The fit between Internationalization Strategy and Management Accounting and Control Systems– Evidence from Portuguese Firms

Ana Filipa Marques Roque

Tese para obtenção do Grau de Doutor em
GESTÃO
(3º ciclo de estudos)

Orientador: Professora Doutora Maria do Céu Ferreira Gaspar Alves

julho de 2022

The fit between Internationalization Strategy and Management Accounting and Control Systems– Evidence from Portuguese Firms

Ana Filipa Marques Roque

Tese para obtenção do Grau de Doutor em
GESTÃO
(3º ciclo de estudos)

Orientador: Professora Doutora Maria do Céu Ferreira Gaspar Alves

Júri:
Prof. Doutor António Manuel Cardoso Marques
Prof.ª Doutora Maria Leonor Romão Carreiro Fernandes Ferreira da Silva
Prof. Doutor António Carrizo Moreira
Prof.ª Doutora Maria do Céu Ferreira Gaspar Alves
Prof. Doutor Jorge Luís Pedreira Murteira Marques Casas Novas
Prof. Doutor Carlos Alberto Fernandes Sampaio
Prof. Doutor Filipe Manuel Alves Sardo

20 de julho de 2022

Dedication

To my parents, for everything.

Acknowledgements

To Professor Maria do Céu Alves, supervisor of this research, I sincerely thank her for the friendship, encouragement, availability, confidence, and wise-shared scientific knowledge. Without her, this job would not be possible.

To Professor Mário Raposo for all his advice and suggestions.

To my parents, Angelo and Alda, who knew and respected my moments of anxiety and believed that it was possible. This work is entirely dedicated to them.

To Rodrigo, for being in my life.

Abstract

The growing globalization defined by the union of the world market in economic and commercial terms inevitably fosters changes in the way companies are organized and increasingly drives companies to consider their development in the international sphere. Internationalization is nowadays a critical factor for the development of the economy.

This process requires a deep knowledge of the different markets and this naturally implies changes and adaptations in companies and their operations. The need to obtain knowledge and information becomes vital, in order to assess the implementation of the strategy, and make the necessary adjustments to achieve the organization's goals. It is in this sense that the Management Accounting and Control System (MACS) plays its role.

In this sense, this research has as main objective to analyze the impact of the fit between Internationalization Strategy and MACS design and use on organizational performance. This research also aims to constitute a tool to help companies adjust their MACS to the development of the Internationalization Model (IM).

Throughout this investigation, the construction of works that present the various concepts in a linked way was privileged. To date, no studies have been identified that relate the different models of internationalization and the configuration of MACS, which motivated the study about this adjustment between structure and strategy. Thus, in the first phase, a systematic review of the existing literature on internationalization was carried out, namely the models of internationalization, highlighting the main theories. In this research phase, the literature on the analysis of the MACS and the elements that characterize it were also approached, emphasizing how the information is used. That said, in a second phase, cases-studies were developed, that adopted different models of internationalization, and where the adjustment between the MACS and the model of internationalization adopted was analyzed. In a third phase, a comparative study was carried out between the 4 companies previously studied in order to verify whether the adjustment of the MACS is privileged in any specific internationalization model. Finally, in a fourth phase, a quantitative study in Portuguese family companies, in order to analyze the adjustment of the MACS to the IM, and also its impact on performance. In this study, and because the current epidemiological situation justifies it, the impact of the increased uncertainty caused by COVID-19 was also studied.

This research in general terms is based on a mixed approach, since in qualitative terms four case studies were carried out, and also a comparative multiple case study whose data were worked with the *NVIVO 12 Plus* software, and in quantitative terms, a cross-sectional

survey research study operated by questionnaires and whose data were handled through *IBM SPSS Software*.

In terms of results, the comparative multiple case study reveals that there are differences in the use of MACS information according to the internationalization model adopted by multinational companies, showing that the internationalization model influences the MACS configuration.

In the last study that addresses Portuguese family business, the results show that in terms of the style of use of information provided by MACS, on average, significantly more information is used for diagnostic purposes than interactive purposes. Diagnostic MACS systems are associated with formal systems used to monitor outcomes. Regarding the nature of the information provided by MACS, the results suggest that FB who adopt the IM Network Theory need more integrated information than aggregated information. The results also demonstrate that an adequate fit between IM and MACS, in terms of providing information to support performance evaluation decisions, has a significant impact on IP performance.

Keywords

Born Global, Family Business, Strategy, Internationalization, I-Model, Internationalization Models, Network, Performance, Management Accounting and Control Systems; U-Model (Uppsala Model).

Resumo Alargado

A crescente globalização dos negócios fomenta inevitavelmente alterações na forma como as empresas se organizam e impulsiona cada vez mais as empresas a consideram o seu desenvolvimento na esfera internacional e a procurarem melhorar os seus padrões de desempenho.

Este processo obriga a um profundo conhecimento dos diferentes mercados e isso implica naturalmente alterações e adaptações das empresas e das suas operações. A necessidade de obter conhecimento e informações torna-se vital, de forma a avaliar a implementação da estratégia, e proceder aos ajustes necessários para se alcançarem os objetivos. É nesse sentido que o Sistema de Contabilidade e Controlo de Gestão (SCCG) desempenha a sua função.

Neste sentido esta investigação tem como objetivo central estudar a existência e o impacto de um ajustamento da estrutura organizacional, nomeadamente o Sistema de Contabilidade e Controlo de Gestão (SCCG), à estratégia de internacionalização, representada neste estudo pelo modelo de internacionalização, para um bom desempenho.

O carater inovador deste estudo reside no facto de até à data não se terem identificado estudos que relacionem os diferentes modelos de internacionalização com a configuração e uso dos SCCG, facto que motivou este estudo. Pretende-se deste modo contribuir para a escassa literatura existente sobre o ajustamento entre a estratégia de internacionalização e a estrutura da organização.

Numa primeira fase e dado que se procura estudar o ajustamento entre a estratégia e a estrutura, foi efetuada uma revisão sistemática da literatura existente sobre o processo de internacionalização, com o objetivo de se identificar quais eram os modelos de internacionalização mais adotados pelas empresas. Neste estudo concluiu-se que o processo de internacionalização é principalmente uma decisão estratégica, que pode ocorrer de várias formas (dando origem a vários modelos de internacionalização) e é influenciado por diversos fatores.

Posto isto, foi de igual modo abordada a literatura em torno da análise da configuração e utilização do SCCG e dos elementos que o caraterizam. Foram analisadas diferentes dimensões do sistema e foi desenvolvido um *framework* teórico/conceptual de forma a fornecer uma visão mais abrangente do SCCG. Os resultados obtidos indicam que, para operacionalizar o conceito, se pode recorrer à forma como a informação fornecida pelo sistema é utilizada (função ativa do sistema) e caracterizada (função passiva do sistema),

estabelecendo três categorias e seis dimensões diferentes. Este *framework* permite nos compreender como é que o SCCG se transforma num sistema fornecedor de informação, crucial para o desenvolvimento da estratégia da empresa.

Numa segunda fase foram desenvolvidos diversos estudos empíricos, recorrendo-se para isso a uma abordagem metodológica mista que envolveu investigação qualitativa e quantitativa.

Inicia-se esta segunda fase com o desenvolvimento de quatro estudos de caso em empresas Multinacionais de modo a estudar o ajustamento entre o SCCG e os diferentes modelos de internacionalização específicos.

O 1º estudo de caso, foi desenvolvido numa empresa do sector industrial que adotou o Modelo de Internacionalização de Uppsala (U-Model). Neste estudo foi examinado o ajustamento do SCCG na implementação bem-sucedida do Modelo de Internacionalização de Uppsala (U-Model) e o impacto desse ajustamento na melhoria da performance do processo de internacionalização da empresa. Foi utilizada uma abordagem dinâmica e "inside-out", e os dados foram recolhidos através de entrevistas e análise documental. Os resultados evidenciam um ajustamento do SCCG (ao nível da utilização da informação, das necessidades de informação e do apoio à tomada de decisão) em cada fase de desenvolvimento do U-Model. Este estudo contribui para que as empresas percebam como é que podem ajustar o seu SCCG de modo que ele seja usado adequadamente e forneça a informação necessária em cada fase do Processo de Internacionalização.

O 2º estudo de caso foi desenvolvido numa empresa do setor de serviços que adotou o modelo de internacionalização I-Model. Aqui, foram utilizadas entrevistas e análise documental para a recolha dos dados. Este estudo de caso permitiu estudar como o uso do SCCG contribui para o sucesso da implementação da estratégia de internacionalização (através do modelo de internacionalização I-Model) e consecutivamente para a melhoria da performance do processo de internacionalização da empresa. Foi analisado o ajustamento entre a estratégia de internacionalização (I-Model) e a estrutura organizacional, representada pelo SCCG, de forma a compreender como o desenho do SCCG se ajusta à estratégia de internacionalização. Os resultados sugerem que no processo de internacionalização através do I-Model, o SCCG deve ser utilizado em todo o processo de forma diferenciada, permitindo um output de informação capaz de responder às necessidades da empresa. Conclui-se neste estudo que o SCCG não foi apenas uma ferramenta crucial para a implementação da estratégia de internacionalização da empresa, mas também a "moldou" e foi "moldado" por ela. Esses resultados contribuem para o

escasso conhecimento sobre os SCCG e o seu ajustamento à estratégia, e permitiram demonstrar como é que uma utilização adequada do SCCG durante o processo de internacionalização pode melhorar a performance do processo de internacionalização da empresa.

O 3º estudo de caso foi realizado numa empresa Born Global. Neste estudo procurou-se examinar o ajustamento entre a estrutura e a estratégia de internacionalização das empresas Born Global (BG), isto é, compreender como e em que medida o processo de internacionalização afeta o SCCG, e como este sistema contribui para uma implementação bem-sucedida do processo de internacionalização. Os dados foram recolhidos a partir da análise de documentos e da realização entrevistas. Os resultados do estudo sugerem que a existência de um SCCG ajustado às necessidades de informação de uma Born Global pode facilitar a implementação e o sucesso do processo de internacionalização. Em termos de contribuições, este estudo destaca a existência dos diversos papéis do SCCG (passivo e ativo) no modelo de internacionalização das empresas Born Global. Contribui também para realçar a importância de um SCCG dinâmico e bem estruturado para auxiliar empresas com características tecnologicamente desafiantes como as Born Global.

O 4º estudo de caso foi realizado numa empresa do setor da saúde, que utiliza simultaneamente dois modelos distintos de internacionalização: Modelo de Internacionalização Network e o Modelo de Internacionalização Born Global. O objetivo do estudo foi perceber como o SCCG deve ser desenhado e utilizado para garantir um processo de internacionalização de sucesso. Os dados foram recolhidos através de entrevistas e outros documentos foram analisados através do *software* NVIVO 12 Plus. Os resultados obtidos mostram um uso diferenciado do SCCG ao longo do processo de internacionalização. Constata-se que o SCCG precisa ser ajustado, a fim de facilitar a implementação do processo de internacionalização, e pode ser usado de forma mais dinâmica e diferenciada de acordo com as necessidades de informação.
Este estudo apresenta várias contribuições científicas. É um trabalho inovador na medida em que relaciona o SCCG com dois modelos de internacionalização específicos, destacando a existência de vários papéis do SCCG (passivo e ativo). Contribui para analisar as características da informação do SCCG e o tipo de decisões apoiadas pelos SCCG em cada modelo de internacionalização; e contribuiu para aumentar o conhecimento sobre a relação entre o SCCG e a - estratégia de Internacionalização das empresas.
Em seguida realizou-se uma análise comparativa dos 4 estudos de caso realizados de modo a evidenciar similitudes e diferenças na configuração e uso do SCCG em função do

modelo de internacionalização da empresa. Os dados foram recolhidos através de entrevistas semiestruturadas, relatórios internos, notícias e conteúdos de web-sites e foram analisados por meio do *software* NVIVO 12 Plus. Os resultados mostram que o modelo de internacionalização tem um impacto no SCCG, pois este é configurado de acordo com as necessidades do modelo. Este estudo contribui para uma compreensão mais profunda da relação entre modelos de internacionalização e os SCCG, constituindo uma ferramenta que ajudará as empresas a compreenderem como podem ajustar o seu SCCG em função do seu modelo de internacionalização. Este estudo apresenta ainda alguns contributos teóricos para a Teoria da Visão Baseada em Recursos e para a Teoria das Capacidades Dinâmicas.

Por último foi desenvolvido um estudo quantitativo, de forma a analisar o ajustamento do SCCG ao modelo de internacionalização, e ainda o seu impacto na performance do processo de internacionalização das empresas familiares (FB). Neste estudo, e dado o atual cenário epidemiológico foi ainda estudado o impacto do aumento da incerteza provocada pela COVID-19.
A recolha de dados foi efetuada através de um inquérito por questionário aplicado às empresas familiares portuguesas, tendo sido recolhidos 127 questionários devidamente preenchidos. Os dados obtidos foram tratados através do IBM SPSS software.
Os resultados permitem confirmar que nas empresas familiares portuguesas predomina o U-Model e que o modelo de internacionalização afeta a configuração do SCCG, sendo estes resultados estatisticamente significativos. Para além disso, os resultados comprovam que estas empresas utilizam significativamente mais a informação do SCCG, para efeitos de diagnóstico do que de modo interativo. Por outro lado, verifica-se que as empresas que adotam o modelo de internacionalização de redes necessitam significativamente mais de informação integrada do SCCG do que de informação agregada.
Este estudo contribuiu assim para uma melhor compreensão da relação entre os modelos de internacionalização e o SCCG no contexto das empresas familiares, e constituiu uma ferramenta para auxiliar estas empresas a ajustarem o seu SCCG ao seu modelo de internacionalização.

Palavras-chave

Born Global; Empresas Familiares; Estratégia; Internacionalização; I-Model; Modelos de Internacionalização; Network; Performance; Portugal; Sistemas de Contabilidade e Controlo de Gestão; U-Model (Uppsala Model).

Table of Contents

Figures List

Table List

Acronyms List

BG	Born Global
BGIM	Born Global Internationalization Model
CEO	Chief Executive Officer
CFC	Corporate Financial Control
CFO	Chief Financial Officer
COO	Chief Operating Officer
CS_INT.1	Chief Financial Officer - Critical Software
CS_INT.2	Corporate Financial Controller - Critical Software
CS_INT. 3	Financial and tax consultant – Critical Software
D_INT.1	Chief Executive Officer – Dinefer
FB	Family Business
GVA	Gross Value Added
IM	Internationalization Model
I-M	I-Model
IP	Internationalization Process
MACS	Management Accounting and Control Systems
NTIM	Network Theory Internationalization Model
P_INT.1	Chief Executive Officer – Procifisc
P_INT.2	Chief Financial Officer - Procifisc
RBV	Resource-Based View Theory
RQ	Research Question
S_INT.1	Chief Operating Officer - Stemlab
S_INT.2	Controller, and International Markets Manager – Stemlab
S_INT.3	Marketing and Communication Director – Stemlab
SCCG	Sistema de Contabilidade e Controlo de Gestão
SMEs	Small-Medium Enterprises
UM	U-Model

1. Introduction

1.1. Motivation and rationale

Internationalization is undoubtedly one of the most commonly adopted strategies by companies that wish to boost their growth (Lu and Beamish, 2005; Sapienza et al., 2006; Welford and Prescott, 1994; Xie et al., 2009). It is seen as a challenge consisting of the extension of product-market strategies to other countries, resulting in a total or partial replication of its operational chain (Freire, 1997). However, it may contemplate some setbacks or even the cessation of the process (Chetty and Campbell-Hunt, 2003; Kafouros et al., 2021).

