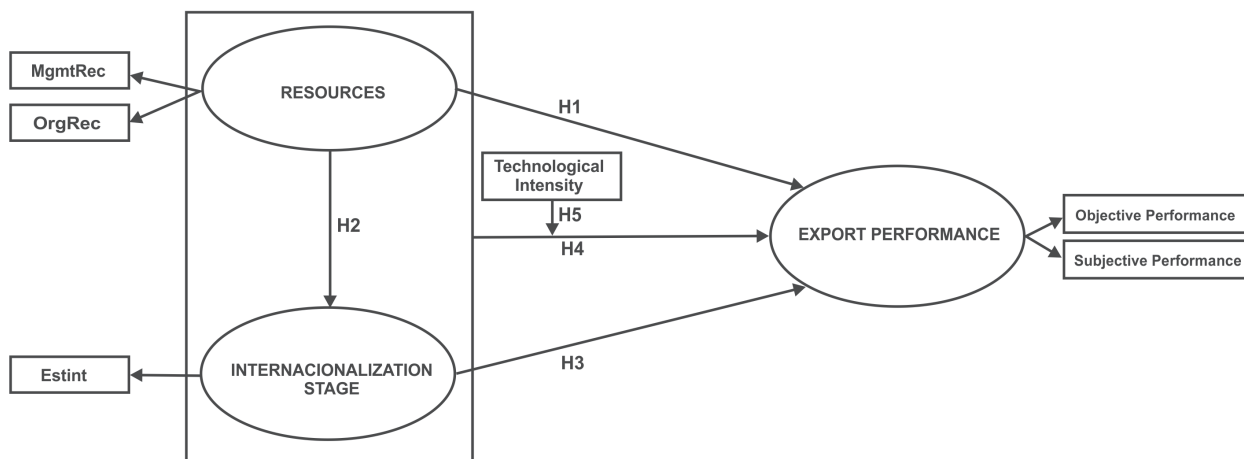


**FIGURE 1** – General research model and measurement variables

**Source**: Created by the authors with research data

The study conceptual model illustrates the three dimensions of constructs employed in the study development, i.e., export performance, resources and internationalization stage. Based on the conceptual model and in the literature review, hypotheses were drawn up. Resources positively affect SMEs export performance (STOIAN; RIALP and RIALP, 2011; SPYROPOULOU; SKARMEAS and KATSIKEAS, 2010). As the organization increases resources level involved on international expansion, larger will be its markets knowledge, thus higher will be its export

performance (JOHANSON; VAHLNE, 1977). The company will use its internal resources (experience, involvement, internal structure) or its relations network to expand its international operations, increasing its export performance (JOHANSONS; VAHLNE, 2009).

**H1**: The higher SMEs organizational and managerial resources level, the greater its export performance.

Resources positively affect internationalization stage (JOHANSON; WIEDERSHEIM-PAUL, 1975; JOHANSON and VAHLNE, 1977, 2009). As the organization increases the level of resources involved on international expansion, larger is its markets knowledge, so higher is its internationalization stage. Studies indicate to opposite results, where resources adversely affect internationalization stage (BONACCORSI, 1992; BROUTHERS; NAKOS, 2005; KATSIKEAS; PIERCY; IOANNIDIS, 1996).

**H2**: The higher organizational and managerial resources level, the higher SMEs internationalization stage.

Internationalization stages positively affect SMEs export performance (BROUTHERS; BROUTHERS; WERNER, 1999). As the organization increases its commitment to foreign markets, its export performance increases. On the other hand, studies showed that the internationalization stage adversely affects SMEs export performance (O'GRADY; LANE, 1996). As the organization increases its commitment to foreign markets, its export performance decreases.

**H3**: The higher SMEs internationalization stage, the greater its export performance.

As the organization increases its commitment to foreign markets and modifies its internationalization stage, its export performance increases (JOHANSON; WIEDERSHEIM-PAUL, 1975; JOHANSON; VAHLNE, 1977, 2009; BROUTHERS, BROUTHERS; WERNER, 1999).

**H4**: The higher organizational and managerial resources level and the higher the internationalization stage, the greater Brazilian SMEs export performance.

Export intensity determines export performance (ZOU; STAN, 1998; DHANARAJ; BEAMISH, 2003; MONTOBBIO; RAMPA, 2005). Aaby and Slater (1989) found that technological intensity may or may not influence the export performance, depending on the managers and the target market. Reid (1986), in turn, found no significant relation between export performance and technological intensity.

**H5**: Technological intensity affects the relation between resources, stages and export performance.

Next, the methodology used in this research will be aproacched, as well as the steps involved in the study.

## 3 METHOD

A survey through a questionnaire was used in this research. Companies selection criteria were: a) manufacturing industry companies of any product. Services, trades and commerce were not considered for the study; b) 100% Brazilian capital companies; c) export companies of any volume; d) companies with no more than 500 employees. The public base of the National Confederation of Industries - Exporters catalog (http://www.brazil4export.com) was used. 123 respondents returned (of a total of about 4.000 e-mail addresses), with 84 considered valid formularies.

For each research hypothesis an adequate specific statistical technique to the proposed analysis was applied. The SPSS application (Statistical Package for the Social Sciences) in its 17.0 version was used. Dependence and interdependence between variables statistic techniques were used. Among techniques classified as interdependent (COOPER; SCHINDLER, 2003; FÁVERO et al, 2009; HAIR et al, 2009), factor analysis (FA) was used. Dependence techniques used were multiple linear regression, logistic regression and structural equation modeling (COOPER; SCHINDLER, 2003; FÁVERO et al, 2009; HAIR et al, 2009).

Interdependence techniques are considered those in which there is no variables separation in dependents (they have a presumed effect in response to an independent variable) and independents (which cause or explain changes in the dependent variable), being them analyzed together. Chart 1 below presents a summary of the statistical techniques used in this study.

**CHART 1** – Summary of technical statistics used in the research

| Stage | Technique |
|---|---|
| Stage-1: Data preliminary analysis | Exploratory factor analysis |
| Stage-2: Objetive-a) Check the impact of organizational and managerial resources on SMEs export performance; | Multiple linear regression |
| Stage-3: Objetive-b) Investigate the impact of organizational and managerial resources on the internationalization stage of Small and Medium Enterprises (SMEs) | Logistic regression |
| Stage-4: Objetive-c) Examine internationalization stage impact on SMEs export performance; | Multiple linear regression |
| Stage-5: Variables adherence analysis to dimensions; | Confirmatory factor analysis |
| Stage-6: Objetive-d) Analyze resources and internationalization stage relation between Small and Medium Enterprises export performance. | Structural equation modeling |

**Source:** Created by the authors with research data

The statistical techniques used were of dependence (COOPER; SCHINDLER, 2003; FÁVERO et al. 2009; HAIR et al., 2009), i.e., multiple linear regression, linear regression, logistic regression and structural equation modeling and of interdependence (COOPER; SCHINDLER, 2003; FÁVERO et al., 2009; HAIR et al., 2009), i.e., exploratory factor analysis (EFA). Thus, the use of a multimode evaluation approach allowed variables behavior comparison in different perspectives, based on the results generated by several techniques. The list of variables used in statistical analysis and its codification is presented in Chart 2.

**CHART 2** – Codification of variables used in research

| Variables List | Codification |
|---|---|
| Organizational Resources (RO) | |
| Exports initial time (foundation year - beginning exports year) | RO_INIEXP |
| Organizational resources commitment (COMORG) | |
| Exports specific sector | RO_COMORG_SET |
| Technical assistance abroad | RO_COMORG_TEC |
| Product commitment (COMPRO) | |
| New products release | RO_COMPRO_LAN |
| Market commitment (COMMER) | |
| Potential markets research | RO_COMMER_PES |
| Visits to foreign markets | RO_COMMER_VIS |
| Social networks intensities (RED) | |
| Government Institutions | RO_RED_GOV |
| Technologic Poles | RO_RED_POL |
| Management resources (RG) | |
| Stimuli Perception (PEREST) | |
| Increase in sales exports contribution | RG_PEREST_VEN |
| Profitability exports contribution | RG_PEREST_LUC |
| Barriers Perception (PERBAR) | |
| Politics | RG_PERBAR_POL |
| Legislation | RG_PERBAR_LEG |
| Bureaucratic procedures | RG_PERBAR_TRA |
| Brazilian products reputation | RG_PERBAR_REP |
| Manager Knowledge (CON) | |
| Years working in international business activities | RG_CON_ATV |
| Years working in international business management | RG_CON_GES |
| Years working with international finances | RG_CON_FIN |
| Years working with international law | RG_CON_LEG |
| Years using Inform. Systems for international business | RG_CON_SIS |
| Internationalization stage (EI) | |
| Stage ranging between 1 and 3 | EST_1_3 |

**Source:** Created by the authors with research data

The variables used in the research were distributed among organizational resources (RO), managerial resources (GR) and internationalization stage (EI). The results of the analysis from the hypotheses in this study are presented as follows.