There are several ways of entering a foreign country, either through exports, contracts (licensing, franchising, management contracts, turnkey contracts, subcontracting, production sharing and strategic alliances) and/or even foreign direct investment (Anderson and Gatignons, 1986; Hill et al., 1990). And, the literature has referenced several internationalization models to operationalize the process according to the company's strategy (Johanson and Vahlne, 1977, 1990; Hadjikhani and Johanson, 2002; Johanson and Wiedersheim-Paul, 1975; Rogers, 1962; Andersen, 1993; Bilkey and Teaser, 1977; Cavusgil, 1980; Reid, 1981; Knight and Cavusgil, 1996; Bell, 1995; Gabrielsson and Kirpalani, 2004; Vernon, 1966; Clark et al., 1997; Wiedersheim-Paul, Olson and Welch 1978; MacNaughton, Young and Crick, 2003). This research deepens this knowledge and develops a systematic review on the main models referenced in the literature and the various theoretical approaches: contingency theory (Woodwart, 1965; Chenhall, 2003), institutional theory (Washington and Patterson, 2011; DiMaggio and Powell, 1983; Greenwood et al., 2008), network theory (Johanson and Mattsson, 1988; Sharma and Johanson, 1987), and internalization theory (Rugman, 1981; Hennart, 1982).

It can be seen that each internationalization model has its own characteristics that allow the process to be differentiated, either because the process develops in stages or phases, that is, gradually and evolutionarily, or in a more pragmatic way (Kontinen and Ojala, 2010; Roque, et al., 2019_a) implying changes at the internal organization level of the company, and requiring a deep knowledge of the market functioning (Calof and Beamish, 1995; Freeman and Cavusgil, 2007; Chetty and Campbell-Hunt, 2004; Reuber and Fischer, 1997; Childa et al., 2022). In this sense and based on the changes in the company's internal organization, this

research highlights the structural changes in the Management Accounting and Control System (MACS) since it is a tool that favors the use of management accounting information to achieve the firm's objectives and, simultaneously, includes management control mechanisms of various types (Chenhall, 2003; Malmi and Brown, 2008; Cardinal et al., 2017; Mazmanian and Beckman, 2018; Gerdin, 2020).

The design of MACS has been the subject of debate in recent literature since they can be considered as a "system" integrating and coordinating a set of mechanisms or as a "package" integrating specific tools that operate independently from each other to a certain extent (Merchant and Otley, 2020). At the same time, the literature argues that in research on MACS, authors tend to adopt a more comprehensive view (Novas et al., 2017; Simons, 1991) and a strategic perspective (Macintosh and Quattrone, 2010). In this sense, this research considers that MACS can vary according to three dimensions: (1) the style of use of the information provided, which can be of the diagnostic or interactive type; (2) the type of information provided, which can assume different levels of aggregation and integration, and finally (3) the type of decision supported, considering the existence of performance evaluation and resource management decisions. Considering this breadth, the MACS is seen as a tool that provides information according to the needs and objectives of the company (Gomez-Conde et al., 2013_a; Gonçalves and Gaio, 2021), thus contributing to support the internationalization process.

Studies of the existing relationship between strategy (internationalization) and MACSs are still very scarce (Crespo et al., 2019; Langfield-Smith, 2007; Sykianakis and Bellas, 2005). And the few existing works present a lack of consistent results (Puck and Filatotchev, 2018; Cumming et al., 2017; Ismail, 2013; Frigotto et al., 2013; Tessier and Otley, 2012; Skaerbaek and Tryggestad, 2010; Langfield-Smith, 2007).

The literature evidence that the MACS have assisted in the implementation of the international expansion strategy (Chenhall and Euske, 2007; Langfield-Smith, 2007; Crespo et al., 2019) and that this, in turn, influences the MACS, evidencing a successive adaptation (Crespo et al., 2019; Gomez-Conde and Lopez-Valeiras, 2018; Gómez-Conde et al., 2013; Henri, 2006; Sageder et al., 2020). There is thus a positive association between the MACS and the Internationalization Process (IP); and the empowerment of this is positively related to organizational performance (Gomez-Conde et al., 2013_a). The strategy relies on the MACS to influence it to facilitate the success of its implementation (Davila et al., 2015; Langfield-

Smith, 2007). Thus, this research focuses on studying how the structure (MACS) adjusts itself to facilitate the strategy implementation (IM).
However, to date, no studies in the literature relate the different internationalization models and the configuration of the MACS, that is, that address the adjustment of the MACS to the internationalization model adopted.

1.2. Objectives and research questions

There is little knowledge about the effects of MACS in the strategy implementation (Coller et al., 2018; Frigotto et al., 2013; Skærbæk and Tryggestad, 2010). In order to contribute to an increase in knowledge in this domain, the main purpose of this study is to analyse the fit between MACS and the internationalization process and its impact on performance.

Although the literature highlights the relationship between strategy and structure (MACS) (Gimbert et al., 2010; Bisbe and Malagueño, 2012; Franco-Santos et al., 2012; Lopez-Valeiras et al., 2015; Gomez-Conde and Lopez-Valeiras, 2018; Gomez-Conde et al., 2019; Ramon-Jeronimo et al., 2019; Garcia-Àlvarez et al., 2019; Barros and Ferreira, 2021), the knowledge about the effects of the relationship is still insufficient (Coller et al., 2018; Frigotto et al., 2013; Skærbæk and Tryggestad, 2010) mainly on the relationships between companies for the international expansion (Ratajczak-Mrozek, 2017; Ciravegna et al., 2014; Seifriz et al., 2014).
Thus, and considering that few studies analyse the use of the MACS in the internationalization process (Florez et al., 2012; Gomez-Conde and Lopez-Valeiras, 2018; Araújo et al., 2010; 2011; 2011; Velez et al., 2008, 2014, 2015), this study comes to analyse the adjustment of MACS to the internationalization process, operationalized through the internationalization models, highlighting the existence of various roles of MACS (Naranjo-Gil, 2016; Coller et al., 2018).
In this sense, the central theme of this study is to study how a good adjustment between the IM and the MACS can promote improvements in organizational performance. In other words, how does the IM affects the use and design of the MACS in order to facilitate the implementation of the internationalization strategy and improve the performance of companies?
For the in-depth case studies conducted by authors (chapters 4 to 8), and in order to study the relationship between the IM adopted and the use and design of the MACS, the following research questions are presented.

First Case study:
How does MACS ease up the implementation of the U-Model internationalization strategy?
How does the U-Model internationalization strategy imply changes in MACS? And, if this is the case, what changes?

Second Case study:
How does the I-model internationalization strategy imply (or not) changes in the MACS design?
How does the I-Model internationalization strategy imply (or not) changes in the MACS use?
How does the company's MACS design facilitate (or not) the implementation of the I-Models internationalization strategy?
How does the company's MACS use facilitate (or not) the implementation of the I-Model internationalization strategy?

Third Case study:
How did the company's MACS facilitate (or not) the Born Global Internationalization Model (BGIM) implementation?
How has the BGIM implementation involved (or not) changes in the MACS. And, if so, which?

Fourth Case study
How should the MACS adjust to the BGIM and NTIM for a successful internationalization strategy?

In the comparative multiple case study, the following research questions were considered:
How does the internationalization strategy influence the MACS' configuration?
Are there differences between the studied internationalization models?

And finally, in the last empirical study, in order to identify the IM used by Portuguese FB and to understand if the MACS fit the IM and the impact on the IP Performance, the following research questions were formulated:

Which is the IM most adopted by Portuguese FB?
What is the impact of IM on the style of use of MACSs in FBs?
What impact does the IM have on the nature of the information made available by the MACS on FBs?

What impact does the IM have on the importance of MACSs in supporting FB decision-making?
What is the influence of the internationalization strategy on the configuration of FB's MACSs?
What is the impact of the adjustment between MACS and IM on FB IP performance?

1.3. Research methods

At the methodological level, the whole structure of this research was carefully designed with the purpose of supporting the different conceptual models and allowing answering all the research questions formulated. There is no standard methodological structure to be followed, but rather the methodology adopted should seek to meet the defined objectives. The entire research strategy was designed, taking into account the development of the work and the pursuit of the objectives.

In the first phase of the research, two literature review studies were carried out based on a systematic review. For the 1st literature review study, the theoretical research approaches on internationalization and the main IMs were considered. For the 2nd literature review study, a review was conducted on the different dimensions of MACS, which allowed the development of a theoretical framework to provide a comprehensive view of MACS.

In the second phase, the research followed the interpretative paradigm of Hopper and Powell (1985). From the epistemological point of view (beliefs about knowledge), the study was based on interpretive research (interviews, direct contact with the company).
In this phase, we used inside-out perspectives based on a qualitative research approach through the development of exploratory case studies (Yin, 2014). Four single case studies were developed according to Yin's (1993, 2005) approach. Due to limited prior knowledge, we felt the need to use a qualitative approach (Ahrens and Chapman, 2006; Dzikowski, 2018) since it allows recording more information in more detail and perceiving reactions more intimately (Dana and Dumez, 2015). This qualitative empirical research allows an in-depth investigation of a contemporary phenomenon within its real-life context (Yin, 1993, 2005).
For evidence collection, an interview script was developed based on the literature review. It was also possible to triangulate data (Janesick, 1994) with documents and website content analysis, which allowed consolidating conclusions formulated inductively, more descriptively than demonstratively, revealing difficulties in generalizing (Borch and Arthur, 1995; Patton, 1990).

Next, a comparative multiple case study was also conducted to highlight the similarities and differences identified in the 4 case studies. We chose to perform four case studies since that, according to Eisenhardt (1989), in the multiple-case approach, there is no ideal number of cases, however with fewer than four cases, theory is difficult to generate, and with more than ten cases, the volume of data is difficult to cope with. A qualitative research approach was used, since the "theory building from multiple cases typically yields more robust, generalisable, and testable theory than single-case research" (Eisenhardt and Graebner, 2007, p. 27). Data for this study were collected via semi-structured interviews, press news, company reports and websites of the analyzed case firms. The *NVIVO 12 Plus software* was used to analyze the content of the interviews and the different documents collected, as it is considered one of the most appropriate tools for qualitative analysis (Auld et al., 2007; Mortelmans, 2019).

Finally, a survey research design was developed in order to assess the impact of the adjustment of MACS to IM on IP performance in Family Business (FB).
In this study, we highlight the application of a questionnaire (collection instrument) via telephone in order to generate more detailed, more robust and more useful information for the phenomenon to be observed (Patton, 2002), i.e. to study the adjustment of the MACS to the IM of Portuguese FBs, and its impact on IP performance.
Malmi and Brown (2008) argue that the lack of clarity, variety, and inconsistencies in how Management Control Systems are defined creates several problems in researching this theme, particularly in the interpretation of results and the design of the same. Thus the design of this collection instrument was carefully studied so as to avoid insufficiency, manipulation and obstruction of results.
All statistical calculations based on the collected data were performed with *IBM SPSS* statistical analysis software *version 27.0 (IBM Corporation,* New York, USA).

1.4. Expected contributions

This study presents several contributions to the literature. It contributes in its genesis to a better understanding of the relationship between IMs and MACS, highlighting the existence of several roles (passive and active) of MACS in Internationalization (Naranjo-Gil, 2016; Coller et al., 2018). On the other hand, and because the main objective was to study the impact of the adjustment between IM and MACS in the various contexts analyzed, this

research highlights contributions to the Resource-Based View Theory, which argues that resources, whether assets, capabilities, information, knowledge and processes, are a source of competitive advantage (Barney, 1991; Oyadomari, 2008); to the Agency Theory where the delegation of power between owner and manager is highlighted; for the Stewardship Theory *where* managers assume a position of greater reliability, whose goal is to avoid wasting resources and act in order to obtain the highest return and profit for the company; for the Contingency Theory where it is assumed that there is no single or universal organizational structure for each organization (Reid and Smith, 2000); and also for the Institutional Theory since organizations can be influenced by various pressures resulting from the external or internal environment.

Considering the relevance of the theme, it is expected that this research may contribute to a better understanding of the relationship between IMs and MACS, and simultaneously we believe that our study also offers important insights for practitioners as it might constitute a tool to assist companies in adjusting their MACS to IM development.
We believe that our quantitative study may offer insights and research areas outside the family firm domain so, as a future line of research, it is suggested to replicate the study, in non-family business so as to analyze the adjustment of the MACS to the IM adopted.
Still, this study helped to increase knowledge on the accounting literature field, examining the Levers of Control Framework (Kruis et al., 2016; Asiaei et al., 2018) and the relationship between MACS - Internationalization Strategy (Gomez-Conde and Lopez-Valeiras, 2018; Velez et al., 2014, 2015; Araujo et al., 2011; Florez et al., 2012; Gonçalves and Gaio, 2021).

1.5. Publications and Conferences Presentation

An earlier version of Chapter 2 was presented at XXV Jornadas Hispano-Lusas de Gestão Científica (5-6 February, 2015) - Universidade de Vigo, Ourense, Spain, and the final version as presented at the 32nd International Business Information Management Association Conference, IBIMA 2018 and published in the conference Proceedings

> *Roque, A., Alves, M., and Raposo, M. (2018). Internationalization strategy: main models and approaches. In Vision 2020: Sustainable Economic Development and Application of Innovation Management from Regional Expansion to Global Growth - Proceedings of the 32nd International Business Information Management Association Conference, IBIMA 2018. Volume 1, 1730- 1739.*

Additionally, the content of Chapter 2 was published as a research paper:

Roque, A., Alves M., and Raposo, M. (2019). Internationalization Strategies Revisited: Main Models and Approaches. IBIMA Business Review, Vol. 2019 (2019), Article ID 681383, DOI: 10.5171/2019.681383

An earlier version of chapter 3 was presented at the at XXVII Jornadas Hispano-Lusas de Gestão Científica (1-4 February 2016) – University of Alicante, Alicante – Benidorm, Spain; also presented and published in the conference Proceedings at the International Business Information Management Conference (32nd IBIMA) (15-16 November 2018), Seville, Spain; and at 8th Global Conference on Business and Social Sciences (14-15 December 2018), Berjaya Times Square Kuala Lumpur Hotel, Malaysia;

Roque, A., Alves, M., and Raposo, M. (2018). Management Accounting and Control Systems and Strategy: A Theoretical Framework for Future Researches. In Vision 2020: Sustainable Economic Development and Application of Innovation Management from Regional Expansion to Global Growth - Proceedings of the 32nd International Business Information Management Association Conference, IBIMA 2018. Volume 1, 1740- 1748. ISBN: 978-0-9998551-1-9

Roque, A., Alves, M., and Raposo, M. (2018). Control Systems and Strategy: A Literature Review. Proceedings of the 8th Global Conference on Business and Social Sciences on "Contemporary Issues in Business and Social Sciences Research", Global Academy of Training and Research (GATR) CIBSSR 2018, 34, ISBN: 978-967-13147-0-8.

Additionally, the content of Chapter 3 was published as a research paper:

Roque A., Alves M., and Raposo M. (2018). Control Systems and Strategy: A Literature Review. Journal of Management and Marketing Review, 3 (4), 213 – 222.

An earlier version of chapter 4 was presented at Regional HELIX'17 International Conference on Innovation, Entrepreneurship and Technology Transfer (21 - 23 June, 2017) – University of Beira Interior, Covilhã, Portugal; and at the 25th EBES Conference in Berlin and published in the conference Proceedings:

Roque, A., Alves M., and Raposo M. (2018). The management control in the internationalization process - a case study in the services sector. Proceedings of the 25th EBES Conference – Berlin. 23–25 May 2018, Vol. 3, 1353-1372

Additionally, the content of Chapter 4 was published as a research paper:

Roque, A., Raposo, M., and Alves, M. (2021). Management accounting and control systems in the Uppsala internationalization process model. A case study. Innovar, 31(80). In press. DOI:10.15446/innovar.v31n80.93661

An earlier version of Chapter 5 was presented at International Business Information Management Conference (33rd IBIMA) (10-11 April 2019), Granada, Spain, and published in the conference Proceedings:

Roque, A., Alves, M., and Raposo, M. (2019). Management accounting and control system design to support innovative internationalization strategies. Proceedings of the 33rd International Business Information Management Association Conference, IBIMA 2019. ISBN: 978-0-9998551-2-6.

The content of Chapter 5 was published as a research paper:

Roque, A., Alves, M., and Raposo, M. (2020). Management Control System Design in Innovation- related Internationalization Strategies (I-Model) / Sistemas de Controlo de Gestão e Estratégia de Internacionalização I-Model. Revista Eletrônica de Estratégia e Negócios, 13(3), 218-236.
DOI:10.19177/reen.v13e32020218-236

An earlier version of Chapter 6 was presented at International Business Information Management Conference (33rd IBIMA) (10-11 April 2019) and published in the conference Proceedings.

The content of Chapter 6 was published as a research paper:

Roque, A., Alves M., and Raposo, M. (2019). The Use of Management Accounting and Control Systems in the Internationalization Strategy: A Process Approach. IBIMA Business Review, Vol. 2019, Article ID 437064. DOI: 10.5171/2019.437064

An earlier version of Chapter 7 was presented at the XXIV Workshop on Accounting and Management Control "Memorial Raymond Konopka" (24-25 January 2019), Coimbra

Business School, Coimbra, Portugal; and at XXIX Jornadas Hispano-Lusas de Gestión Científica (30 January-2 February, 2019), Escuela Universitaria de Osuna, Sevilha, Spain.

The content of Chapter 7 was published as a research paper:

> *Roque, A., Alves, M., and Raposo, R. (2020). Management Control in born-global firms: a case Study (Control de gestión en las empresas born-global: un estudio de caso). Estudios Gerenciales, 36(154), 3-14.*
> *DOI:10.18046/j.estger.2020.154.3499*

An earlier version of Chapter 8 was presented at the III International Forum on Management – Value Creation and Local Heritage (1-2 February, 2019), Évora, Portugal; and at the 12th Conference on new Directions in Management Accounting (16 -18 December 2020), European Institute for Advanced Studies in Management (EIASM), Brussels Belgium.

The content of Chapter 8 was submitted to Pacific Accounting Review as a research paper entitled: "*Internationalization Strategy and Management Accounting and Control Systems - a Network Approach"*. The paper is currently on the 2nd round of the peer-review process.

An earlier version of Chapter 9 was presented at the 42nd Annual Congress of the European Accounting Association (29-31 May 2019), Paphos, Chipre, and was published, in the conference page:

> *Roque, A., Alves, M., and Raposo, R. (2019). Internationalization Strategy and Management Accounting and Control Systems – Comparative Study of SME'S.*

An earlier version of Chapter 10 was presented at XIX Encontro Internacional AECA (17 - 18 September, 2020) Guarda, Portugal; and at XIV Congreso Iberoamericano Control Gestion-CIBEC2020 (7-10 September, 2020) Sevilha, Spain and was published in the conference Proceedings of Actas del XIX Encuentro Internacional AECA:

> *Roque, A., Alves, M., and Raposo, R. (2020).* Ajustamento do Sistema de Contabilidade e Controlo de Gestão ao Modelo de Internacionalização: O seu Impacto na Performance nas Empresas Familiares. ISBN 84-978-84-16286-48-5.

1.6. Structure of the Thesis

The remainder of this Ph.D. thesis is organized into 11 chapters.
Chapter 1 is the Introduction of this thesis, which presents the motivation and justification of the study, the objectives and research questions, the methodology applied, the results of the studies, and their publications in journals and presentations in conferences.

Chapter 2 reviews the literature and provides a theoretical background to identify the internationalization models adopted in the literature.

Chapter 3 reviews the literature and provides a theoretical background to review the different dimensions of MACS and develops a theoretical framework to provide a comprehensive view of MACS.

Chapter 4 corresponds to the first empirical study (first case study) included in this Ph.D. thesis, entitled "*Management Accounting and Control System in the Uppsala Internationalization Process Model - a Case Study*." This study seeks to analyze the role of MACS in a successfully implementation of the Uppsala Internationalization Model (U-Model) and in improving firms' performance.

Chapter 5 includes the second empirical study (second case study) entitled "*Management Control System Design in Innovation-Related Internationalization Strategies (I-Model)*". This study seeks to analyze the relationship between MACS and strategy, and to understand how the MACS design fit the internationalization strategy and to what extent this affects the MACS design.

Chapter 6 corresponds to the third empirical study (second case study), entitled "*The Use of Management Accounting and Control Systems in the Internationalization Strategy – a Process Approach".* This study analyzed the relationship between strategy and organizational structure, namely how the use MACS contributes to the successful implementation of the internationalization strategy and consecutively to the improvement of the company's performance.

Chapter 7 includes the fourth study (third case study), entitled "*Management Control in Born Global Firms: a Case Study",* and seeks to understand how and to what extent the

internationalization process (IP) affects the MACS and how it contributes to a successful IP implementation.

Chapter 8 correspond to the fifth study (fourth case study), entitled "*Internationalization Strategy and Management Accounting and Control Systems - a Network Approach"*. This study analyzed how MACS should be designed and used to ensure a successful IP, represented by the NTIM and the BGIM.

Chapter 9 provides a comparative analyses of the case studies presented in chapters 4, 5, 6, 7, and 8. The study, entitled "*Internationalization Model and the Management Accounting and Control System - a Multiple Case Study",* and seeks to analyze the impact of the Internationalization Model (IM), adopted by companies, in the configuration of the MACS, to the extent that this positively influences the internationalization capacity. After conducting the 4 studies we conduct a comparative analysis in order to compare different internationalization models and to study patterns common to cases and theory (Eisenhardt, 1989; Eisenhardt and Graebner, 2007), as the "theory building from multiple cases typically yields more robust, generalizable, and testable theory than single-case research" (Eisenhardt and Graebner's 2007, p. 27).

Chapter 10 is the quantitative study entitled "Adjustment of Management Accounting and Control System to the Internationalization Model: its Impact on Performance in Family Business".
In this study the internationalization model adopted by family business was investigated and the design and use of MACS in the development of their specific IM was analyzed. It was also studied whether the IP/ IM provokes adjustments in the MACS, and how the change affects the Performance of the IP.
Lastly, in Chapter 11, we conclude this Ph.D. thesis by summarizing the main findings, indicating the practical implications and limitations of this research and suggesting future lines of research.
The Ph.D thesis structure is presented in Figure 1.1

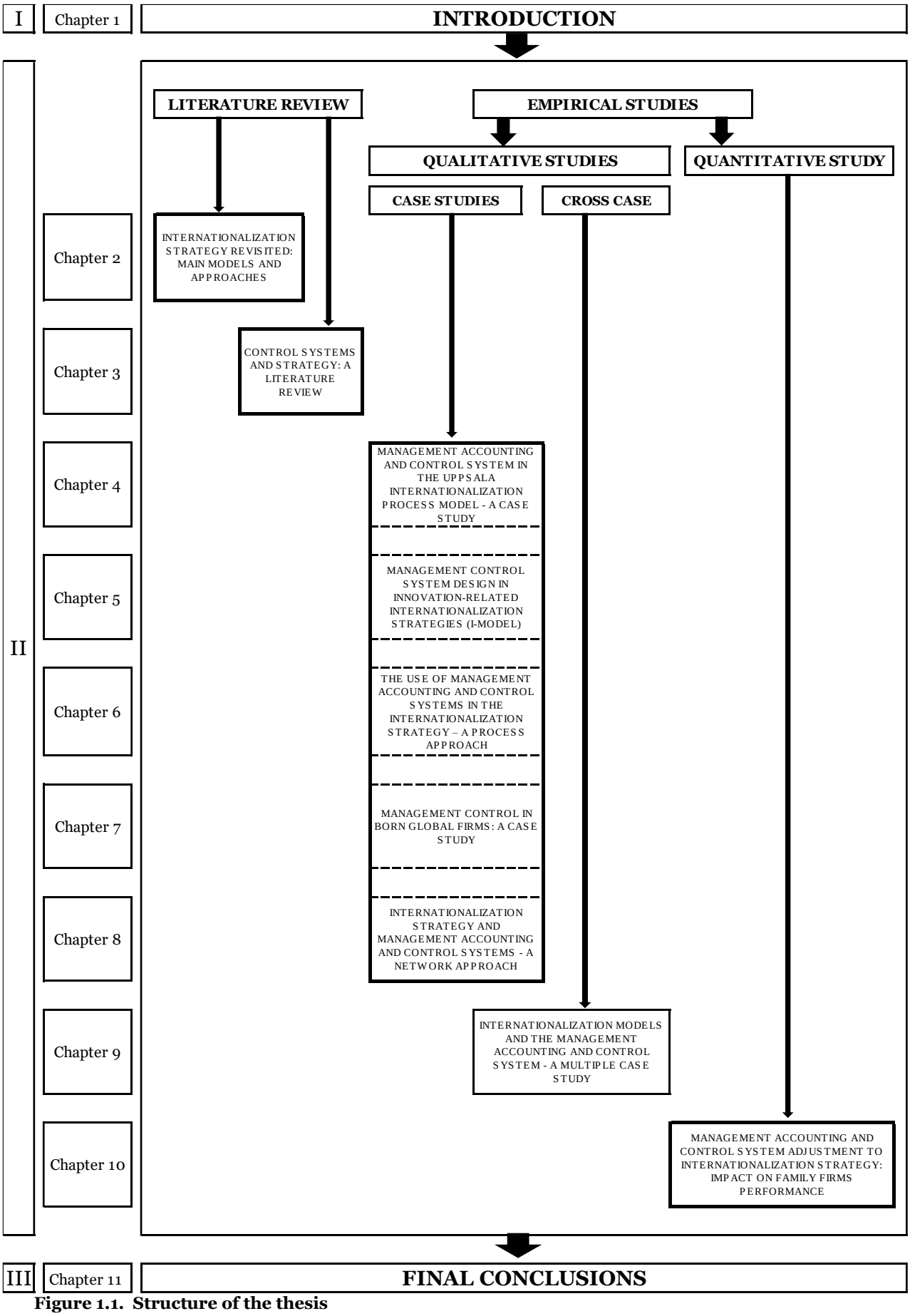

Figure 1.1. Structure of the thesis

2. Internationalization Strategy Revisited: Main Models and Approaches

Abstract

The growing trend for globalization of the markets changes the way companies organize themselves and their way of acting and impels companies to consider the development of their activities in the international trade. With the recent economic crisis, the internationalization has become critical to the economy development.

Considering that internationalization is part of the company's growth strategy, existing literature on firm internationalization approaches and models is reviewed in order to develop a theoretical framework used for researching the topic. As a literature review study, the study is limited in its practical implications. However, it presents a very useful research systematization for future research studies.

Keywords: Internationalization, Internationalization Models, Strategy, Internationalization concept.

2.1. Introduction

The growing trend towards globalization of markets modifies the way companies are organized and operate by impelling them to consider the development of their strategy on a global scale. To achieve this, the company will have to undergo an internationalization process that may occur in several ways, which implies changes at the company's internal organization level, and requires a thorough knowledge of the market's functioning (Freeman and Cavusgil, 2007; Chetty and Campbell-Hunt, 2004; Clark et al., 1997). Knowledge must soon begin to be developed in the country of origin, so that it can later be used to overcome the difficulties that may arise (Cuervo-Cazurra, 2011), in the search for new markets (Câmara and Simões, 2007).

In this context, it is intended from a broad literature review to systematize the research and characterize the main theoretical approaches and the main internationalization models (IM) used by companies in this process.

Although the literature highlights some of the IM approaches (Oyson and Whittaker, 2010), namely the U-Model and the I-Model, for their explanatory value and repeated empirical validation (Bartlett and Ghoshal, 1991), we assume that there is no standard internationalization model. Therefore, each company is given the possibility of adopting the IM that best reflects its capabilities and needs.

Considering this assumption, and the intrinsic and extrinsic characteristics of the companies, with this work we expect to contribute to the research by presenting a systematization that can be used by other researchers who wish to develop empirical studies on this subject.

In structural terms, after this brief introduction, the concept of internationalization is addressed. The following section presents the main theories used in research on the internationalization process. In section 4, the different IMs are presented and characterized. Finally, the conclusions are drawn and lines for future research are suggested.

2.2. Literature Review

2.2.1. The Internationalization

There have been many definitions of internationalization presented in the literature, most of them underpinning the company's strategic orientation. The internationalization of a company consists in the extension of its strategies of products-markets to other countries, from which results a total or partial replica of its operational chain (Freire, 1997). The company increases its level of activities outside the country of origin (Meyer, 1996), by

adapting its operations (strategy, structure, resources) to international environments (Calof and Beamish, 1995). This involvement is based on dimensions such as market, product, time and performance (Welch and Luostarinen, 1988; Ruzzier et al., 2006).
Nevertheless, internationalization cannot be seen only as a process of "increasing progression", it must also be seen as contemplating some setbacks. Ultimately, the company may choose to "de-internationalize". It can stop working a product, or give up foreign direct investment, and instead refocus on export, reducing or even ceasing its international activities (Chetty and Campbell-Hunt, 2003).

Analyzing the different definitions of internationalization, Simões (1997) notes that these are essentially based on two dichotomies: the micro/macro opposition, which confronts the national economy with that of the company; and the inward/outward polarization, which counteracts operations "from the inside out" (exports, overseas licensing, investment abroad) with operations "from the outside to the inside" (imports, foreign technology acquisitions and foreign investment).
It can be verified that companies almost always start their internationalization process when they have already begun an export phase. Usually, the company starts the international expansion in countries that are relatively similar to its and gradually expands to different countries (Pogrebnyakov and Maitland, 2011).
In summary, the internationalization process is considered to be based on three fundamental paradigms (Santos, 1997): (1) it is necessary for the company to acquire competences in the country of origin's market to guarantee an international competitiveness dimension; (2) the internationalization process is almost always started in exports and it is defined as being sequential, ordered and slow, based on the product's lifecycle, and finally (3) when the company reaches multinational status, it faces almost always new strategic problems, namely the choice between global integration or the local adaptation of its activities.

2.2.2. Theoretical Approaches

The research on the companies' internationalization strategy has, over time, resorted to several theoretical approaches which are summarized below.

2.2.2.1. Contingencial Theory

The IM adopted by a company portrays, in a certain way, its "personality", because it reflects its structure, its characteristics, as well as its managers' personality. Thus, Reid and Smith

(2000) state that it is the contingencies that create the appropriate conditions to determine the company's structure.