## 4  RESULTS DISCUSSION

The presentation of  this study results is divided based on hypotheses raised on the literature related to the topic.

### 4.1 Resources and performance

It was found that, unlike most of the studies, the variable related to export intensity (value of exports over total sales), was not adhering to the model. However, this fact may be related to what was shown in Katsikeas, Leonidou and Morgan (2000), which highlighted that not always export success will be reflected in this dimension. Hypothesis 1 was supported, once all models generated by regression identified

the presence of a dependent variable (export performance) or at least one independent variable related to organizational resources or management resources (Table 1).

**TABLE 1** – Summary of linear regression analysis for objective performance and organizational resources

| Dependent variable – Objective performance / Independent variable – Organizational Resources | | | | | | |
|---|---|---|---|---|---|---|
| Model | ANOVA | | | Variables | | Coefficients | |
| $R^2$ | DW | Sig. F | Control | Significative | Beta | Sig. t |
| 0.071 | 2.229 | 0.014 | - | Constant | 1.043 | 0.000 |
| | | | | Research on the export market | 0.102 | 0.014 |
| 0.071 | 2.229 | 0.014 | Company Exper. | Constant | 1.043 | 0.000 |
| | | | | Research on the export market | 0.102 | 0.014 |
| 0.071 | 2.229 | 0.014 | Intern. Stage | Constant | 1.043 | 0.000 |
| | | | | Research on the export market | 0.102 | 0.014 |
| 0.071 | 2.229 | 0.014 | Export. Start | Constant | 1.043 | 0.000 |
| | | | | Research on the export market | 0.102 | 0.014 |

**Source:** Created by the authors with research data

The coefficients presented by the variables were significant for the four experiments (the first without control variables and the last three with control variables), inclusive the presence of the constant among variables maintained in the model. Independent of moderators insertion, the variable related to the company's commitment to exports through research in foreign markets (RO_COMMER_PES) was present and positively related to export performance in the four tests.

Management resources, in the same way as organizational resources, have been inserted in the four tests (results in Table 2), and both Durbin-Watson statistic (DW) and ANOVA significance demonstrated the validity of the model. It was noticed that, except for the fourth experiment, all of the above proved unchanged even with the inclusion of control variables for analysis of moderation, i.e., the management resource related to legislation knowledge (RG_CON_LEG) was present in all analyzes, together with the constant.

**TABLE 2** – Summary of linear regression analysis for objective performance and management resources

| Dependent variable – Objective performance / Independent variables – Management resources | | | | | | |
|---|---|---|---|---|---|---|
| Model | ANOVA | | | Variables | | Coefficients | |
| $R^2$ | DW | Sig. F | Control | Significative | Beta | Sig. t |
| 0.073 | 2.338 | 0.013 | - | Constant | 0.998 | 0.000 |
| | | | | Legislation knowledge | 0.223 | 0.013 |
| 0.073 | 2.338 | 0.013 | Company Exper. | Constant | 0.998 | 0.000 |
| | | | | Legislation knowledge | 0.223 | 0.013 |
| 0.073 | 2.338 | 0.013 | Intern. Stage | Constant | 0.998 | 0.000 |
| | | | | Legislation knowledge | 0.223 | 0.013 |
| **0.428 (2)** | **2.335** | **0.000** | **Export. Start** | **Constant** | **1.562** | **0.006** |
| | | | | **Legislation knowledge** | **0.565** | **0.003** |
| | | | | **Sales as stimulus** | **0.393** | **0.015** |

**Source:** Created by the authors with research data

The fourth test (on the step 2 of the Stepwise method), with the insertion of the variable related to the difference between exports start and the company foundation (RO_INIEXP) increased the weight RG_CON_LEG constant and variable coefficients to its double, besides including in the regression the variable related to the manager's perception on the exports collaboration to the increase in sales as a stimulus to exports (RG_PEREST_VEN). It was also verified a significant increase in $R^2$, which increased from 0.073 to 0.428. The influence of managerial and organizational resources union in a single regression was also evaluated, with the results shown in Table 3. The model validity can be observed through DW statistical model in the value of 2.338 and the analysis of significant variance of 0. 05% with a 0.013 value.

Just as the regression between objective performance and managerial resources, the constant and the manager legislation knowledge were present among significant variables, with identical coefficients and significance weights verified, which demonstrates the predominance of managerial characteristics over organizational in relation to export performance. In this case, the insertion of the moderation test variables did not affect the model.

**TABLE 3** – Summary analysis of linear regression for performance objective, organizational resources and management resources

| Dependent variable – Objective performance / Independent variables – Resources (organiz.+ mgmt.) | | | | | | |
|---|---|---|---|---|---|---|
| **Model** | | **ANOVA** | | **Variables** | **Coefficients** | |
| **R²** | **DW** | **Sig. F** | **Control** | **Significative** | **Beta** | **Sig. t** |
| 0.073 | 2.338 | 0.013 | - | Constant | 0.998 | 0.000 |
| | | | | Legislation knowledge | 0.223 | 0.013 |
| 0.073 | 2.338 | 0.013 | Company Exper. | Constant | 0.998 | 0.000 |
| | | | | Legislation knowledge | 0.223 | 0.013 |
| 0.073 | 2.338 | 0.013 | Intern. Stage | Constant | 0.998 | 0.000 |
| | | | | Legislation knowledge | 0.223 | 0.013 |
| 0.073 | 2.338 | 0.013 | Export. Start | Constant | 0.998 | 0.000 |
| | | | | Legislation knowledge | 0.223 | 0.013 |

**Source:** Created by the authors with research data

As for the export objective performance, organizational and managerial resources influence on the subjective export performance, as well as the model behavior through variables insertion assessing the moderating effect (company experience, internationalization stage and time exporting), were tested in a total of four stages (Table 4).

**TABLE 4** – Summary of linear regression analysis for subjective performance and organizational resources

| Model | | ANOVA | | Variables | Coefficients | |
|---|---|---|---|---|---|---|
| R² | DW | Sig. F | Control | Significative | Beta | Sig. t |
| | | | | Constant | 2.927 | 0.000 |
| 0.196 (3) | 1.999 | 0.001 | - | Networks – government | 0.184 | 0.011 |
| | | | | Networks – poles | -0.254 | 0.004 |
| | | | | Research on the export market | 0.091 | 0.028 |
| | | | | Constant | 2.927 | 0.000 |
| 0.196 (3) | 1.999 | 0.001 | Company Exper. | Networks – government | 0.184 | 0.011 |
| | | | | Networks – poles | -0.254 | 0.004 |
| | | | | Research on the export market | 0.091 | 0.028 |
| | | | | **Constant** | **2.562** | **0.000** |
| **0.223 (3)** | **2.078** | **0.000** | **Intern. Stage** | **internationalization stage** | **0.288** | **0.006** |
| | | | | **Networks – poles** | **-0.276** | **0.002** |
| | | | | **Networks – government** | **0.180** | **0.011** |
| | | | | Constant | 2.927 | 0.000 |
| 0.196 (3) | 1.999 | 0.001 | Export. Start | Networks – government | 0.184 | 0.011 |
| | | | | Networks – poles | -0.254 | 0.004 |
| | | | | Research on the export market | 0.091 | 0.028 |

**Source:** Created by the authors with research data

In addition to the constant, the variables associated with the relation with government networks, technology poles and research in foreign markets (RO_RED_GOV, RO_RED_POL and RO_COMMER_PES variables, respectively) prevailed in three analyzes. A negative association between the relation with technology poles and the subjective export performance (coefficient -0.254) was indicated. When the stage control variable was inserted, the model was altered (on step 3 of Stepwise method) with the exit of market research variable, the entrance of the stages variable and the weak change on variables coefficients weights, although with significant $R^2$ modification, which went from 0.196 to 0.223. Government networks and technology poles variables remained in the model.