The theory of contingency developed with organizational theory (Woodwart, 1965) claims that there is no unique nor universal organizational structure for each organization (Reid and Smith, 2000). There are numerous organizational configurations or strategic options depending on the environmental and organizational context (Ginsberg and Venkatraman, 1985). The adoption of a structure and its modification occurs in close relation with the organization's internal and external characteristics (Otley, 1980 and Chenhall, 2003). Some studies even contend that the impact of technology and the environment are the factors that influence the most the organizational structure (Burns and Stalker, 1961), among other contingency variables such as size, strategy and culture (Chenhall, 2003).

2.2.2.2. Institutional Theory

The evolution of institutions has naturally an impact on them, namely at the level of actions, as well as restrictions on organisational activity (Washington and Patterson, 2011). From the institutional perspective, organizations can be influenced by various pressures resulting from the external environment or the internal organisational factors. The institutional theory provides an understanding of corporate behavior towards external pressures (DiMaggio and Powell, 1983). Greenwood et al. (2008) describe an institution "where repetitive social behavior is supported by normative systems and cognitive knowledge that in turn assign meaning to social changes and hence allow the self-reproduction of social order". From this perspective, it is understood that the institutional behavior is influenced by the internationalization process.

2.2.2.3. Theory of Networks

A network encompasses a set of two or more institutions, allowing interconnected exchanges (Axelsson and Easton, 1992) and it also includes the exchange of resources between its different members (Sharma, 1993). Therefore, companies develop relationships that allow them to access resources and sell their products and services (Johanson and Mattsson, 1988) and thus achieve higher performance and profitability (Smith et al., 1995; Gulati et al., 2000). In the theory of networks, companies benefit from mutual flexibility, the opportunity to use a set of technical and economic knowledge and even the collective assumption of costs and risks (Bachmann,1999).

The network represents a great instrument that supports the internationalization process, it has a great impact on the choice of market, as well as the IM that the company will adopt (Johanson and Vahlne, 2009). This theory assumes that the internationalization is a process that establishes relationships that can be maintained, developed or cut, according to the company's goals (Johanson and Mattsson, 1988). Sharma and Johanson (1987) state that the relationships established in a network can create the opportunity and motivation required for the company to internationalize. It is in this sense that this theory is simultaneously considered a theoretical approach and an IM.

2.2.2.4 Theory of Internalization

To establish a specific model, the most adaptive theoretical basis is the theory of internalization (Rugman,1981; Hennart,1982). This theory is often associated with the transaction costs of Coase (1937) and Williamson (1971, 1975). According to this theory, companies internally perform the operations that the market completes less efficiently. The central idea of this approach is thus based on the market's imperfections, i.e. companies take advantage of the opportunities generated by imperfect markets. When the operations' internalization is beyond borders, an internationalization process begins, fundamentally through the constitution of multinationals.

This theory was therefore originally used to explain the companies' choice between resorting to the market or integrating transactions (Hennart and Park, 1993). Hence, it is understood that the company internalizes the operations until these operations' transaction costs become higher than those resulting from their integration. The company simultaneously grows and evolves, internalizing markets while the internalization benefits outweigh its costs.

2.2.3. Internationalization Models

There are several ways of entry into a foreign country, through exports, contracts (licensing, franchising, management contracts, turnkey contracts, subcontracting, production sharing and strategic alliances) and foreign direct investment (Anderson and Gatignons, 1986; Hill et al., 1990). Each way has specific consequences at the operations' control level, resources' commitment and risks' spreading (Hill et al., 1990).

We will present synthetically each of the IM identified in the literature.

2.2.3.1. U-Model

This model considers that the internationalization, through exports and direct investments, is a consequence of the company's growth (Carlson, 1975) and that the knowledge, initially accumulated by the company in the internationalization process, is tacit, that is, dependent on the company and difficult to transfer outwards. This IM allows a dynamic view of the company's international expansion (Johanson and Vahlne, 1977). Here, learning is a central concept that reveals itself in two ways: (1) over time, the company expands itself to new markets and (2) it becomes more committed to the markets in which it is already inserted. Hence, the internationalization process develops incrementally, or gradually, due to the uncertainties and imperfections of the information received from the new market.

In this IM, the output of a set of initial decisions is transformed into the input of the following (Johanson and Vahlne, 1977), which leads to the identification of new opportunities (Johanson and Vahlne, 2003). The difficulty may later lie in the information flow between the company and the market, due mainly to distance, language, culture, political systems, education systems, among others (Johanson and Wiedersheim-Paul, 1975).

Initially, companies tend to establish relationships with "psychologically" closer countries, gradually expanding to psychologically and geographically more distant regions as they gain experience. The incremental model, thus, explains that the managers' lack of knowledge about markets and their risk aversion may condition the selection of countries for the company's expansion (Johanson and Vahlne, 1977, 1990, Hadjikhani and Johanson, 2002) and these factors are a constraint to the decision process (Cyert and March, 1963). The company gradually increases its commitment in external markets as its knowledge on these markets grows, mainly through the experience gained from sporadic exports (Penrose, 1959).

The U-Model proposes the internationalization through a "gradual extension of operations", following a progressive and incremental logic, involving a sequence of four distinct stages that Johanson and Wiedersheim-Paul (1975) denominate chain of establishment: (i) sporadic exports that allow the company a first contact with the market without the commitment of resources, but with the disadvantage of the information received being reduced; (ii) exports through an agent, allowing a greater knowledge of the market, nevertheless requiring a greater commitment of resources; (iii) the establishment of a commercial subsidiary, which allows the company direct control of the information channel, though it has the disadvantage of representing an increase in costs and risks; (iv) the establishment of a productive subsidiary, the phase that requires the highest level of commitment of resources, considering the four stages.

2.2.3.2. I-Model

The I-Model assumes itself as an I-M, where each step is considered an innovation (Rogers, 1962; Andersen, 1993, Bilkey and Teaser, 1977, Cavusgil, 1980 and Reid, 1981), which allows an incremental development. Companies begin to internationalize by submitting an export application, then they export regularly to a psychologically closer country, and finally they export to other countries that are psychologically more distant (Bilkey and Tesar, 1977). The different stages of the I-Model are related to the export rate, which in turn is proportional to the company's revenue (Lin, 2012).

Leonidou and Katsikeas (1996) identify three distinct phases in the I-Model development: (1) the pre-export phase, where the interests are only in the domestic market, although the company seeks information and assesses the exports' viability; (2) the "rail" phase of exports, in which the company begins to export irregularly, and acquires the potential to extend its activities to foreign markets; and, finally, (3) when the company reaches an advanced stage of exports, that is, when the company regularly exports with extensive experience to foreign markets and designs other forms of commitment to international markets.

2.2.3.4. Born Globals

Born Globals are companies that, since their inception, follow the vision of becoming global (Knight and Cavusgil, 1996; Bell, 1995; Gabrielsson and Kirpalani, 2004) and often rapidly globalise without any period of domestic activity (Gabrielsson and Kirpalani, 2004). To Knight and Cavusgil (1996), Born Globals are small, technology-oriented companies which start operating in the international markets as soon as they are created, evidencing an accelerated internationalization, with sales to the foreign market reaching over 25% of the total, in the first three years of the company's life.

The Born Globals model proposes that the advances in technology of information and globalisation facilitate companies to acquire knowledge and its application in all countries (Chetty and Campbell-Hunt, 2004). Most of this type of companies usually begins with countries that are naturally similar to the country of origin (Chetty and Campbell-Hunt, 2004; Freeman and Cavusgil, 2007).

2.2.3.5. The Lifecycle of the Product

The product's lifecycle model was developed by Vernon (1966) and is based on the paradigm of the market's imperfection. When the company discovers an innovation in the market, it

seeks to extend the product's lifecycle by starting to expand to countries where the demand for this product can be developed. This expansion occurs through export and can be developed until the implementation of subsidiaries.

Vernon (1966) states that the countries with higher incomes and high labor costs tend to be the most competitive internally and externally. Hence, the second stage of the product's lifecycle starts in its sale to other countries, and it is boosted by the competitive advantage derived from innovation and benefits, resulting from lower costs and greater production know-how. The creation of a subsidiary in an external market can strategically help meeting the need to reduce costs with savings in materials and services involved in the product's production and marketing, but it may also represent a way of avoiding any potential commercial barriers imposed by importing countries, making it a viable alternative, more profitable than the mere products' export (Vernon, 1966).

2.2.3.6. Non-Sequential Model

The non-sequential model addresses an analysis of the two main factors influencing the choice of entry and maintenance ways in the external markets: market specific knowledge and comprehensive knowledge of how to operate in international markets (Clark et al., 1997). This model thus emerges as a counterpart to U-Model, in which the internationalization process is developed over time in stages.

The company can develop its operations "at home", where it develops knowledge which will be useful to overcome the difficulties of external expansion (Cuervo-Cazurra, 2011). As a result, it can strategically begin the internationalization in a non-sequential way and opt for countries which are very different from the country of origin. Clark et al. (1997) concluded that a company can internationalize through a sequential path or simply through skipping steps, changing directly, for example from export to direct investment.

2.2.3.7. Pre-Export Activities Model

The Pre-Export Activities Model was developed by Wiedersheim-Paul, Olson and Welch (1978) and addresses the company's pre-export role by analyzing the influence of the factors that lead the company to export. According to these authors, the factors are: i) the decision-maker's characteristics; ii) the company's domestic context and location; iii) the company's characteristics; iv) the factors that attract or stimulate the attention; and v) the information activities for pre-export.

In short, this model considers that the company's behavior is hence affected by the manager's characteristics (decision-maker), the company's environment and location and the company's characteristics. Therefore, the model is defined by incremental, sequential and non-linear stages, where the acquired experience in the domestic market (national context) justifies the IM adopted.

2.2.3.8. Integrated Model

The integrated model is based on the recognition of different possible trajectories for the internationalization process. MacNaughton, Young and Crick (2003) developed this model considering that the process is not necessarily sequential. Therefore, these authors contemplated the possible stages of internationalization of small companies, considering traditional, born global and born-again global companies. They concluded that the integrated model is influenced both by internal and external aspects and even by the individual competences of the people that constitute the organization, which allows to guarantee the process' flexibility.
This model considers the knowledge's intensity in a company, that is, the more important the knowledge for the activities development, the faster the internationalization process becomes. This model also considers that the internationalization process is neither linear nor unidirectional, with advances and setbacks. Consequently, it resorts to the "internationalization" concept, rather than the "stage" concept of the internationalization process (Bell et al., 2003).

To conclude this point, in Table 2.1. we present a summary of the key characteristics of the main IM identified in the literature review.

Table 2.1. Main characteristics of the Internationalization Models

MODELS	CHARACTERISTICS / STUDIES
U-Model	- Exports and direct investments (Hilal and Hemais, 2003). - First, they expand to psychologically closer countries (Johanson and Wiedersheim-Paul, 1975). - Gradual and Incremental extension (Johanson and Vahlne, 1997). - External aspects are ignored as conditions of competitiveness, market potential (Pedersen, 1999). - Focuses on market specific knowledge (Clark et al., 1997).
I-Model	- Exports considered as an innovative process: Innovation Factor (Rogers, 1962; Andersen, 1993). - Steps: 1st Unsolicited export 2nd Export to geographically closest countries 3rd Export to geographically more distant countries (Bilkey and Tesar, 1977).
Born Globals	- Sales to the external market exceed 25% of the revenue in the first three years of the company's life (Knight and Cavusgil, 1996). - Companies of small size but with great technological orientation (Bell, 1975; Knight and Cavusgil, 1996).
Product's lifecycle	- Discovery of a market innovation, where a company already exists and is intended to extend the product's lifecycle (Vermon, 1966). - Starts the expansion in countries whose demand for the product can be developed. Steps: from simple export to the implementation of subsidiaries. - Creation of subsidiaries in an external market, not only with the aim of reducing costs, but as a strategy to avoid trade barriers of importing countries.
Non-Sequential Model	- It starts the exports' knowledge "at home", developing knowledge to overcome difficulties (Cuervo-Cazurra, 2011). - Non-sequential internationalization and it operates in countries very different from the country of origin. - Companies that both export, invest in markets and, after an "interregnum", decide to re-export, even in markets where they have invested (Non-sequential).
Pre-Export Activities Model	- Internationalization by incremental, sequential and non-linear stages (Wiedersheim-Paul *et al.*, 1978). - They approach the company's pre-exporting role to export (manager's characteristics (decision-maker), the company's surroundings and location and the company's characteristics).
Integrated Model	- Internationalization by state, variable, non-sequential and flexible (Bell et al., 2003). - It considers unique characteristics of three types of SMEs, which through decisions can evolve through three types of internationalization. - It is based on variable and flexible trajectories in order to propose a model as a reference and strategic tool. - It values the knowledge's intensity that associated with internationalization form two axes, variables that end up guiding the model.
Network Theory	- Set of two or more institutions, allowing interconnected exchanges (Axelsson and Easton, 1992). - It involves the exchange of resources between the institutions (Sharma, 1993). - Mutual flexibility of institutions (Bachmann, 1999). - Cooperation: the opportunity to use a set of technical and economic knowledge (Bachmann, 1999). - Collective assumption of costs and risks (Bachmann, 1999).

2.3. Conclusions

The purpose of this research was to gain a better understanding of the internationalization process of firms, particularly the application and usefulness of the main theories. The literature review allows us to conclude that the internationalization process is mainly a strategic decision. It can occur in many ways and it is influenced by several factors. On the other hand, the company's behavior is influenced by the internationalization process (Greenwood et al., 2008), where knowledge is gradually being sustained and it allows to evaluate the transition to the next phase, i.e., the creation of subsidiaries (commercial and productive). The increase in international experience reduces the risk and progressively strengthens the commitment of resources with internationalization, which clearly represents the institutional theory position.

As we have seen, there are several models that allow the companies' internationalization. Nonetheless, each model has its own defining characteristics, which translate into specific consequences for the company, both in the operations' control level and at the commitment of resources and even at the risks dissemination level (Hill et al., 1990). Many research studies still need to be developed to analyze the IM impact on the company's internal structure.

As a literature review, the study is limited in its practical implications. However, and assuming that the internationalization process implies several changes in the company's internal organization, mainly in the operational planning level, in the future we propose to develop some case studies in order to understand if the existing IM conditions or is conditioned by the organisational structure, that is, if there is a relation between the IM and the changes that occur in the company's internal information systems and management.

3. Control Systems and Strategy: A Literature Review

Abstract

Organizational change necessarily requires an adaptation of the company's information structure, namely of the Management Accounting and Control Systems (MACSs). These systems should be designed according to the defined strategies and in order to assist managers in the decision-making process. This chapter reviews research that analyze the MACSs concept and the elements that characterize it, so authors can be able to identify and characterize the existing system in any company.

Based on a contingency approach to management, the authors perform a broad literature review. Among other aspects, MACS information outputs will be analyzed in terms of the style of use, its nature and the type of decision supported. In an attempt to broaden the scope of MACS functions, the chapter reviews literature and provides a theoretical framework for studying the operationalization of MACS.

The results obtained indicate that, to operationalize the MACS concept, we can resort to the way the information used is managed and characterized, establishing three categories and six different dimensions.

Theoretically, this framework allows us to characterize the existing MACS and to analyze its impact on the company's strategy. The authors concluded that knowledge on the relationship between MCAS and strategy is limited, providing considerable scope for further research. In the future, they intend to develop some case studies to analyze the impact of this framework on the companies' internationalization strategy.