The results of four influence analyzes of managerial resources on the subjective export performance are shown in Table 5. It was found that the model was significant (ANOVA *Sig. F* with a 0.000 value, and 2.307 DW). The constant and the perception of profitability as stimulating exports were present in the four tests, and the internationalization stage insertion in the model reduced the constant coefficient value (from 2.071 to 1.537) on the step 2 of the Stepwise method, and was among the significative variables with a weight coefficient of 0.249 significative to 0.05% with *Sig. t* of 0.007, in addition to the $R^2$, that changed from 0.273 to 0.337.

**TABLE 5** – Summary of linear regression analysis for subjective performance and management resources

| Model | | | | Variables | Coefficients | |
|---|---|---|---|---|---|---|
| | ANOVA | | | | | |
| R² | DW | Sig. F | Control | Significative | Beta | Sig. t |
| 0.273 | 2.307 | 0.000 | - | Constant | 2.071 | 0.000 |
| | | | | Profitability as a stimulus | 0.371 | 0.000 |
| 0.273 | 2.307 | 0.000 | Company Exper. | Constant | 2.071 | 0.000 |
| | | | | Profitability as a stimulus | 0.371 | 0.000 |
| **0.337 (2)** | **2.275** | **0.000** | **Intern. Stage** | **Constant** | **1.537** | **0.000** |
| | | | | **Profitability as a stimulus** | **0.360** | **0.000** |
| | | | | **Stage** | **0.249** | **0.007** |
| 0.273 | 2.307 | 0.000 | Export. Start | Constant | 2.071 | 0.000 |
| | | | | Profitability as a stimulus | 0.371 | 0.000 |

**Source:** Created by the authors with research data

The reunion of organizational and managerial resources variables as independent variables for the regression with the dependent variable of subjective export performance showed three variables predominance, besides constant (Table 6). Profitability stimulus perception (RG_PEREST_LUC), research in foreign markets commitment (RO_COMMER_PES), technology poles relation (RO_RED_POL) and government networks relation (RO_RED_GOV) were present in the models.

**TABLE 6** – Summary of linear regression analysis for subjective performance, organizational resources and management resources

| Model | | | | Variables | Coefficients | |
|---|---|---|---|---|---|---|
| | ANOVA | | | | | |
| R² | DW | Sig. F | Control | Significative | Beta | Sig. t |
| 0.420 (4) | 2.043 | 0.000 | - | Constant | 1.988 | 0.000 |
| | | | | Profitability as a stimulus | 0.340 | 0.000 |
| | | | | Research on the export market | 0.085 | 0.017 |
| | | | | Networks – poles | -0.237 | 0.002 |
| | | | | Networks – government | 0.139 | 0.026 |
| 0.420 (4) | 2.043 | 0.000 | Company Exper. | Constant | 1.988 | 0.000 |
| | | | | Profitability as a stimulus | 0.340 | 0.000 |
| | | | | Research on the export market | 0.085 | 0.017 |
| | | | | Networks – poles | -0.237 | 0.002 |
| | | | | Networks – government | 0.139 | 0.026 |
| **0.452 (4)** | **2.032** | **0.000** | **Intern. Stage** | **Constant** | **1.714** | **0.000** |
| | | | | **Profitability as a stimulus** | **0.348** | **0.000** |
| | | | | **Internationalization Stage** | **0.271** | **0.002** |
| | | | | **Networks – poles** | **-0.248** | **0.001** |
| | | | | **Research on the export market** | **0.084** | **0.013** |
| 0.420 (4) | 2.043 | 0.000 | Export. Start | Constant | 1.988 | 0.000 |
| | | | | Profitability as a stimulus | 0.340 | 0.000 |
| | | | | Research on the export market | 0.085 | 0.017 |
| | | | | Networks – poles | -0.237 | 0.002 |
| | | | | Networks – government | 0.139 | 0.026 |

**Source:** Created by the authors with research data

The relation with technological poles showed negative coefficients in all regressions, and the relation with government networks left the list of variables in the regression when the stage control variable (EST_1_3) was inserted between the variables in the analysis, with it starting to figure in the model (coefficient with 0.271 weight and 0.002 *Sig. t*). All model variables had its coefficients reduced.

Regarding the regression analysis involving the general export performance and organizational resources (Table 7), models showed to be significant (2.278 DW and ANOVA *Sig. F* of 0.000) with a predominance of constant, market research and government networks variables. The insertion of the stage variable led to the constant coefficient weight reduction (from 2.112 to 1.747), to an increase in the market research variable coefficient (from 0.237 to 0.246), and to the inclusion of the stage variable (0.529 Beta with 0.0018 *Sig. t*).

**TABLE 7** – Summary of linear regression analysis for general performance (obj + sub.) And organizational resources

| Dependent variable – Performance (obj. + sub.) / Independent variables – Organizational resources | | | | | | |
|---|---|---|---|---|---|---|
| **Model** | | **ANOVA** | | **Variables** | **Coefficients** | |
| **R²** | **DW** | **Sig. F** | **Control** | **Significative** | **Beta** | **Sig. t** |
| | | | | Constant | 2.112 | 0.000 |
| 0.174 (2) | 2.278 | 0.000 | - | Research on the export market | 0.237 | 0.008 |
| | | | | Networks – government | 0.346 | 0.024 |
| | | | | Constant | 2.112 | 0.000 |
| 0.174 (2) | 2.278 | 0.000 | Company Exper. | Research on the export market | 0.237 | 0.008 |
| | | | | Networks – government | 0.346 | 0.024 |
| | | | | **Constant** | **1.747** | **0.002** |
| **0.179 (2)** | **2.369** | **0.000** | **Intern. Stage** | **Research on the export market** | **0.246** | **0.005** |
| | | | | **Internationalization stage** | **0.529** | **0.018** |
| | | | | Constant | 2.112 | 0.000 |
| 0.174 (2) | 2.278 | 0.000 | Export. Start | Research on the export market | 0.237 | 0.008 |
| | | | | Networks – government | 0.346 | 0.024 |

**Source:** Created by the authors with research data

The regression involving the general performance as the dependent variable, and managerial resources as independent variables is presented in Table 8. The inclusion of variables in order to verify the model moderation was not effective, once in the four tests both the constant as the variables that were significant for the model (legislation knowledge and sales perception as a stimulus) remained unchanged, as well as other model validity indicators. However, $R^2$ values were insignificant.

**TABLE 8** – Summary of linear regression analysis for general performance (obj. +Sub.) And resources management

| Dependent variable – Performance (obj. + sub.) / Independent variables – Management resources | | | | | | |
|---|---|---|---|---|---|---|
| Model | | ANOVA | Variables | | Coefficients | |
| R² | DW | Sig. F | Control | Significative | Beta | Sig. t |
| | | | | Constant | 1.562 | 0.006 |
| 0.184 (2) | 2.335 | 0.000 | - | Legislation knowledge | 0.565 | 0.003 |
| | | | | Sales as a stimulus | 0.393 | 0.015 |
| | | | | Constant | 1.562 | 0.006 |
| 0.184 (2) | 2.335 | 0.000 | Company Exper. | Legislation knowledge | 0.565 | 0.003 |
| | | | | Sales as a stimulus | 0.393 | 0.015 |
| | | | | Constant | 1.562 | 0.006 |
| 0.184 (2) | 2.335 | 0.000 | Intern. Stage | Legislation knowledge | 0.565 | 0.003 |
| | | | | Sales as a stimulus | 0.393 | 0.015 |
| | | | | Constant | 1.562 | 0.006 |
| 0.184 (2) | 2.335 | 0.000 | Export. Start | Legislation knowledge | 0.565 | 0.003 |
| | | | | Sales as a stimulus | 0.393 | 0.015 |

**Source:** Created by the authors with research data

It was found in the regression between general performance and organizational and managerial resources combined (Table 9) that the model was significant (DW value of 2.348 and ANOVA *Sig. F* of 0.000) predominating, in addition to the constant, legislation knowledge and research in the export market.

**TABLE 9** – Summary of linear regression analysis for general performance (obj + sub.) And organizational management resources

| Dependent variable – Performance (obj. + sub.) / Independent variables – Resources (organiz.+mgmt.) | | | | | | |
|---|---|---|---|---|---|---|
| Model | | ANOVA | Variables | | Coefficients | |
| R² | DW | Sig. F | Control | Significative | Beta | Sig. t |
| | | | | Constant | 1.155 | 0.041 |
| 0.252 (3) | 2.384 | 0.000 | - | Legislation knowledge | 0.443 | 0.017 |
| | | | | Research on the export market | 0.226 | 0.008 |
| | | | | Sales as a stimulus | 0.384 | 0.013 |
| | | | | Constant | 1.155 | 0.041 |
| 0.252 (3) | 2.384 | 0.000 | Company Exper. | Legislation knowledge | 0.443 | 0.017 |
| | | | | Research on the export market | 0.226 | 0.008 |
| | | | | Sales as a stimulus | 0.384 | 0.013 |
| | | | | Constant | 1.155 | 0.041 |
| 0.252 (3) | 2.384 | 0.000 | Intern. Stage | Legislation knowledge | 0.443 | 0.017 |
| | | | | Research on the export market | 0.226 | 0.008 |
| | | | | Sales as a stimulus | 0.384 | 0.013 |
| | | | | Constant | 1.155 | 0.041 |
| 0.252 (3) | 2.384 | 0.000 | Export. Start | Legislation knowledge | 0.443 | 0.017 |
| | | | | Research on the export market | 0.226 | 0.008 |
| | | | | Sales as a stimulus | 0.384 | 0.013 |

**Source:** Created by the authors with research data

The variables entered for moderation verification (company experience, stage and export time) did not affect the model or in its general significance, as Beta and *Sig. t* coefficients of the variables in the model and the $R^2$ indexes showed low values.

In the analyzes it was found a relation between export objective performance and managerial resources, and between subjective performance with organizational resources and the internationalization stage. Katsikeas, Leonidou and Morgan (2000) conclude that managers perspective and their engagement with exports influence the export performance and its indicators can relate positively or negatively. This negative relation was identified by the value presented by the variable corresponding to the company's relation with technology poles.

Variables related to international legislation and international business activities were significant. The domain of these variables by the managers makes them scarce and not easily transferable resources, according to the RBV (WERNERFELT, 1984; BARNEY, 1991). Both Uppsala (JOHANSON; WIEDERSHEIM-PAUL, 1975; JOHANSON; VAHLNE, 1977, 2009) and RBV (BARNEY, 1991), assume that human resources are elements that lead the company to differentiated market positions. The presence of organizational resources committed to exports represented by research in the export market, visits to foreign markets and the release of specific export products was shown, in accordance with Katsikeas, Piercy and Ioannidis (1996); Lado, Martínez - Ros and Valenzuela (2004);

Stoian, Rialp and Rialp (2011). The relation with public networks related to government institutions were also positively related to export performance, as also observed in Coviello and Munro (1997) and Johanson and Vahlne (2009).

## 4.2 Resources and stage

Hypothesis 2 was supported, once the regressions showed significant models involving, besides the dependent variable (internationalization stage), organizational (products release and visits to foreign markets) and management resources variables (Brazilian products reputation barriers and international activities knowledge).

The summary of the analysis gathering stage internationalization and organizational resources is shown in Table 10, in which it can be observed through Omnibus statistics that the coefficients inserted together in the model are significant at the 0.05 level, as presenting *Sig.* 0.000 values. The model measures from -2LL and Nagelkerke tests show 60.505 and 0.393 values, the first of which showed a reasonable value for significance and the second indicates that the variables in equation (products release for export and visits to foreign markets) explain 39.3% of stage variations (low or high internationalization), what can be considered a low explanation value. The Hosmer-Lemeshow statistic indicated that the adjust between the observed and the expected data was adequate, showing a probability value of 89.1%.

**TABLE 10** – Summary of logistic regression analysis for internationalization stage and organizational resources

| Dependent variable – Stage / Independent variables – Organizational resources | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Omnibus | | Model | | Hos-Lem | | Signif. var. | Coef. (B) | Sig |
| R² | Sig. | -2LL | Nagel | R2 | Sig. | | | |
| 24.114 (2) | 0.000 | 60.505 | 0.393 | 0.230 | 0.891 | Constant | 4.779 | 0.000 |
| | | | | | | Products release | -3.127 | 0.004 |
| | | | | | | Visits to foreign markets | -2.008 | 0.002 |

**Source:** Created by the authors with research data

As the selection method used for analysis eliminates the variables with possible zero coefficients in the equation, the product release (RO_COMPRO_LAN) and visits to the market (RO_COMMER_VIS) variables influenced on high and low company internationalization situation to the significance level of 0.05.

Table 11 presents a summary of the analysis between stage and management resources, which Omnibus statistics showed that the coefficients inserted together in the model are significant to the 0.05 level, as they presented 0.002 *Sig.* value. The model measures from *-2LL* and Nagelkerke tests showed 72.518 and 0.211 values, and the first had a reasonably high value for significance and the second indicated that the variables in present in the equation (barriers represented by Brazilian products reputation abroad and the manager knowledge on international activities) explained 21.1% of high status or low company internationalization situation variations, what can be considered a low explanatory value. The Hosmer-Lemeshow statistic (Hos-Lem) indicated that the adjust between the observed and the expected data was adequate, showing a probability value of 95.4%.

**TABLE 11** – Summary of logistic regression analysis for internationalization stage and management resources

| Dependent variable – Stage / Independent variables – Management resources | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Omnibus | | Model | | Hos-Lem | | Signif. var. | Coef. (B) | Sig |
| R² | Sig | -2LL | Nagel | R2 | Sig. | | | |
| 12.101 (2) | 0.002 | 72.518 | 0.211 | 1.578 | 0.954 | Constant | -2.218 | 0.060 |
| | | | | | | Brazilian products reputation barriers | 0.895 | 0.024 |
| | | | | | | International activities knowledge | 1.033 | 0.039 |

**Source:** Created by the authors with research data

Once the variables with possible zero coefficients in equation were deleted (a result of the variable selection method used), the variables related to the barriers perceived by the manager (RG_PERBAR_REP) and international activities knowledge (RG_CON_ATV) influenced on the state of the company's internationalization stage at a significance level of 0.05, and the second variable showed to be less significant, presenting a 0.039 value.

It is verified in Table 12, which presents a summary of the logistic regression model between stage and resources (organizational and managerial) that, according to Omnibus statistics,

the coefficients included together in the model are significant to 0.05 level, as presenting 0.000 *Sig.* value. The model measures from *-2LL* and Nagelkerke tests showed values of 53.202 and 0.492, with the first measuring indicating a good value for significance and the second indicating that the variables present in the equation (products release for export, visits to the foreign market and barriers perception) explained 49.2% of a company internationalization stage variations, what can be considered a low explanatory value. The Hosmer-Lemeshow statistic indicated that the adjust between the observed and the expected data was adequate, showing a probability value of 73.7%.

**TABLE 12** – Summary of logistic regression analysis for internationalization stage and organizational and management resources

| Dependent variable – Stage / Independent variables – Resources (organiz. + mgmt.) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Omnibus | | Model | | Hos-Lem | | Signif. var. | Coef. (B) | Sig |
| $R^2$ | Sig | -2LL | Nagel | R2 | Sig. | | | |
| 31.417 (3) | 0.000 | 53.202 | 0.492 | 4.367 | 0.737 | Constant | 2.568 | 0.069 |
| | | | | | | Product release | -3.312 | 0.004 |
| | | | | | | Visits to foreign markets | -2.404 | 0.002 |
| | | | | | | Brazilian products reputation barriers | 1.139 | 0.017 |

**Source:** Created by the authors with research data

The variables that remained in the model were products release (RO_COMPRO_LAN), visits to the market (RO_COMMER_VIS) and Brazilian products reputation barriers perception (RG_PERBAR_REP), which influenced the high and low company internationalization status at a significance level of 0 05.

For Johanson and Wiedersheim-Paul (1975) and Johanson and Vahlne (1977; 2009), as the company progresses in the internationalization stages, it increases its resources commitment to the external markets. The managerial resources, in relation to the stages, were presented by variables related to barriers perception and knowledge about international activities. Regarding the barriers, White, Griffith and Ryans (1998), took into account the presence of non-tariff barriers as influential on export performance.

Theodosiou and Leonidou (2003) and Stoian, Rialp and Rialp (2011) identified a negative relation between the perception of differences in language, culture and legislation and export performance. In this research, this relation was found negative when competing with managerial resources variables. The manager knowledge presented a positive relation to the internationalization stage. Previous studies have shown that in companies where the manager has greater knowledge of international business activities, its performance in foreign markets was higher (CZINKOTA; URSIC, 1991). It was found in Stoian, Rialp and Rialp (2011) a positive relation between export performance and a higher domain of international business knowledge. In Wickramasekera and Oczkowski (2004) it was identified that the management domain of international business knowledge is a determinant of a company's internationalization stages.