Keywords: Management Accounting and Control Systems; Accounting Information System; Organizational Change; Strategy; Operationalization of Concepts.

3.1. Introduction

As the company evolves, whether in terms of products/services diversity or in terms of the expansion into new markets, the information needs tend to adapt and hence they change. The company must be prepared for this change and its Management Accounting and Control Systems (MACSs) will inevitably suffer mutations.

The design of a MACS is thus fundamental to provide managers with the required information, that enables them to evaluate the strategy's implementation and to operate the necessary adjustments to achieve the organization's goals Therefore, the MACS emerges as an information provider, according to its users' needs, being a fundamental tool in helping the decision-making process.

On the other hand, some recent literature has emphasized that both strategy and MACSs evolve over time through an intertwined dynamic, i.e., they influence each other and change together (Coller, Frigoto and Costa, 2018). It is in this perspective that, with this work and from a broad literature review, we intend to analyze the evolution of MACS concept and to identify elements that allow to characterize its relation with the company's strategy. We aim to create a conceptual framework that enables us to identify and characterize the existing system in a company and its connection to the strategy.

Usually, research studies on management control systems do not investigate a MACS in its entirely but instead examine one or few aspects (Chenhall, 2003). In this study we sought to use a more comprehensive view of MACS.

Currently, one of the research themes of interest in contemporary MACS research investigates the relationship between strategy and management control systems (Shields, 2015). This study fits into this line of research.

In terms of structure, this work begins by approaching the MACS concept. Next, some differentiating characteristics are analyzed, which are related to: the style of use of the information provided by the MACS; the nature of the information provided by the MACS and the type of decision supported by the MACS. These are the features which allow us to create a theoretical framework that can be used to characterize MACSs. Finally, some final considerations are drawn, followed by clues suggested for future research.

3.2. Literature Review

3.2.1. Theoretical Approaches

The research on the companies' organizational change has, over time, resorted to several theoretical approaches. In our study we highlight the Contingency Theory.

This theory developed with organizational theory (Woodwart, 1965) claims that there is no unique nor universal organizational structure for each organization (Reid and Smith, 2000). There are numerous organizational configurations or strategic options depending on the environmental and organizational context (Ginsberg and Venkatraman, 1985). The adoption of a structure, specially an information structure and its modification occurs in close relation with the organization's internal and external characteristics (Otley, 1980 and Chenhall, 2003), and depends on the need to obtain information, useful for the decision-making process.

3.2.2. Management Accounting and Control Systems

It is not easy to find a consensual definition of Management Control Systems (Fisher, 1998; Merchant and Otley, 2006), Management Accounting Systems, or even Organisational Control in the literature, since these terms have been both used synonymously (Chenhall, 2003), as they are defined quite differently (Abernethy and Chua, 1996; Alvesson and Karreman, 2004; Anthony, 1965; Chenhall, 2003; Emmanuel et al., 1990; Fisher, 1998; Langfield-Smith, 1997; Malmi and Brown, 2008; Merchant and Van der Stede, 2007; Simons, 1995).

The predominant definition presents the management control systems of organizations as a set of different forms of control, which are in permanent interaction with each other (Teittinen et al., 2013). "Managers implement controls, or sets of controls, to help attain these results and to protect against the threats to the achievement of good performance" (Merchant and Otley, 2006, p. 785).

According to Chenhall (2003), Management Accounting can be seen as a set of practices, such as budget or products cost. We face management accounting systems when we refer to a systematic use of management accounting to achieve a goal.

In turn, management control systems have a broader scope, involving management accounting systems and other controls, such as personal and top management controls. They are considered passive tools which provide the necessary information to assist managers in the decision-making process.

Some authors (Malmi and Brown, 2008; Merchant and Otley, 2006) consider that there are broader control concepts which can include variables such as strategic development, strategic control and learning processes, clearly exceeding the traditional scope of management accounting. Therefore, the Management Control System has great relevance for the organization, being a tool capable of aligning the company's processes so that the objectives

and goals are achieved. “In broad terms, a management control system is designed to help an organization adapt to the environment in which it is set and to deliver the key results desired by stakeholder groups, most frequently concentrating upon shareholders in commercial enterprises” (Merchant and Otley, 2006, p.785).

In order to privilege the Management Control Systems without neglecting the role of accounting or, better, Management Accounting Systems will, like other authors (Macintosh and Quattrone, 2010), use the concept of Management Accounting and Control Systems - MACSs. The idea of a management control system that integrates accounting and management control started being designed by Lowe in 1971. This integration intended to ensure that the company’s actions were aligned with its plans and goals and that the management decisions were fed from a single information system, regardless of the decision-maker’s functional area (Lowe, 1971).

It is thus assumed that the MACSs are structures which use information derived from the management accounting to support the decision-making and to achieve the company’s strategic goals (Chenhall, 2003) and they simultaneously include controls, personal and top management, and their performance depends on the company’s structure.

3.2.3. Information use and MACS design

One of the most referenced classifications in the literature, when we approach the type of information that derives from the MACSs, is the one that establishes the distinction between traditional systems – Narrow Scope, and contemporary systems – Broad Scope (Chenhal and Morris, 1986; Abernethy and Guthrie, 1994; Chong and Chong, 1997, Bouwens and Abernethy, 2000; Gerdin, 2005).

The difference between them lies essentially in the fact that the contemporary systems (Broad Scope) allow the widening or broadening of the type of information that the Narrow Scope provides, mainly through the incorporation of non-financial (intangible) items of information, prospective information (and not only historical) and also the inclusion of external information items (demographic factors, consumer preferences, competition, etc.), providing information of these variables in more detail, that is, intensifying their reporting rate (Novas et al., 2012; Ittner and Larcker, 1995).

In recent years, the classification of this MACS has undertaken greater emphasis, motivated by the use of management accounting tools, such as the activity-based costing system or the Balanced Scorecard, and by the research on “Management Accounting Change”. In this context, the MACSs stand out as an important information source, assisting in the decision-

making process (Wickramasinghe and Alawattage, 2007). The way in which an MACS is actually implemented in an organization is central to its success (Chenhall and Euske, 2007).
For operational reasons and similarly to other works (Novas, Alves and Sousa, 2017), MACS is considered a multidimensional concept and its various dimensions are grouped into three categories: (1) Style of use of the information provided by the MACS; (2) Nature of the information provided by the MACS; (3) Type of decision supported by the MACS.
In this research line the study clearly assumes a conception of MACS as non-typified instruments (Novas et al., 2012). Each organization presents a MACS with unique characteristics inherent to its specificity. On the other hand, the structuring of various dimensions in the three mentioned categories considers the presence of a dynamic tension (Agbejule, 2006; Bisbe and Otley, 2004; Henri, 2006) that results from the existence of possible complementarities between the inherent dimensions.
Each of these categories will then be analyzed.

3.2.3.1. The style of use of the information

The possibility of structuring the MACSs in dimensions is relevant for the management accounting research. According to Moores and Yuen (2001), the different MACSs dimensions can provide users with relevant information.
Simons (1991) established two distinct styles in the MACS use: the interactive style and the diagnostic style. Since then, many authors have been applying this categorization in their works (Abernethy and Brownell, 1999; Hartmann and Vaassen, 2003; Lukka and Granlund, 2003; Ahrens and Chapman, 2004; Bisbe and Otley, 2004; Thorén and Brown, 2004; Agbejule, 2006; Henri, 2006; Naranjo-Gil and Álvarez-Dardet, 2006; Naranjo-Gil and Hartmann, 2006, 2007).
Simons (1991) describes an interactive system as one in which the top manager reports on the use of the system personally, regularly and often as a priority, both for himself and his subordinates. This system is used when there are regular interconnection meetings with subordinates to review data and results of the action plans. On the other hand, a system is classified as being diagnostic if the top manager only reports a small personal involvement with the MACS, delegating the subsystem operations to staff or lower level managers, and relying on others to report and notifying him when his attention is required.
Later, Simons (1995), in his book *Levers of Control*, extended the notions of MACSs of the interactive and diagnostic type. The diagnostic type control systems correspond to the formal systems that the managers use to control results and correct deviations, regarding the

established performance goals. They are limited systems, in what the search for innovative solutions and opportunity identification concerns. Attentions are essentially directed at the performance variables. They are characterized by the ability to assess outputs and by the existence of measures that allow comparison. Similarly, to the traditional management control systems, they provide corrective measures for deviations. There is little intervention of those responsible, given the performance control features which allow that "absence".

On the other hand, the interactive-type systems foster innovation, learning and the search for solutions, which triggers new strategies, as their participants interact and respond to the opportunities and threats that arise (Novas et al., 2012).

Though, these two types of systems do not have a rigid configuration. Simons (1994) states that it is then perceptible that the same system can be classified as interactive in a company and in another it can be considered as diagnostic. On the other hand, it is necessary to understand that an interactive system in a company can be used in a non-interactive way, depending on a set of contextual factors that may be pondered (Simons, 1995).

3.2.3.2. The nature of information

We must consider that the information derived from the MACSs is not all the same. This information may be provided in different formats and with different aggregation and integration levels (Chenhall and Morris, 1986; Chia, 1995; Bouwens and Abernethy, 2000; Moores and Yuen, 2001). Moores and Yuen (2001) analyzed the information's integration and aggregation levels provided by the MACS and the company's lifecycle and they concluded that these integration and aggregation levels tend to take a simpler form in the early stages of the company's life. As the company evolves, the information needs tend to be adapted and hence they change, and the information becomes tendentially more aggregated and integrated, compared to the company's initial stage. The integration of information and aggregation features are thus viewed in a contingent way to the company's lifecycle.

Bouwens and Abernethy (2000) believe that the information aggregation corresponds to a processing in the information time which is relevant to the various organizational reality domains. In turn, the information integration provides the coordination means in and between the organization units, therefore becoming fundamentally relevant in decentralized structures, both at the decision-making process level and in terms of control (Chia, 1995).

Chenhall (2003) emphasizes that systems based on information integration are systems that, on the one hand, allow to understand the cause-effect relationships between the operational structure and strategy (and the strategic goals) and, on the other hand, include a

measurement component associated to the provision of several measures that relate to essentially financial aspects. They are systems that seek to integrate the operational side to the strategic side, integration that the MACSs do not normally provide.

3.2.3.3. The type of decision

The use of the MACSs as an element of the organizational structure containing vital information to support the decision-making process is increasingly recognized in the literature (Naranjo-Gil and Hartmann, 2006; Abernethy et al., 2007; and Anderson and Widener, 2007). The type of decision supported by the MACSs focuses essentially on two axes: the support in resource management decisions and the Performance evaluation and control (Novas et al., 2012).

Naranjo-Gil and Hartmann (2006) define the resource management role as the monetary and non-monetary resources distribution by the organization's different decentralized units, in order to instill in the managers accountability for the management and accomplishment of their activities. Hence, all the information is provided to allow an appropriate resources distribution, and, in uncertainty situations, the availability of better information will obviously result in a better resources application (Baines and Langfield-Smith, 2003). Regarding performance assessment, Silvi (2012) argues that it includes issues of monitoring and control of the organizational goals and of the performance of those responsible and their organizational units. It thus focuses essentially on how performance can be improved through the use of the MACSs for monitoring and control purposes (Naranjo-Gil and Hartmann, 2006).

Although the MACS is viewed as a prerequisite for an efficient decision-making process, not only in resource management but also in performance assessment, it is not perfect. That is, no system can provide all the information and capture the performance of an organizational unit or an organization in its entirety, even though because many performance dimensions are not susceptible to measurement (Ouchi, 1979).

Many studies (Otley 2001; Naranjo-Gil and Hartmam, 2006, 2007; Reck, 2001; Chenhall, 2008) show that a decision context of greater uncertainty requires a wider set of information than that provided traditionally by financial measures. In this context, non-financial measures assume an important role in the decision-making process. Although they present less rigor, and therefore it is difficult to assess their importance, they are the most appropriate in cases of uncertainty, since they evidence certain problems, management processes and

organizational routines, that financial measures do not show (Vaivio, 1999), thus providing greater scope to the decision-making process.

The MACS characteristics may vary over time and the importance of a given dimension or a configuration of dimensions may vary in a particular context (Bouwens and Abemethy (2000).

So, in order to systematize the ideas presented above, in Table 2 we present the theoretical framework with the various dimensions that compose the system, as well as its main characteristics. The different MACS dimensions can be considered distinct conceptually, though they may overlap at a given moment. The importance of a given dimension may vary in a particular context (Bouwens and Abernethy, 2000) and/or even in the organization's lifecycle (Moores and Yuen, 2001). Each dimension of the MACS, where like in other studies (Novas et al., 2017; Simons, 1991), give us a comprehensive view of the MACS is adopted.

Accordingly, it is considered that MACSs vary according to three dimensions: (1) the style of use of the information provided, which can be diagnostic or interactive. This classification is widely reported in the literature; (2) nature of information provided, which can assume different levels of aggregation and integration, and, lastly, (3) the type of decision supported, considering the existence of performance evaluation decisions and resources allocation decisions.

Table 3.1. Theoretical framework

MACS Dimensions		CHARACTERISTICS / STUDIES
Style of utilization	Diagnostic	- The senior manager does not report his involvement with others, he delegates the subsystem operations to lower level managers and he only consults others to inform them when his intervention in the system is required (Simons, 1991). - They are formal systems that managers use to control results and correct deviations regarding previously established performance goals; they are limited, regarding the search of innovative solutions and in the identification of opportunities, since the attention is essentially payed to performance variables (Simons, 1995). - They are characterized by the ability to evaluate the outputs of the process, by the existence of measures that serve to allow comparison and corrective measures that, in all cases, equate it with the traditional definition of management control (Simons, 1991). - There is few interventions of the person responsible (performance control characteristics allow this "absence"). The managers only focus on the negotiation and determination of goals and evaluation of periodic reports that determine the possible actions (Simons, 1991). - It is autonomous, its participants are free to undertake their actions to determine the established goals, although, at the same time, they are limiting because the analysis of the critical performance variables blocks the search for solutions and opportunities (Simons, 1995). - The use of this system does not allow for debate and ignores potential exchange proposals of those who execute certain tasks (Simons, 1990; Vaivio, 2004).
	Interactive	- The senior manager reports the use of the system personally, regularly and frequently, not only for himself, but also for his subordinates; it is used to define regular meeting schedules of interconnection with direct subordinates and others, in order to review data and results of action plan (Simons, 1991), - The information is important for the highest levels of management (2) the process requires frequent and regular attention at all levels of management (3) the data are interpreted and discussed in face-to-face meetings with superiors and subordinates (4) the interactive system implies a continuous debate and reflection on the data, strategies and action plans (Simons, 1995). - They encourage innovation, learning and the search for new solutions, which trigger the emergence of new strategies, as their participants interact and respond to emerging opportunities and threats (Novas et al., 2012) - It allows simultaneously the creation of a best practices codification system, in order to stabilize and diffuse the organization's abilities (Novas et al., 2012). - It has a less restricted, more superficial and, at the same time more informal control, focused on communication and cooperation, which allow information to flow and promote debate and dialogue within the organization itself, thus constituting the fundamental mechanisms for knowledge creation and integration (Agbejule, 2006),
Nature of the information	Aggregated	- Aggregation of information that is processed over time and which is relatively relevant to the various domains of organizational reality (Bouwens & Abernethy, 2000). - It allows the processing of a large volume of information, within a certain period of time (Bouwens & Abernethy, 2000).
	Integrated	- Their goal is to provide the means of coordination in and between the units of the organization, becoming fundamentally relevant in decentralized structures for both the decision-making process and in terms of control (Chia, 1995). - They allow to understand the cause-effect relationships between the operational structure and the strategy and the goals and among other aspects such as customers, suppliers..., and, on the other hand, they include a measurement component related to the provision of various measures that are related to financial aspects (customers, organizational processes, innovation) (Chenhall, 2005a). - They integrate the operational side with the strategic one, which, as a rule, management accounting systems do not provide (Chenhall, 2005a). - They allow a broad and complete view of the set and means of coordination between the different organizational units (Chia, 1995).
Type of decision	Performance evaluation	- It is related to aspects of monitoring and controlling of the organizational goals, of the managers' performance, and of the organizational units which they run (Silvi, 2012). - It focuses essentially on the way performance can be improved (Novas et al., 2012), using the Management Accounting Systems for monitoring and control (Naranjo- Gil & Hartmann, 2006).
	Resources management	- It is related to management and distribution of monetary and non-monetary resources by the different decentralized units of the organization in order to instill in managers the responsibility in the management and execution of their activities (Naranjo- Gil and Hartmann, 2006). - All the information is converted into the appropriate distribution of resources and, in situations of uncertainty and instability, the availability of better information will obviously result in a better application of resources (Baines & Langfield- Smith, 2003). - It corresponds to the use of management accounting systems for planning and coordination (Novas *et al.*, 2012).