## 4.3 Internationalization stage and export performance

Positive and significant relation was found between the export performance and the internationalization stage, thus supporting thus Hypothesis 3. It was noticed, too, that the inclusion of control variables related to company size and its technological intensity did not have a moderator effect on the relation between the variables tested.

Table 13 summarizes the first three regressions between objective performance and stage.

**TABLE 13** – Summary of linear regression analysis for objective performance and stage

| Dependent variable – Objective performance / Independent variables – Stage | | | | | | |
|---|---|---|---|---|---|---|
| Model | ANOVA | | | Variables | Coefficients | |
| R² | DW | Sig. F | Control | Significative | Beta | Sig. t |
| 0.061 | 2.221 | 0.024 | - | Constant | 1.676 | 0.125 |
| | | | | Internationalization stage | 1.035 | 0.024 |
| 0.061 | 2.221 | 0.024 | Company size | Constant | 1.676 | 0.125 |
| | | | | Internationalization stage | 1.035 | 0.024 |
| 0.061 | 2.221 | 0.024 | Tech. intensity | Constant | 1.676 | 0.125 |
| | | | | Internationalization stage | 1.035 | 0.024 |

**Source:** Created by the authors with research data

It was found that the insertion of the control variables did not affect the general performance of the regression model, in which a low constant significance value is observed (*Sig. t* equal to 0.125), and the independent variable with significance presented a *Sig. t* equal to 0.024. The analysis of variance (ANOVA) was significant for the model.

The regression involving the subjective performance (Table 14) presented the second best result with significant values for both the constant and for the explanatory variable. The model involving the subjective performance showed good adequation, based on the Durbin-Watson statistic result (values close to 2). Despite the $R^2$ model being low in the analysis of variance (ANOVA), it was significant, so that the model cannot be neglected (FÁVERO et al., 2009; HAIR et al., 2009).

**TABLE 14** – Summary of linear regression analysis for the subjective and stage performance

| Dependent variable – Subjective performance / Independent variables – Stage | | | | | | |
|---|---|---|---|---|---|---|
| Model | ANOVA | | | Variables | Coefficients | |
| R² | DW | Sig. F | Control | Significative | Beta | Sig. t |
| 0.081 | 2.150 | 0.009 | - | Constant | 2.564 | 0.000 |
| | | | | Internationalization stage | 0.281 | 0.009 |
| 0.081 | 2.150 | 0.009 | Company Size | Constant | 2.564 | 0.000 |
| | | | | Internationalization stage | 0.281 | 0.009 |
| 0.081 | 2.150 | 0.009 | Tech. intensity | Constant | 2.564 | 0.000 |
| | | | | Internationalization stage | 0.281 | 0.009 |

**Source:** Created by the authors with research data

The alternating insertion of the control variables did not change the model values (Table 15). Regression with best results occurred between stage and general performance, with a significant *Sig. t* value for both the dependent variable (0.000) and the independent variable (0.004).

TABLE 15 – Summary of linear regression analysis for general performance (obj. Sub.) And stage

| Dependent variable – Performance (obj. + sub.) / Independent variables – Stage | | | | | | |
|---|---|---|---|---|---|---|
| Model | ANOVA | | | Variables | Coefficients | |
| R² | DW | Sig. F | Control | Significative | Beta | Sig. t |
| 0.096 | 2.284 | 0.004 | - | Constant | 2.120 | 0.000 |
| | | | | Internationalization stage | 0.658 | 0.004 |
| 0.096 | 2.284 | 0.004 | Company size | Constant | 2.120 | 0.000 |
| | | | | Internationalization stage | 0.658 | 0.004 |
| 0.096 | 2.284 | 0.004 | Tech. intensity | Constant | 2.120 | 0.000 |
| | | | | Internationalization stage | 0.658 | 0.004 |

**Source:** Created by the authors with research data

In the same way of models involving objective and subjective performance, the regression between general performance and stage did not receive influence of the control variables, once tests values did not change.

The regression model were more significative when the dependent variable encompassed objective and subjective performance values. The size of the company as determinant of export performance has been controversial in several studies (MAJOCCHI; BACCHIOCCHI; MAYRHOFER, 2005). Just as in Lu and Beamish (2006), the technological intensity was not significant in this study when inserted as a control variable. Its presence resulted in no change in the indexes presented by the model or in the dependent variable, as well as in the independent variables.

### 4.4 Resources, internationalization stage and export performance

Figure 2 shows ways estimation of the initial general model, from which variables withdrawals were made. After the withdrawal of variables according to the analysis of the indexes presented by the model, it was chosen to segment the model in order to verify, in isolation, stage and organizational and managerial resources influence on export performance.

The best model performance was shown by management resources (Figure 3). In the

SEM application, there was a predominance of managerial resources over organizational resources as determinants of export performance. Table 16 shows the adjust indexes values for the model identified as the most suitable.

**TABLE 16** – Adjust indexes for the final measurement model

| Indicator | Expected Value | Extracted Value |
|---|---|---|
| Qui2 | - | 108.690 |
| Qui2/GL | < 3 | 1.430 |
| P | > 0.05 | 0.008 |
| RMR | < 0.50 | 0.182 |
| CFI | > 0.90 | 0.932 |
| TLI | > 0.90 | 0.918 |
| NFI | > 0.90 | 0.809 |
| RMSEA | ~ 0.05/< 0.08 | 0.072 |
| SRMR | ~ 0.05 | 0.0971 |

**Source:** Created by the authors with research data

The manager knowledge and the perception of barriers imposed by the exports destination country were significant factors in relation to export performance. As identified in Stoian, Rialp and Rialp (2011) the objective results of the export performance influenced the manager perception. As the manager broadens his knowledge, barriers imposed to exports lose its intensity, making foreign sales to intensify (JOHANSON; VAHLNE, 1977, 2009).
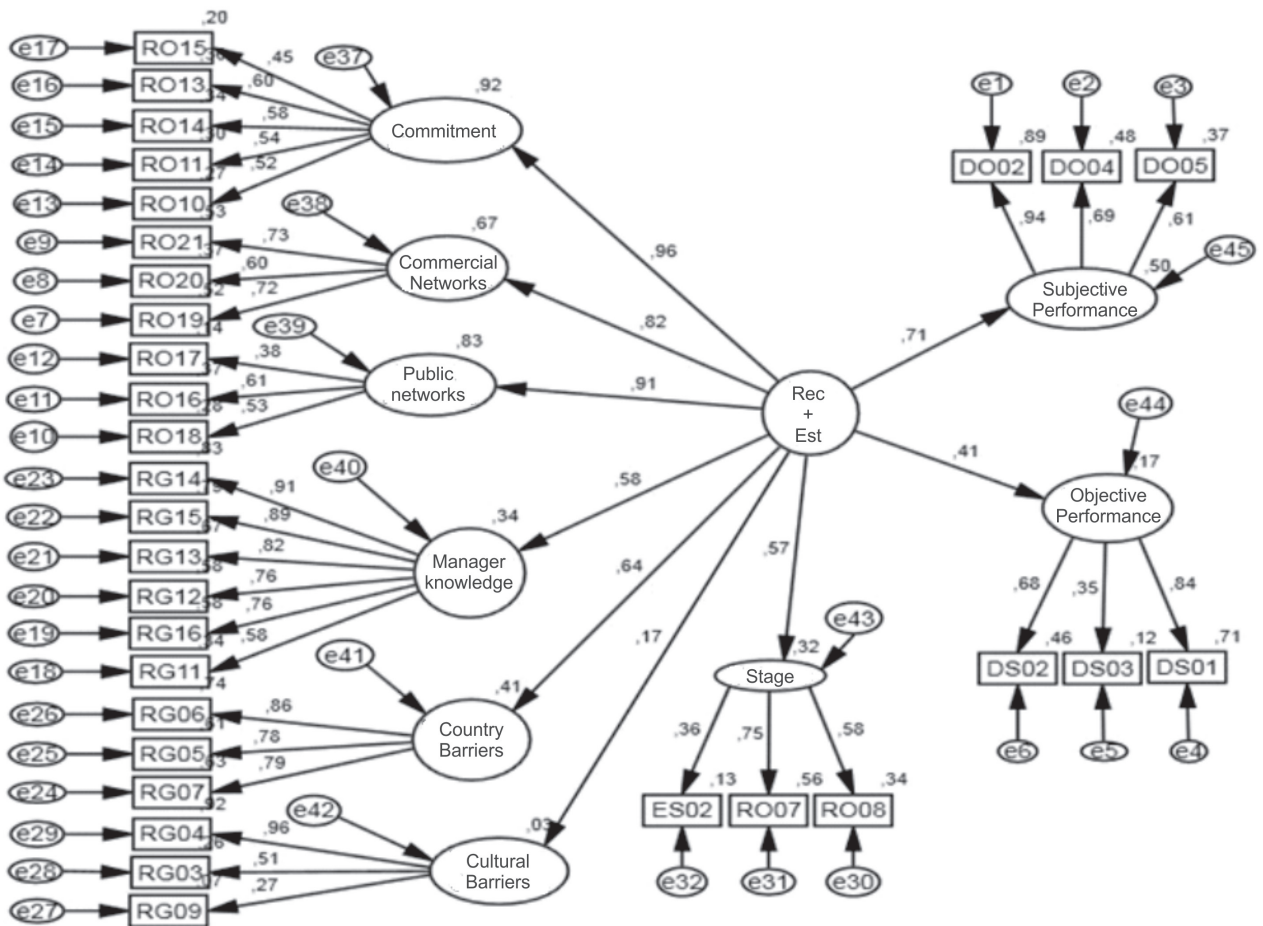
**FIGURE 2** – General model ways estimation

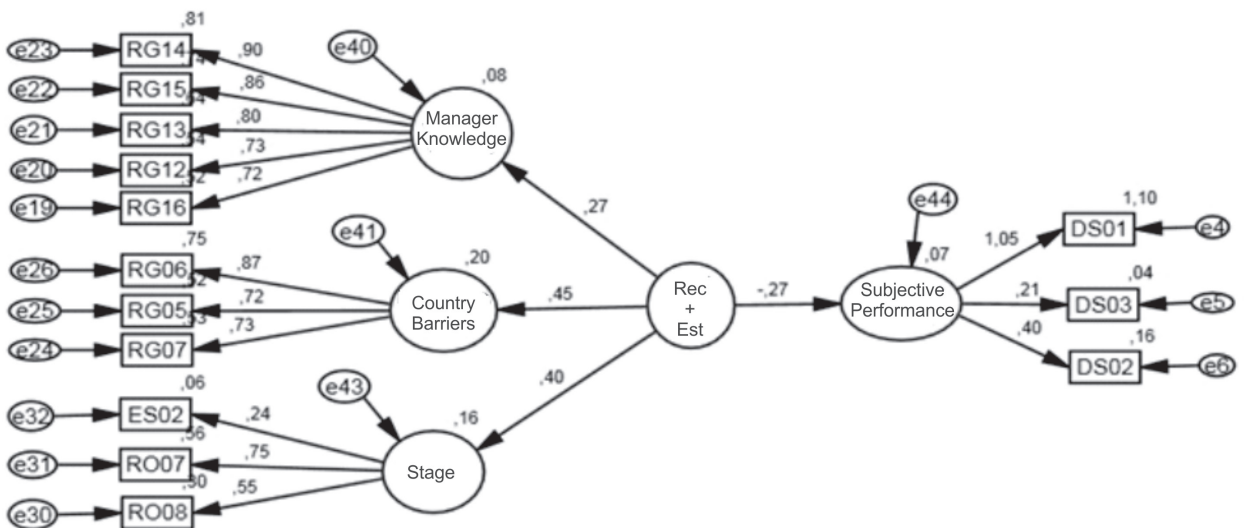**Source:** Created by the authors with research data



**FIGURE 3** – Final model ways estimation

**Source:** Research data

Chart 3 presents the summary of analysis and variables that were significant.

**CHART 3** – Summary of resource and stage variables related to export performance

| HYPOTHESIS 4 | | | |
|---|---|---|---|
| **Test** | **Dimension** | **Variable** | **Influence** |
| DS <-- REC + EST | RG_CON | RG_CON_ATV | + |
| | | RG_CON_GES | + |
| | | RG_CON_FIN | + |
| | | RG_CON_LEG | + |
| | | RG_CON_SIS | + |
| | RG_PERBAR | RG_PERBAR_POL | + |
| | | RG_PERBAR_LEG | + |
| | | RG_PERBAR_TRA | + |
| | ES_INT | EST_1_3 | + |
| | | RO_COMORG_SET | + |
| | | RO_COMORG_TEC | + |

**Source:** Research data

It was found in the analysis of performance relations with resources and internationalization stage the significant presence of the internationalization stage (in the subdivision of the general model). Performance and stage showed the relation with greater weight in its estimate, showing that the internationalization stage together with the resources are determinants of export performance, so that Hypothesis 4 was supported.

## 4.5 Technological intensity and export performance

After analysis that sought to verify resources and stage effect on export performance, thirteen variables that showed significant in the regression models were identified (Table 4).

In order to test the effect of enterprises technology intensity on export performance (Hypothesis 5), regressions were performed between export performance (objective, subjective and general) as a dependent variable and the thirteen identified variables as independent variables. Table 17 shows the summary of the values generated in the analysis involving export performance, organizational and managerial resources and the internationalization stage, with technological intensity moderation.

**CHART 4** – List of variables present in the regression models

| Variables resulting from regressions |
|---|
| **Organizational Resources** |
| Experience |
| Exports Start |
| Research on the export market |
| Products release |
| Visits to foreign markets |
| Networks – Government |
| Networks – poles |
| **Management Resources** |
| Sales as a stimulus |
| Profitability as a stimulus |
| Brazilian products reputation barriers |
| Legislation Knowledge |
| International Activies Knowledge |
| **Stage** |
| Internationalization Stage |

**Source:** Research data

**TABLE 17** – Summary of regression between performance, resources and internationalization stages with technological intensity moderation

| | HYPOTHESIS 5 | | |
|---|---|---|---|
| Independent Var. | Organizational Resources (RO) + Management Resources (RG) + Stage | | |
| Dependent Var. | Objective Performance (DO) | Subjective Performance (DS) | RO + RG |
| Model variable | RG_CON_LEG (+) RO_COMMER_PES (+) | RO_COMMER_PES (+) RO_RED_POL (-) RG_PEREST_LUC (+) EST_1_3 (v/c +) | RG_CON_LEG (+) RO_COMMER_PES (+) RG_PEREST_VEN (+) |
| $R^2$ | 0.152 | 0.452 | 0.252 |
| Durbin Watson | 2.401 | 2.032 | 2.384 |
| Sig. $F$ | 0.001 | 0.000 | 0.000 |

**Source:** Research data

It was found that there was no influence of technological intensity on the regression, and Hypothesis 5 was not supported, as identified in Reid (1986), which found no significant relation between export performance and technological intensity. The control variable did not reach significance, so it was not included in the final model. The summary of this analysis is presented in Chart 5. The control variable did not reach significance, thus not being included in the final model.

**CHART 5** – Summary of the test with technological intensity control variable on the relation of resources and stage related with export performance

| | HYPOTHESIS 5 | | |
|---|---|---|---|
| Test | Dimension | Variable | Influence |
| DO <-- RO + RG +EST | REC_ORG | RO_COMMER_PES | + (IT-S/I) |
| | REC_GER | RG_CON_LEG | + (IT-S/I) |
| DS <-- RO + RG +EST | REC_ORG | RO_RED_POL | - (IT-S/I) |
| | | RO_COMMER_PES | + (IT-S/I) |
| | REC_GER | RG_PEREST_LUC | + (IT-S/I) |
| | ESTÁGIO | EST_1_3 | + (IT-S/I) |
| DO + DS <-- RO + RG +EST | REC_ORG | RO_COMMER_PES | + (IT-S/I) |
| | REC_GER | RG_CON_LEG | + (IT-S/I) |
| | | RG_PEREST_VEN | + (IT-S/I) |

**Source:** Research data

RO_COMMER_PES organizational resources (commitment with research in foreign markets) established relation with the objective, subjective and general performance. The RO_RED_POL variable (social networks with technology poles) established relations only with the subjective performance. The management resource related to the manager international law knowledge (RG_CON_LEG) showed a significant relation with objective and general performance. RG_PEREST_LUC management resources (perception of export profitability as a stimulus) was significant in relation to the subjective performance. The perception of export collaboration to the increase in sales as stimulus (RG_PEREST_VEN) presented relation with the general export performance. The internationalization stage (EST_1_3) was present in relation to subjective performance.