3.3. Conclusions

This chapter reviews the different dimensions of MACSs, after an analysis of the relevant literature, a theoretical framework has been proposed to guide future researcher with wider insight into MACSs. The results obtained indicate that to operationalize the MACS concept we can resort to three categories and six different dimensions. Theoretically, this conceptual framework allows us to characterize the existing MACS and to analyze its impact on the company's strategy. It allows us to understand how the system becomes an information provider, crucial for the development of the company. The system may be diagnostic and / or interactive. In turn the nature of information may vary between the aggregate and / or integrated form. And all the information that the system provides may be useful for the relative decision-making process, the simple management of resources, as well as for the performance evaluation.

Thus, our chapter contributes to the literature on the MACS-strategy relationship (Coller, Frigoto and Costa, 2018). However, as a literature review, the chapter is limited in its practical implications.

Therefore, and assuming that the MACS development implies several changes in the company's internal organization level, in the future we propose to develop some case studies, in order to understand if the existing MACS conditions it or if it is conditioned by the company's Internationalization strategy.

4. Management Accounting and Control System in the Uppsala Internationalization Process Model - a Case Study

Abstract

This study examines the role of management accounting and management control systems (MACS) in the successful implementation of the Uppsala Internationalization Model (U-Model) and in the improvement of firms' performance. To achieve this, and after a broad literature review, a case study was conducted. Using a dynamic and "inside-out" approach, data was collected through interviews and documental analysis. The internationalization model (IM) of a company and the relationship between MACS and its internationalization strategy (U-Model) were analyzed. This study emphasizes the existence of several roles (passive and active) of MACS and highlights the fact that these systems are used throughout the internationalization process (IP) in differentiated ways. As far as we know, it is the first time the relationship between MACS and a specific internationalization model (U-Model) has been studied. This research helps to increase knowledge in practice, as it helps companies understand how they can adjust their MACS according to their U-Model development phase. Given the growing interest in internationalization, we hope to contribute to improving the knowledge on the relationship between MACS and the IP and its effects on companies' performance. This study points to promising results that justify further studies of this relationship.

Keywords: Internationalization process, management accounting and control systems, performance, Uppsala Model

4.1. Introduction

The growing tendency for markets' globalization modifies the way companies organize and act, inciting them to ponder the development of their activities in international trade. The internationalization process (IP), operationalized through the internationalization model (IM), adopted by a company is seen as part of its growth strategy (Roque et al., 2018$_a$). This process is usually associated with the normal growth of companies, and it is, therefore, a strategic option for those wishing to compete in the global market. Hence, in the context of the current economic crisis, internationalization is fundamental for economic development (Simões, 2011) and for the survival of companies, especially the most technologically developed, which would not be possible if they were limited to small countries (Roque et al., 2019$_a$). This explains the great interest in the study of internationalization and its ways of operationalizing the process.

There are several models of internationalization, and the adoption of a particular model depends on several variables (Roque et al., 2019$_a$). In this process, it is fundamental that companies have structures that facilitate information analysis, control and planning as an essential input for decision-making (Dimitratos et al., 2003) and good performance.

The relationship between strategy and structure has long been addressed. Chandler (1962) studied US largest firms from 1909 to 1959 and found that change in corporate strategy came first and led to changes in an organization's structure. "A new strategy requires a new or at least refashioned structure if the enlarge enterprise was to be operated efficiently" (Chandler, 1962, p. 15). The Management Accounting and Control System (MACS) integrates the organizations' structure and can be defined as tools that managers use to maintain or change patterns in organizational activities and to implement new strategies (Anthony and Govindarajan, 2007; Roque et al., 2020$_a$, 2020$_b$).

Despite the growing interest in the MACS-strategy relationship (Bisbe and Malagueño, 2012; Franco-Santos et al., 2012; García-Álvarez et al., 2019; Gimbert et al., 2010; Gomez-Conde and Lopez-Valeiras, 2018; Gomez-Conde et al., 2019; Lopez-Valeiras et al., 2015; Ramon-Jeronimo et al., 2019), the picture presented in the literature was found to be fragmented (Langfield-Smith, 1997) with an inconsistent conceptualization and operationalization (Otley, 2016; Tucker et al., 2009). Some authors consider that there is little knowledge about the effects of MACS in the strategy implementation (Coller et al., 2018; Frigotto et al., 2013; Skærbæk and Tryggestad, 2010).

On the other hand, very few authors have studied the uses of MACS in the internationalization process (Araujo *et al.*, 2010, 2011; Gomez-Conde and Lopez-Valeiras, 2018; Florez et al., 2012; Vélez et al., 2008, 2014, 2015). According to Gomez-Conde and Lopez-Valeiras (2018), recent empirical research has narrowed the focus to demonstrate a direct and positive influence of MACS on internationalization. However, the role of MACS on internationalization remains to be fully developed (Gomez-Conde and Lopez-Valeiras, 2018). This chapter addresses this gap by analyzing the impact of MACS on the Uppsala Internationalization Model (U-Model), one of the main existing models (Bartlett and Ghoshal, 1991; Oyson and Whittaker, 2010; Roque et al., 2019_a). Additionally, to our knowledge, no empirical study based on this relationship has yet been developed.

Our chapter contributes to the literature on the MACS-strategy relationship (Langfield-Smith, 2007) by proposing to examine the relationship between MACS and the U-Model and providing an inside-out perspective (Chenhall, 2005_b).

Henri (2006), one of the authors who has studied MACS-strategy relationship, suggests two distinct research lines. A first line emphasizes the effects of the strategy in MACS. The authors who follow this line (Chapman, 1997, 1998; Dent, 1987) use a structural and static approach. Besides, they consider that the configuration of MACS results from the implementation of the strategy and represents the last step in the strategic management process. On the other hand, a second line of research emphasizes the effects of MACS in strategy. The studies that follow this line resort to a procedural and dynamic approach (Roque et al., 2020_a, 2020_b). Through this approach it is possible to recognize and study MACS role during the whole strategy implementation process. It is in this second line of research that the present study is inserted.

According to Dent (1990), just a few researchers have sought to extend previous research to embrace relationships between firms' strategies and the design of their MACS. Moreover, empirical studies aimed at understanding management control configurations are relatively scarce (Bedford and Sandelin, 2015). Some authors (Ismail, 2013; Roque et al., 2020_a, 2020_b) have drawn attention to the need for more studies that seek to recognize how MACS can help companies in the implementation of the strategy. Therefore, and using Henri (2006) procedural and dynamic approach, we intend to examine how internationalization, through the internationalization model adopted, is influenced by MACS as a company information system, whereas this relationship between a specific internationalization strategy (U-Model) and MACS has never been studied before.

Thus, the following questions arise: i) How does MACS eased up the implementation of the internationalization strategy; and ii) how does the internationalization strategy implied changes in MACS. And, if this is the case, what changes?

To answer these questions, an inside-out perspective based on a qualitative research approach is used, through the development of an exploratory case study (Yin, 2014) conducted in a Portuguese automobile sector company. Data about the IP and MACS were collected through three interviews, company visits and document analysis, over an interpolated period of five months. We conclude that MACS can facilitate IP implementation, however, this process involves adjustments in MACS.

The rest of this chapter is organized as follows. The next section presents the literature review with an explanation of IP-related concepts, followed by a description of MACS and its role in organizations. The relationship between MACS and IM is also analyzed in this section. Thereafter, we will address the case study methodology. Afterward, empirical results will be presented and discussed. Finally, the chapter ends with a conclusions section, which includes the study contributions and limitations and suggests some avenues for further research.

4.2. Literature Review

4.2.1. The internationalization process

Due to the limitations of domestic markets, increasing globalization or the need to diversify risks (Araujo et al., 2011), internationalization is currently seen as a strategic option for companies that compete globally. This process is assumed to be an extension of strategies to other countries, replicating partially or even fully their operational chain. In this process, the level of activities outside the country of origin is increased (Meyer, 1996) and operations (strategy, structure, and resources) are adapted to international environments (Calof and Beamish, 1995).

The motivations for developing the IP can be very different and even vary in the course of the process. The literature highlights the need to obtain a greater availability of natural resources; the possibility of hiring cheaper labor; the increasing attractiveness of markets (Dunning and Lundan, 2008); the need to follow the internationalization of customers; the need to reduce the dependence on domestic market; the search for new opportunities; the strategy of attacking international competitors in the country of origin; the search for economies of scale; and also the core business maintenance (Raposo et al., 2007).

In the national context, Simões (2011) argues that the main reasons for the internationalization of Portuguese companies are associated with market share increases, their recognition in the international market and, lastly, with the need to seek new resources. The same factors presented in studies outside the national territory.

Singla et al. (2017) argue that both motivation and firm's capability to internationalize are required and significantly influenced by owners' motivation and ability to access resources. Therefore, a critical aspect of internationalization decisions is market entry mode, which typically entails considering the amount of resources to invest, the control level, and the risk that internationalization implies (Kraus et al., 2015). Companies that are internationalized often seek to minimize risks in international expansion by implementing tight control over foreign operations (Brouthers, 2013).

There are several alternatives for companies to develop their IP, such as exports, contractual forms (licensing, franchising, management contracts, turnkey contracts, subcontracting, production sharing, and strategic alliances), and foreign direct investment (FDI) (Anderson and Gatignons, 1986; Hill et al., 1990). The first alternative, export, is today considered a pillar for the survival of many companies (Fink et al., 2008). Before the opening of branches, usually companies go through an export phase and, from there, they extended their activities. In other words, they proceed to the opening of a branch office or a subsidiary when there is already an historical work of conception, production, sales, and marketing at an international level. Usually, the international expansion is initially made for countries similar to the country of origin and is gradually expanded to others (Pogrebnyakov and Maitland, 2011). Hill et al. (1990) consider that, whatever the model adopted for the IP, all of them have specific consequences for the company in terms of operations control, commitment of resources and risks dissemination.

Some authors (Oyson and Whittaker, 2010; Roque et al., 2020_a, 2020_b) suggest that the two dominant approaches about the configuration of the IP are: The *U-Model* developed in the 70s at Uppsala University (Johanson and Vahlne 1977; Johanson and Wiedersheim-Paul, 1975) and the *I-Model* (Bilkey and Tesar, 1977; Cavusgil, 1980), which sees internationalization as an innovation process.

However, there are other models that can be adopted by the company, namely the Born Globals model (Knight and Cavusgil, 1996), the Product's Life Cycle model (Vermon, 1966), the Non-Sequential model (Cuervo-Cazurra, 2011), the Pre-Export Activities model (Wiedersheim-Paul et al., 1978), the Integration model, and the Network Theory model

(Sharma, 1993). In this study, the U-Model is used from the perspective of the establishment chain model (Four-Stage *Model*) proposed by Johanson and Wiedersheim-Paul (1975).

The choice of the U-Model comes from the fact that this is one of the most adopted models in the literature (Oyson and Whittaker, 2010), and because this is the model followed by the studied company, which allowed it over time a sustained, progressive, and incremental evolution of success in the international market. The U-Model explains the companies' IP through a gradual extension of operations (Johanson and Vahlne, 1977), following a progressive and incremental logic. Consequently, this model is composed by a sequence of four different stages (Johanson and Widershein-Paul, 1975). The first stage encompasses sporadic or intermittent export activities that allow the company a first contact without a commitment of resources, but with the disadvantage that the information received is reduced. The second stage encompasses direct exports performed by representatives or partners, allowing a greater knowledge of the market. However, it requires a greater commitment of resources. The third stage is based on the creation of a sales related subsidiary, which allows the company to control directly the information channel; however, it has the disadvantage of representing an increase in costs and risks. Finally, the last stage is based on the implementation of a production unit to increase the market share in the country where the company wishes to internationalize. This stage requires the highest level of commitment of resources.

Thus, the commitment of resources increases as the company moves from one stage to another. The company gradually increases its involvement, as its knowledge about the new markets in which it operates grows, especially that one that is acquired from the experience of sporadic exports (Penrose, 1959).

In an IP, there are surely some difficulties materialized by the differences between the company's country of origin and the destination country, namely language, culture, political systems, education systems, among others (Johanson and Wiedersheim-Paul, 1975). It is well known that firms tend primarily to establish relations with "psychologically" similar countries and gradually expand to psychologically and geographically distant regions as they gain experience. The incremental model of internationalization also explains that the managers' lack of knowledge about foreign markets and their aversion to risk restricts the selection of countries for the company's expansion (Hadjikhani and Johanson, 2002; Johanson and Vahlne, 1977).

4.2.2. Management Accounting and Control System and its role in organizations

The structure of organizations involves all its hierarchical composition (top management and other elements), including how the company is organized (Wang and Ahmed, 2003). MACS are seen as integral elements of the organizational structure itself as they provide useful and essential information for the decision-making process (Anderson and Widener, 2007; Naranjo-Gil and Hartmann, 2006), thus, influencing the company's strategy (Roque et al., 2019_b). Therefore, the control system is explicitly designed to support the organization's strategy (Dent, 1990; Simons, 1987, 1990), since its purpose is to provide useful and valid information for the decision-making process, planning and evaluation (Merchant and Otley, 2006).

The popularity of MACS tools to support strategy has grown in recent years, the interest emanates from the developments of methods such as budgeting, the balanced scorecard (Ferreira, 2017), or activity-based costing. Budgets have always been an integral part of the MACS and recent research shows that they can be used to stimulate creativity and change (Cools et *al.,* 2017); the Balanced scorecard is a technique that started as a relatively straightforward call for greater levels of nonfinancial performance measurement (Saraiva and Alves, 2015); and activity-based costing provides benefits through improved information for strategic and operational decision making (Krumwiede and Charles, 2014).

However, it is not easy to find a consensual definition of management control systems (Fisher, 1998), management accounting systems or even organizational control in the literature (Roque et al., 2018_a, 2018_b), since there are definitions where these terms are used as synonyms (Chenhall, 2003), and other definitions where they have different meanings, separating accounting from control (Abernethy and Chua, 1996; Anthony, 1965; Chenhall, 2003; Langfield-Smith, 1997, 2007; Malmi and Brown, 2008; Merchant and Van-der-Stede, 2007; Ouchi, 1979; Simons, 1995; Strauss et al., 2013).