## 5  CONCLUSION

This research aimed to identify the determinants of export performance of small and medium Brazilian manufacturing companies through the use of multiple statistic techniques. Linear regression, logistic regression and structural equation modeling were employed. The influence of organizational and managerial resources on export performance was identified. In organizational resources, the company's commitment to invest in market research and engage more closely with public networks (government entities) were emphasized. In managerial resources, the control of skills related to the legislation of exports destination countries, as well as the manager perception regarding exports influence in the increase of the company's sales were highlighted. Managerial characteristics showed to be influenced by exports start in relation to the company's foundation, since companies with less difference between its foundation and the beginning of its exports were more influential on its export performance.

The internationalization stage showed influence on the networks, showing that as the stage has an impact on performance, the influence of networks decreases, demonstrating that the company achieves greater autonomy while progresses in the internationalization stages. The organizational resources (products release for export and visits to foreign markets) and managerial resources (perceived barriers imposed by the reputation of Brazilian products and knowledge of international activities) variables were significant when included in the model. There was internationalization stage influence on the subjective performance, and the model involving objective performance did not achieve acceptable significance, especially in relation to the dependent variable, and weak significance of the independent variable. Technological intensity was not influential on the export performance of Brazilian SMEs of the manufacturing industry.

Variables related to the manager knowledge, perception of barriers to export and internationalization stages proved significant in the final model. It was noticed the preponderance of managerial resources over organizational resources, demonstrating that the commitments present in the company showed to be determinants of a higher export performance. The internationalization stage was positively related to export performance, indicating that as the company advances in its internationalization stage, more management skills are required, reflecting positively on the export performance.

This research sought to contribute to theoretical and empirical knowledge that allow to expand the domain over the phenomena involving the internationalization of small and medium-sized Brazilian companies. Regarding theoretical contributions, surveys were conducted on empirical studies and variables most commonly used in studies involving export performance were gathered in this study, thus collaborating with the conceptualization and measurement of the performance variable, once there is a high diversity of independent and dependent variables employed in studies involving export performance. Another theoretical contribution was the establishment of the relation between the constructs of RBV (BARNEY, 1991) and Uppsala model (JOHANSON; VAHLNE, 1977, 2009).

In this sense, the different variables and common variables to both models and their mutual influence was surveyed. Still, in this research, the constructs variables were developed based on non-arbitrary measures and science-based in line with the critical observed in Katsikeas, Leonidou and Morgan (2000). As an empirical contribution, the research was developed based on small and medium enterprises in an emerging economy country, that is, characteristic of the unit of analysis and economic context that have been the focus of studies of this moment. The skills seen as influential on the export performance also trigger the company movement between internationalization stages.

Theoretical and operational character limitations affect this search. Regarding the theoretical character, the variables used in the constructs not completely cover all the variables related to the RBV model, as well as the explanatory power of the Uppsala model, criticized about its conceptual rigidity in relation to internationalization stages. The export performance has a diversity of concepts related to its measurement variables. The export performance studies have reviewed a variety of evaluation modes, without introducing a dedicated model that allows uniform results. Regarding operational aspects, the lack of data in adequate quantity and quality cannot extract all the precision of the statistical techniques applied to the analysis performed on the data.

There is also the insertion of external variables to the used model, since the idiosyncratic character of the model developed here cannot infer over the environment influence. Still, this research opens the way for the development of qualitative studies that seek triangulation between the quantitative results, companies characteristics and the environment in which they operate. Another limitation lies in the rejection of the companies in participating in a research of this nature, sometimes manifested by the distrust of data confidentiality provided by respondents. The study is restricted to Brazilian companies, that is, an emerging country, which does not allow generalizations to developed countries. The analysis is restricted to internal variables, subjecting the results to the idiosyncrasies of the sample companies.

It is suggested greater focus on the part of managers on the variables related to skills development and knowledge of the target markets of company exports, since variables were identified related to exports barriers related to legislation and red tape. Thus, the encouragement of visits to foreign markets and participation in international fairs may contribute to an increased knowledge on the international market. Investments on the product were also significantly related to export performance. The release of specific products for export was an influential variable on the export performance, leading to infer the need for higher resources allocation to the development of products oriented to the external market.

A greater involvement with networks, especially governmental, is considered necessary, as its positive relations with export performance was verified. As the variables related to organizational structure showed little influence on the export performance, the focus inferred in skills related to international transactions allow companies with limited organizational resources to direct more investments to prepare managers for the involvement in trade fairs and visits to exports target markets.

The development of activities involving networks of governmental and corporate networks is suggested in order to stimulate knowledge exchange, information and relations in order to reduce perceived barriers in foreign markets, such as bureaucratic procedures and legislation, as well as to monitor the reputation of Brazilian products abroad. The stimulus to trade fairs abroad has become necessary to allow the increase of managers knowledge about foreign markets and their procedures, as well as the culture of potential export destination countries, thus allowing adjustments in products and their dissemination.

## REFERENCES

AABY, N-E; SLATER, S. F. Management influences on export performance: a review of the empirical literature. **International Marketing Review**, Bradford, v. 6, n. 4, p. 7– 26, 1989.

ALÉM, A. C.; GIAMBIAGI, F. **O BNDES em um Brasil em transição**. Rio de Janeiro: BNDES, 2010.

ALMEIDA, A. **Internacionalização de empresas brasileiras**. Rio de Janeiro: Fundação Dom Cabral, 2007.

ARMARIO, J. M.; RUIZ, D. M.; ARMARIO, E. M. Market orientation and internationalization in small and medium-sized enterprises. **Journal of Small Business Management**, Morgantown, v. 46, n. 4, p. 485-511, Oct 2008.

BABAKUS, E.; YAVAS, U.; HAAHTI, A. Perceived uncertainty, networking and export performance: a study of Nordic SMEs. **European Business Review**, Bradford, v. 18, n. 1, p. 4-13, 2006.

BARNEY, J. Firm resources and sustained competitive advantage. **Journal of Management**, Thousand Oaks, v. 17, n. 1, p. 99-120, Mar. 1991.

BONACCORSI, A. On the relationship between firm size and export intensity. **Journal of International Business Studies**, Basingstoke, v. 23, n. 4, p. 605-635, 1992.

BRASIL. **Empreendedor - Mapa das micro e pequenas empresas: empregos de pequenas e medias empresas**. 2012. Disponível em: <http://www.brasil.gov.br/empreendedor/empreendedorismo-hoje/o-mapa-das-micro-e-pequenas-empresas/print.>. Acesso em: 25 de jul. 2012.

BROUTHERS, L. E.; BROUTHERS, K. D.; WERNER, S. Is dunning's eclectic framework descriptive or normative? **Journal of International Business Studies**, Basingstoke, v. 30, n. 4, p. 831-844, 1999.

BROUTHERS, L.; NAKOS, G. The role of systematic international market selection on small firms' export performance. **Journal of Small Business Management**, Morgantown, v. 43, n. 4, p. 363-381, Oct. 2005.

CAMISON, C.; VILLAR-LÓPEZ, A. Effect of SMEs' International experience on foreign intensity and economic performance: the mediating role of internationally exploitable assets and competitive strategy. **Journal of Small Business Management**, Morgantown, v. 48, n. 2, p. 116-151, 2010.

CARNEIRO, J.; ROCHA, A.; SILVA, J. F. Determinants of export performance: a study of large brazilian manufacturing firms. **Brazilian Administration Review**, Rio de Janeiro, v. 8, n. 2, p. 107-132, Apr./June 2011.

COOPER, D. R.; SCHINDLER, P. S. **Métodos de pesquisa em administração**, 7. ed. Porto Alegre: Bookman, 2003.

COVIELLO, N.; MUNRO, H. Network relationships and the internationalisation process of small software firms. **International Business Review**, [S. l.], v. 6, n. 4, p. 361, Aug. 1997.

CZINKOTA, M. R.; URSIC, M. Classification of Exporting Firms According to Sales and Growth into a Share Matrix. **Journal of Business Research**, New York, v. 22, n. 3, p. 241 -253, 1991.

DHANARAJ, C., BEAMISH, P.W. A resource-based approach to the study of export performance. **Journal of Small Business Management**, Morgantown, v. 41, n. 3, p.242-61, 2003.