Throughout this work, the term MACS (management accounting and control systems) will be used in order to favor management control systems and, simultaneously, highlighting the role of management accounting (Macintosh and Quattrone, 2010; Roque et al., 2019_b, 2020_a, 2020b). It is assumed that MACS are structures that systematically use management accounting information to achieve pre-established objectives (Chenhall, 2003) and concurrently include a wide spectrum of control mechanisms, namely personal, top

management, or organizational control (Malmi and Brown, 2008), whose design depends on the organizational structure (Gomes and Salas, 2001).

The design of MACS is critical to provide managers with information that allows them to evaluate the strategy's implementation and the necessary adjustments to achieve the organization's goals (Gomez-Conde et al., 2013_a; Roque et al., 2018_a). These systems involve formal (written and standardized) procedures based on information, protocols and routines used by most companies in order to align their employees' behavior and decisions with the organization's strategic goals (Merchant and Van-der-Stede, 2007). This drawing is helpful, as it helps managers to make decisions, to fulfil their responsibilities, and avoids losing control due to the lack of monitoring (Simons, 1987, 1994).

Inamdar (2012) supports that executives and managers of multi-business companies are increasingly using these systems in order to establish a corporate strategic alignment with the organizational structure and to create synergies through their business units. Hence, MACS emerge as information providers that help the IP. However, some authors who consider that MACS are static systems that only provide information to support strategies' formulation, not their implementation (Cadez and Guilding, 2008), dispute this opinion.

MACS characteristics may change over time and the importance of their dimensions may vary according to the specificities of the context of each organization (Bedford and Sandelin, 2015; Bouwens and Abemethy, 2000). Like in other studies (Roque et al., 2018_b, 2019_b, 2020_a,2020_b; Novas et al., 2017; Simons, 1991), a comprehensive view of MACS is adopted. Accordingly, it is considered that MACS vary according to three dimensions (Roque et al., 2018_a, 2020_a, 2020_b): i) the style of use of the information provided, which can be diagnostic or interactive; ii) the nature of information provided, which can assume different levels of aggregation and integration, and lastly; and iii) the type of decision supported, considering the existence of performance evaluation decisions and resources allocation decisions.

MACS design is considered as if they were non-typified instruments, that is, each system is composed of unique features according to the specific characteristics of its organization and according to the importance or role assigned to each of its dimensions (Roque et al., 2018_b). Thus, the system is assumed as a prerequisite for decision-making, not only in relation to the resources allocation but as a means of performance evaluation (Novas et al., 2012, Roque et al., 2018_a).

4.2.3. The relationship between the internationalization model and MACS

Some studies (Cumming et al., 2017; Puck and Filatotchev, 2020) have related the IP to the study of corporate finance and strategic management. Following this line of research, we relate the IP with the MACS, since accounting literature has given increased attention to the relationship between management accounting systems and strategy (Bedford et al., 2016; Bisbe and Malagueño, 2012; Davila et al., 2015; Franco-Santos et al., 2012; García-Álvarez et al., 2019; Gimbert et al., 2010; Gomez-Conde and Lopez-Valeiras, 2018; Gomez-Conde et al., 2019; Langfield-Smith, 2007; Lin et al., 2017; Lopez-Valeiras et al., 2015; Ramon-Jeronimo et al., 2019). This literature has focused on different strategic frameworks, such as strategy process (Mintzberg and Waters, 1985) and strategy typologies (Miles and Snow, 1978). As suggested by Frezatti et al. (2011), the main contribution to this literature is to show which management accounting attributes seem to be more adequate for different strategic planning profiles, and different IMs.

In this line of research, several studies (Dent, 1990; Simons, 1987, 1990) suggest that MACS should be explicitly adapted to support a strategy, achieve advantage, and improve performance. Thus, the role of MACS is recognized in strategy formulation, as well as during the development of the strategic management process (Henri, 2006), and focuses on issues such as dialogue and interaction (Chapman, 1997). Otley (2016) argues that MACS is continually changing and developing, which increases interest in research that study these changes over time and that explain the mechanisms for such implementation. Recently, Samagaio et al. (2017) studied the adoption of these systems by high-tech start-ups to evaluate the impact of internal and external contingency factors on MACS use. Environmental heterogeneity has been considered as an external factor, while business strategy and structure decentralization are seen as internal factors. Additionally, Samagaio et al. (2017) argue that these situational factors can have different effects on the use of MACS.

4.3. Conceptual structure – Relationship and implications IM-MACS

As we have seen, the U-Model is composed by a sequence of four phases and is supported by a diagnostic use of MACS, in the first and second phases, according to the establishment chain (Johanson and Wiedersheim-Paul, 1975); that is, in the phase of sporadic activities or intermittent export, and in the phase of direct exports, through representatives or independent partners. The top manager does not get directly involved in these phases, he rather chooses to delegate functions to lower level managers. When necessary, these lower-level managers will alert the top manager about situations that require their attention. Diagnostic MACS correspond to formal systems that managers use to control outcomes, analyzing deviations from previously established performance goals and taking corrective actions. They are generally limited systems in the search for innovative solutions and the identification of opportunities, since attentions are essentially directed to the performance variables (Roque et al., 2018_a, 2020_a, 2020_b).

Subsequently, in its third and fourth phases (Johanson and Wiedersheim-Paul, 1975), that is, at the stage of establishing a commercial branch and/or establishing a production unit to increase the market share in the country to where the firm is internationalizing, the U-Model IM is based on an interactive MACS. This system is the one the manager uses daily to provide the necessary information for decision-making and for providing information to his subordinates. The information that comes from the system is used in regular meetings with subordinates, in order to allow the results analysis and compliance with the plan of action (Simons, 1991).

Interactive systems foster innovation, learning and the search for new solutions, which trigger the emergence of new strategies as their participants interact and respond to the emerging opportunities and threats (Novas et al., 2012; Roque et al., 2018_a). In this way, it is possible to use this type of systems in the phases of internationalization expansion through the creation of commercial or productive subsidiaries. The uses of interactive type systems allow for more informal, less restricted, and more superficial control, where communication and cooperation stand out (Roque et al., 2018_a). Thus, the flow of information is largely stimulated through debates and dialogue, inspiring the creation and integration of knowledge (Agbejule, 2006).

Organizational performance (Abernethy and Brownell, 1999) improves when a diagnostic use is related to low levels of strategic change, which occurs in the 1st and 2nd phases of the establishment chain of the model (Johanson and Wiedersheim-Paul, 1975). On the other hand, an interactive style of utilization is related to high levels of strategic change. The pressures from external stakeholders influence interactive use (Osma et al., 2018), which occurs in the 3rd and 4th phases.

According to Novas et al. (2012), MACS have an impact on organizational performance. However, this relationship is approached under two different perspectives. In the first perspective, MACS (or certain dimensions) are considered to have a positive direct effect on organizational performance (e.g., Abernethy and Brownell, 1999; Cadez and Guilding, 2008; Chong and Chong, 1997; Jermias and Gani, 2004). The second perspective argues that MACS (or certain dimensions) exert a positive indirect effect on organizational performance through direct effects generated by certain variables (e.g., Bisbe and Otley, 2004). Thus, regardless of the perspective, the style of information utilization that comes from a given MACS influences the company's performance.

Moreover, any system of the diagnostic type can easily become interactive motivated by the action of management based on dialogue and learning spread throughout the organization (Simons, 1994). On the other hand, as Roque et al. (2018_a) argue, it is necessary to understand that an interactive system in a company can be used in a non-interactive way, depending on contextual and circumstantial variables that are weighted (Simons, 1995). Therefore, the use given to the information is fundamental.

In this relation, we can verify that the U-Model looks for a diagnostic-type use of MACS in the first two stages of development, whereas it requires systems of the interactive-type in the last two stages of development, so we can confirm an adjustment between the IM and the information provided by MACS. Thus, a dynamic approach to the relationship between MACS and internationalization strategy is demonstrated as suggested by contingency theory (Grabner and Moers, 2013; Otley, 2016).

As far as the need of the nature of information concerns, the U-Model emerges as multi-faceted, since, according to the different phases of the life cycle, there are simultaneously different levels of integration and aggregation of information throughout the company's evolution. In the beginning of the business lifecycle, due to the available products and

services' homogeneity and the markets in which the company operates, as well as due to the characteristics of structure (simple and centralized), information tends to take a simpler form (Roque et al., 2018$_a$). As the company evolves, in terms of product/service diversity or conquering new markets, the information needs tend to be adapted and, thus, they modify and become tendentiously more aggregate and integrated, compared to their initial stage. The integration and aggregation characteristics of information are viewed in a contingent way, according to the life cycle.

Systems based on the integration of information are systems that, on one hand, make it possible to understand the cause-and-effect relationships between structure, strategy and goals. They allow a better visualization of the way the activities are related to the internationalization strategy. On the other hand, these systems include a measurement component associated with the provision of various measures that are related to financial aspects (Chenhall, 2005a, Roque et al., 2018$_a$). These systems allow the integration of the operational and strategic side; integration that accounting systems generally do not allow. The integration dimension increases as the interdependence between organizations also increases, allowing a broad and complete view of the whole and means of coordination between the various organizational units (Roque et al., 2020$_a$, 2020$_b$). In turn, the aggregation of information allows a large amount of information to be processed over a given period of time (Bouwens and Abernethy, 2000; Roque et al., 2018$_a$). Thus, it is understood that the U-Model is based on a MACS in which the information is aggregated in order to capture a high volume of information, but simultaneously a system in which the information is integrated in order to relate the operational activities to the strategy.

Regarding the decisions supported by MACS, the U-Model focuses on two types of decisions - resource allocation and performance evaluation (and control) - in the 3rd and 4th phases of the model, since its need arises after the creation of branches or productive units. Resource allocation decisions require the distribution of resources, whether monetary or non-monetary, among the different units of the organization in order to embed in managers' accountability for the tasks and activities to be performed (Naranjo-Gil and Hartmann, 2006; Roque et al., 2018$_a$). This situation is necessary in the 3rd and 4th phases of the model, in which all the information is essential for an adequate distribution of resources, and in situations of uncertainty and instability, when the availability of better information will obviously result in better resources allocation decisions (Baines and Langfield-Smith, 2003, Roque et al., 2018$_a$).

In turn, performance evaluation decisions are related with the monitoring and control of organizational goals and of the performance of managers in charge, and the organizational units they manage. Thus, the U-Model requires MACS that provides information to support decisions associated with resource allocation; that is, for planning decisions and coordination of activities arising in the 3rd and 4th phases of the model. It also requires MACS to provide information to assist performance evaluation process, when there are subsidiaries, since it is necessary to monitor and control the achievement of organizational goals. Figure 4.1. illustrates this relationship and its implications.

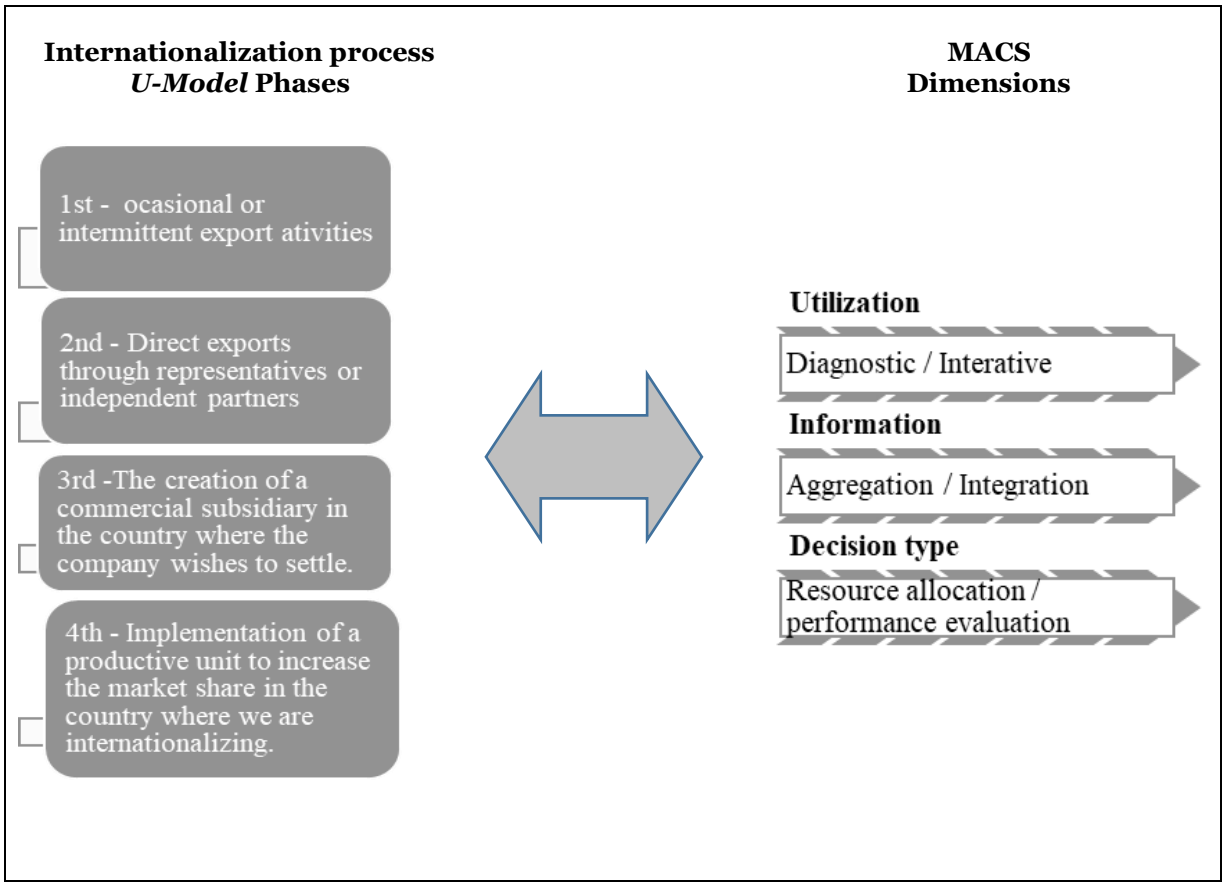

Figure 4.1. Relationship between MACS and the U-Model

4.4. Research Methods/ Methodology

In order to analyze the relationship between MACS and the IP, we developed a qualitative empirical study (Archer and Otley, 1991; Simons, 1990) in a Portuguese organization (Francisco and Alves, 2012). Similarly, to other studies (Henri, 2006; Naranjo-Gil, 2006; Novas et al., 2012, Roque et al., 2020_a, 2020_b), three dimensions of MACS were examined — style of information use, nature of information, and type of decision— within the four phases of the U-Model model (figure 1), according to the Johanson and Wiedersheim-Paul's (1975) establishment chain, in order to understand the role of MACS in the internationalization implementation process. Following Henri (2006), a procedural and dynamic approach to the IP was used in order to verify if this implied (or not) changes in the MACS, and to analyze how the latter contributed to the strategy's success.

To understand how the company's U-Model is influenced by MACS, a qualitative research methodology was developed through a single case study (Yin, 2014). This type of research approach is useful if it can show and analyses intentions, discourse, actions and interactions of actors (Dana and Dumez, 2015). However, it should be noted that "the practice of doing qualitative field studies involves an ongoing reflection on data and its positioning against different theories such that the data can contribute to and develop further the chosen research questions" (Ahrens and Chapman, 2006, p. 820).