DIERICKX, I.; COOL, K. Asset stock accumulation and sustainability of competitive advantage. **Management Science**, Linthicum, v. 35, n. 12, p. 1504-151, Dec. 1989.

FÁVERO, L. P. et al. **Análise de dados:** modelagem multivariada para tomada de decisões. Rio de Janeiro: Elsevier, 2009.

FORTE, S. H. A. C.; MOREIRA, M. Z. Competitividade internacional baseada em recursos estudo da relação entre os recursos e as estratégias de internacionalização nas maiores empresas exportadoras do setor calçadista brasileiro. **Revista de Ciências da Administração**, Florianópolis, v. 9, n. 17, p. 27-52, jan./abr. 2007.

HAIR, J. F. et al. **Análise multivariada de dados**. 6. ed. Porto Alegre: Bookman, 2009.

JOHANSON, J.; WIEDERSHEIM-PAUL, F. The internationalization of the firm: Four Swedish cases. **Journal of Management Studies**, Oxford, v. 12, n. 3, p. 305-322, Oct. 1975.

_____; VAHLNE, J. The internationalization process of the firm – a model of knowledge development and increasing foreign market commitment. **Journal of International Business Studies**, Basingstoke, v. 8, n. 1, p. 23-32, Spring/Summer 1977.

_____; _____. The Uppsala internationalization process model revisited: From liability of foreignness to liability of outsidership. **Journal of International Business Studies**. Basingstoke, v. 40, p. 1411–1431, 2009.

KALEKA, A. Studying resource and capability effects on export venture performance. **Journal of World Business,** Oxford, v. 47, n. 1, p. 93–105, Jan. 2012.

KATSIKEAS, C. S.; LEONIDOU, L. C.; MORGAN, N. A. Firm-Level Export Performance Assessment: Review, Evaluation, and Development. **Journal of the Academy of Marketing Science**, [S. l.], v. 28, n. 4, p. 493-511, Fall 2000.

KATSIKEAS, C.; PIERCY, N.; IOANNIDIS, C. Determinants of export performance in a European context. **European Journal of Marketing**, [S. l.], v. 30, n. 6, p. 6-35, 1996.

LADO, N.; MARTÍNEZ-ROS, E.; VALENZUELA, A. Identifying successful marketing strategies by export regional destination. **International Marketing Review**, Bradford, v. 21, n. 6, p. 573-597, 2004.

_____; _____. SME internationalization and performance: growth vs. profitability. **Journal of International Entrepreneurship**, Dordrecht, v. 4, n. 1, p. 27-48, Mar. 2006.

MAJOCCHI, A.; BACCHIOCCHI, E.; MAYRHOFER, U. Firm size, business experience and export intensity in SMEs: a longitudinal approach to complex relationships. **International Business Review**, [S. l.], v. 14, n. 6, p. 719-38, Dec. 2005.

MARSHALL, A. **Princípios de economia**: tratado introdutório. São Paulo: Abril Cultural, 1982.

MARTIN-TAPIA, I.; ARAGÓN-CORREA, J. A.; RUEDA-ANZANARES, A. Environmental strategy and exports in medium, small and micro-enterprises. **Journal of World Business**, Oxford, v. 45, n. 3, p. 266–275, July 2010.

MAUREL, C. Determinants of export performance in French wine SMEs. **International Journal of Wine Business Research**, Bradford, v. 21, n. 2, p. 118-142, 2009.

MONTOBIO, F.; RAMPA, F. The Impact of technology and structural change on export performance in nine developing countries. **World Development**, Oxford, v. 33, n. 4, p. 527-547, 2005.

MORGAN, N. A.; VORHIES D. W.; SCHLEGELMILCH B. B. Resource–performance relationships in industrial export ventures: the role of resource inimitability and substitutability. **Industrial Marketing Management**, New York, v. 35, n. 5, p. 621-633, July 2006.

MUSTEEN, M.; FRANCIS, J.; DATTA, D. K. The influence of international networks on internationalization speed and performance: a study of Czech SMEs. **Journal of World Business**, Oxford, v. 45, n. 3, p. 197-205, July 2010.

NAVARRO, A et al.. Implications of perceived competitive advantages, adaptation of marketing tactics and export commitment on export performance. **Journal of World Business**, Oxford, n. 45, p. 49-58, Jan. 2010.

O'CASS, A.; WEERAWARDENA, J. Examining the role of international entrepreneurship, innovation and international market performance in SME internationalization. **European Journal of Marketing**, [S. l.].,v. 43, n. 11/12, p. 1325-1348, 2009.

O'GRADY, S.; LANE, H. W. The psychic distance paradox. **Journal of International Business Studies**, Basingstoke, v. 27, n. 2, p. 309-333, 1996.

PANGARKAR, N. Internationalization and performance of small and medium-sized Enterprises. **Journal of World Business**, Oxford, v. 43, n. 4, p. 475-485, Oct. 2008.

PAPADOPOULOS, N.; MARTÍN, O. M. Toward a model of the relationship between internationalization and export performance. **International Business Review**, New York, v.19, n. 4, p. 388–406, Aug. 2010.

PENROSE, E. **A teoria do crescimento da firma**. Tradução Tamás Szmrecsányi. Campinas, SP: Editora Unicamp, 2006.

RACELA, O. C.; CHAIKITTISILPA, C.; THOUMRUNGROJE, A. Market orientation, international business relationships and perceived export performance. **International Marketing Review**, Bradford, v. 24, n. 2, p. 144-163, 2007.

REID, S. D. Is technology linked with export performance in small firms? In: Hubner, H. **The art and science of innovation management**. Amsterdam: Elsevier Science Publishers, 1986, p. 273-83.

ROPER, S.; LOVE, J. H.; HÍGONN, D. A. The determinants of export performance: evidence for manufacturing plants in Ireland and Northern Ireland. **Scottish Journal of Political Economy**, Oxford, v. 53, n. 5, Nov. 2006.

RUZO, E. et al.. Resources and international marketing strategy in export firms: implications for export performance. **Management Research Review**, [S. l.], v. 34, n. 5, p. 496-518, 2011.

SIMON, H. A. **Comportamento administrativo**: estudos dos processos decisórios nas organizações administrativas. 3. ed. Rio de Janeiro: Editora da Fundação Getúlio Vargas, 1979.

SINGH, D. A. Export performance of emerging market firms, **International Business Review**, n. 18, p. 321-330, 2009.

SOUSA, C. M. P.; BRADLEY, F. Antecedents of international pricing adaptation and export performance. **Journal of World Business**, Oxford, n. 43, n. 3, p. 307-320, July 2008.

_____; _____. Effects of export assistance and distributor support on the performance of SMEs: the case of portuguese export ventures. **International Small Business Journal**, v. 27, n. 6, p. 681-701, Dec. 2009.

SPYROPOULOU, S.; SKARMEAS, D.; KATSIKEAS, C. S. The role of corporate image in business-to-business export ventures: a resource-based approach. **Industrial Marketing Management**, v. 39, n. 5, p. 752-760, July 2010.

STOIAN, M.; RIALP, A.; RIALP, J. Export performance under the microscope: a glance through Spanish lenses. **International Business Review**, New York, v. 20, n. 2, p. 117–135, Apr. 2011.

THEODOSIOU, M.; LEONIDOU, L. C. Standardization versus adaptation of international marketing strategy: an integrative assessment of the empirical research. **International Business Review**, New York, v. 12, n. 2, p. 141-171, Apr. 2003.

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD). **World Investment Report 2010**: overview: investing in a low-carbon economy. New York; Genebra, 2010.

WERNERFELT, B. A resource-based view of the firm. **Strategic Management Journal**, Chichester, v. 5, p. 171-180, 1984.

WHITE, D. S.; GRIFFITH, D. A.; RYANS, J. K. Measuring export performance in service industries. **International Marketing Review**, Bradford, v. 15, n. 3, p. 188-204, 1998.

WICKRAMASEKERA, R.; OCZKOWSKI, E. Key determinants of the stage of internationalisation of australian wineries. **Asia Pacific Journal of Management**, Dordrecht, v. 21, n. 4, p. 425-444, Dec. 2004.

ZOU, S.; STAN, S. The determinants of export performance: a review of the empirical literature between 1987 and 1997. **International Marketing Review**, Bradford, v. 15, n. 5, p. 333-356, 1998.