Data were collected through three semi-structured interviews with open and closed questions that were adapted from validated questionnaires and interview guides obtained from other studies (Burns et al., 2003; Novas et al., 2017). A documentary analysis to reports provided by the company was also performed, allowing us to improve the interpretation of results and triangulate the information, as well as improve the construct validity and the reliability of the research (Ahrens and Chapman, 2006). The critical incident technique (Flanagan, 1954; Hay, 2014; Hettlage and Steinlin, 2006) was used to collect subjective information, in a reflexive logic, that derived from situations and events lived and experienced by the interviewees (Chell, 2004). With this methodology, we followed Miles et al. (2014), who argue that instrumentation is a misnomer since most of the fieldwork in isolated case studies consists of taking notes and recording events (conversations, meetings, and documentary analysis).

The studied company is Portuguese and develops its activity in the automotive component industry (manufacturing control desks, micro switch and test pins). The company was

selected because on March 2016 it was awarded the internationalization prize in the SMEs category at the Export and Internationalization Prize Contest, promoted by Novo Banco and Jornal de Negócios, since it has focused on internationalization through the adoption of a specific model as a driving force for performance improvement.

In this company, only the Executive Director was interviewed, because he simultaneously accumulated the functions of Commercial Director, Development and IT Manager. The choice for this key informant stems from the fact that he is the main person in charge of the IP, although there is currently a process of delegation of work, duties and responsibilities, that is, the responsibilities and roles are being gradually transferred to other internal staff to ensure a more detailed follow-up of the process in each branch. It was decided not to interview them, since the entire implementation of the IP, as well as the periodic account analysis, is carried out and performed by the Executive Director.
The interviews, as well as the collection of additional data (meetings and informal visits), took place between July and October 2016. All the responses were transcribed and all the informal conversations during the visit to the company's premises were recorded.

4.5. Study Results and Discussion

4.5.1. Company description and strategy

Dinefer – Engineering and Industrial Systems S.A. was founded in 1988 in Castelo Branco, Portugal. Initially, it was a small company contributing to the automotive industry with the manufacture of control desks. Over time, Dinefer began to grow and felt the need to start its IP, something that occurred in 2003. This interest arose for two reasons: the need for customer proximity and the conquest of market share. Today, Dinefer is present in four continents. In Europe, the firm is established in Portugal (headquarters), Slovakia (2004), and Romania (2012). In Africa, it is present in Morocco (2006). In America, it has settled in Brazil (2009), however, this branch closed in 2015. In the Asian continent, the company is present in India (2010). In India and Romania, the company has no legal entity, so it has developed its activity through another company in charge of providing technical support.

Currently, the company has 165 employees and is defined as a multinational corporation, solidly established in the world market with great expertise and a strong growth (36% in the last two years). Dinefer seeks to accompany the markets' evolution and recorded a business volume of around 9,2 million euros in 2015 with an export rate of over 95%. From the analysis

of various internal reports (financial, efficiency, profitability and productivity ratios, balance sheets, income statements, among others), we can infer that the company has grown considerably and externally from 2002 to 2003. In 2001, the external market accounted for only 7% (EUR 226.344) of the turnover. In 2002, at the external level, the first million Euros was reached (EUR 1.392.660), that is, the external market represented 36% of the turnover. The year 2002 was of reflection and strategy planning, and in 2003 the first subsidiary was created in Tunisia. From then on, the external growth has been exponential, accompanied and supported by the opening of new subsidiaries.

From the profitability and productivity ratios analysis provided by the CEO, we can verify there was a sales' profitability evolution since Dinefer decided to open cross-border subsidiaries, that is, since 2003. The growth has been progressive, and by 2015 the highest value of productivity ratio, until then, was recorded. This improvement was due, in part, to the consolidation of the company's image of credibility at the international level. In that year, 70% of the turnover was directed to non-EU markets and 25% to the intra-EU market. The gross value added (GVA) analysis also registered a strong growth since the beginning of the IP, although with some fluctuations between 2011 and 2014 resulting from contingencies in the subsidiaries' host countries, namely Brazil (that suffered a political crisis in this period).

4.5.2. The company´s internationalization strategy and the adopted model

Dinefer develops its activity in a very specific industrial sector: automotive components manufacturing. Consequently, at a very early stage the need to sell its products abroad emerged, since the national market was too limited. According to the literature, the primary motive is often the access to new markets and the sales potential offered by foreign markets (Morschett et al., 2009). As the Executive Director claimed: "the main reason for the internationalization was a question of survival, we didn't make the decision between supplying the national or the international market; we had to focus on the market, and it is almost entirely outside Portugal."

Then, in 1996, Dinefer started its first international sales through direct export. This IP has been growing over time, and it has been consolidated with the opening of subsidiaries. This process has been stimulated by a growing demand for new customers in the international context. This situation has brought a number of competitive advantages to the company, as the Executive Director states:

First, because we are closer to the clients and also because it allows us to obtain lower costs at the production level, not only for the labor, but also for the proximity of suppliers, which results simultaneously in lower production costs and more competitive prices.

The IP was an initiative of the company's CEO. He planned and designed a strategic enlargement of the company precisely in order to be closer to customers and, thus, even reducing costs (labor, logistics, etc.). The process currently has the involvement of all workers, being characterized as a "large and continuous process, (...) there is an involvement of the entire team, because the performance achieved by the company depends on this involvement." Hence, similar to what is suggested by literature, the process was developed fundamentally for two reasons: the need of customer proximity (Raposo et al., 2007) and a saturated local market (Morschett et al., 2009).

To Dinefer, as the Executive Director argues, "[...]*it makes no sense for us to think about the national and international market. We think about Europe and outside Europe. We think of a global market with several regions, which have different specificities*". The opening of subsidiaries started in Tunisia in 2003, where one of the company's largest customers is located. Subsequently, Slovakia followed in 2004, Morocco in 2006, and Brazil in 2009. This growth was conditioned "by contingency issues, namely the state of the economy, the legal framework (taxes) and the culture" of the host countries. The company is also present in India, since 2010, and in Romania, since 2012, in partnership with other companies that provide technical support. Through its subsidiaries, Dinefer currently operates in several continents, with emphasis on its European (Portugal, Slovakia, and Romania), African (Morocco), American (Brazil), and Asian (India) units. Overall, the company is also established in the markets of Spain, France, Tunisia, Czech Republic, Ukraine, Lithuania, Poland, Bulgaria, Turkey, Hungary, Mexico, and China, to which it exports directly. Thus, the company's growth connected to its IP is notorious (figure 2).

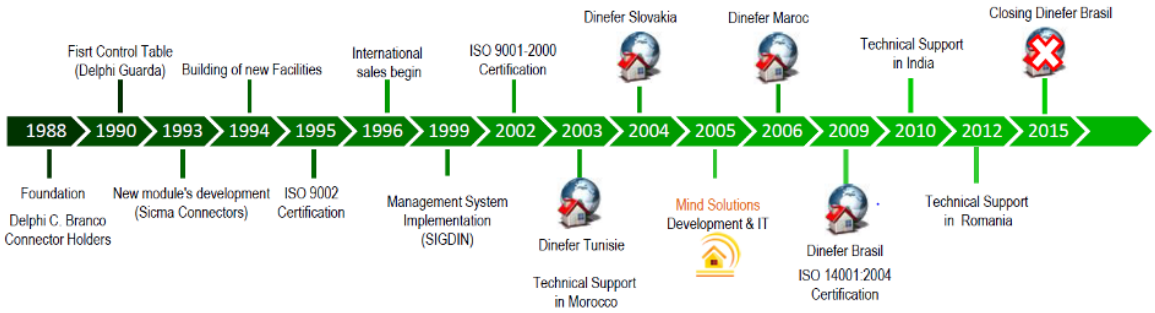

Figure 4.2. Dinefer historical evolution
Source: http://www.dinefer.pt/whoweare.html

Traditionally, a development process such as internationalization is associated with a set of difficulties (Johanson and Wiedersheim-Paul, 1975). Therefore, the interviewee was questioned about the problems faced during the development of the process, being highlighted the linguistic and cultural challenges. Hence, in the opinion of the Executive Director:

> *[...] the multiculturalism is always a challenge and it is a difficulty for the process, which deserves special attention, it is not simple to deal with the host countries' culture, and multicultural management is not an easy task. Establishing a company's organizational culture [itself] is also hampered.*

In parallel, the respondent also highlighted the difficulty in dealing with the legal and political aspects, referring, in particular, to the "lack of staff, the difficulty in hiring human resources with the required qualifications (training/education) in the country of destination."

However, he added the organization never felt the need to resort to the mobility of specialized staff for the subsidiaries, except for Brazil, where a technician was transferred, who is simultaneously a company partner, fundamentally "for the sake of control and reporting information." That is, the figure of the expatriate is used to accelerate the IP "[...] hiring expatriates may facilitate an increase in the speed of internationalization owing to the knowledge they possess" (Dabic et al., 2015, p. 317). This demonstrates a new way of connecting MACS to strategy through the figure of the expatriate.

A further difficulty identified by the respondent is the intense competition in the sector, "we must be aware of the competitors' positioning in order not to saturate the market," he said.

As mentioned above, the company is present in some countries through technical support units. Thus, in India and Romania no subsidiary has yet been established. To better understand the process and its impact on the company's results, we questioned the respondent about the partnership that is established, to which he said:

> *The return is very positive, by the fact that we do not have a legal entity incorporated in this country, we do not have the traditional costs associated with the plants' operation. This question arises even more importantly in India, where our turnover assumes a particular relevance, around 15% in 2015. This partner is a former employee of our largest customer, Yazaki, so he knows the market very well.*

In this process evaluation, the respondent also refers, as advantages: "the exchange of knowledge and collaboration, the increase of the information flow, the learning, the technological and market knowledge and the influence on suppliers and customers." Consequently, he characterizes the partnership process as "well structured, although with some growth difficulties, due to some contingencies."

The Executive Director was questioned about future perspectives, to which he replied:

> *At present, the opening of more branches in Europe is being studied, namely in Serbia, Romania and Bulgaria. However, other possibilities are being considered, such as the Chinese market where the existence of contingency restrictions (such as the great difficulty in hiring qualified human resources) has blocked the process, or the Mexican market (where there is a lot of competition), or even the Russian market (where political and economic aspects are not the most favorable).*

At last and given the fact that we intend to identify and characterize the IM followed by the company, the interviewee was questioned about the entry and establishment procedures used. He said that the IP started always as a:

> *Simple process of direct export, then, if a potential market is detected, through the export volume and customer positioning, the opening of a technical support unit is performed and, later, in the last stage, according to its evolution, the opening of an industrial subsidiary begins.*

He also added that the most important criteria in choosing the market were the existing personal or commercial relationships and the fact that the company intends to follow *"the customers and also to stand beside important competitors, in order to gain market share."*

So, from this analysis, and according to the literature review, we can conclude that the adopted model by Dinefer is the U-Model. Dinefer initially starts to develop international sales, that is, exports, and only later it develops direct investments through the opening of industrial subsidiaries. This whole process happens in a progressive, gradual and incremental way (Johanson and Vahlne, 1977). However, contrary to what the literature defends (e.g. Pedersen, 2000), the market potential is not ignored, since it should be noted that Dinefer is developing its internationalization based on the follow-up of its clients, although it focuses on the market's specific knowledge (Clark et al., 1997); take for example the case of the partnerships' establishment.

According to the internationalization phases of the establishment chain proposed by Johanson and Wiedersheim-Paul (1975), Dinefer develops its internationalization route based mainly on the 1st, 2nd and 4th phases. The 3rd phase (the creation of a commercial branch) is suppressed. Given the company's sector of activity (automotive components industry), there is no need to establish the 3rd phase. International sales are carried out through the first and the second phases of the chain of establishment, *i.e.*, through intermittent and direct exports or through the establishment of partnerships (such as Romania and India, where there is technical support units). Regarding the 4th phase, that is, the phase of direct deployment of industrial branches, the company has currently three units: Tunisia, Slovakia, and Morocco.

4.5.3. Dinefer's Management Accounting and Control System

In order to describe the use and roles of MACS in Dinefer, we asked the Executive Director about the systems and techniques used in the company. The interviewee replied that "in addition to the requirements of financial accounting and also of the statutory auditor, which required that the subsidiaries accounts are certified, it is also our requirement that everything should be controlled." Thus, there is an integrated and proper information system that:

> *[…] allows controlling all the expenses, times, and consumptions in each branch. This system provides information about product configuration, order management, planning, and distribution requirements, in terms of quality management, inventory management, production/manufacturing execution systems and global connection of the parent company with the subsidiaries.*

On a regular basis:

> *Face-to-face meetings are held in the subsidiary's host countries to analyze the accounts and performance evolution. A quarterly analysis is also performed on the main financial statements, which are sent by the accounting offices of the subsidiary's host country, with which this commitment was established. These meetings are decisive for the subsidiaries future management.*

The interviewee was also questioned about the usefulness of the information provided by the management accounting system implemented in the company. Hence, he said that "the implemented system provides useful information to support decisions, namely whether we should invest or not, to define our goals, our strategy, whether we should hire staff or not, whether our performance is achieved or not." It is also suited to:

[…] implement new ideas and ways to accomplish the tasks; to establish and negotiate medium/long-term goals and objectives; to debate hypotheses and plans of action, to achieve established plans and objectives, to align performance measures with strategic objectives, to allow a permanent coordination with subordinates, to assess and adequately control subordinates and still function as a continuous learning tool.

Thus, the information is provided with the purpose of performance evaluation and resource allocation (Novas et al., 2012, Roque et al., 2020_a, 2020_b).

In order to define Dinefer's MACS in terms of the nature of the information provided, we asked the interviewee to characterize it with regard to the available information flow. According to the interviewee, the company's MACS provides:

- information on costs and other measures connected to the various units;
- disaggregated information (e.g. fixed and variable costs);
- sectoral information related to a particular department, section, cost center, etc.;
- a precise definition of goals for each activity executed by different areas of the organizational structure, providing studies on the effect of certain events on concrete time periods (e.g. reports, trends, comparisons);
- information prepared to allow the construction of scenarios, that is, statistics.
- processed information to emphasize how different functions (e.g. production, marketing) are specifically affected by the occurrence of certain events (e.g., cultural events), to which he adds "this situation occur mainly in India, since it is a very marked by traditions country;"
- information about the effect of a functional unit's decisions on the performance of other functional units. Here, "because there is a dependency between the subsidiaries, since there are components that are produced in Tunisia for a product that is being manufactured in Morocco;"
- information on the effect of decisions made on a given functional unit;
- and information in appropriate formats for the construction of indicators and decision models.

Then, the interviewee was asked to comment on decisions regarding financial and non-financial resources' distribution (e.g. materials, human resources, time), as well as decisions related to the monitoring and control of the implementation of goals and objectives by the units or services under its supervision (Roque et al., 2020_a, 2020_b). According to the interviewee, financial information is very important, as so it is the quantitative, non-financial information and the qualitative information he collects from the system.

The answers suggest that the type of information of Dinefer's MACS is directed not only to management, evaluation and resources control, but also to performance evaluation decisions. This situation is demonstrated through the employee performance reports and the performance evaluation reports that have been made available to us. Consequently, it is also a very complete system at a control level, either material or immaterial. The MACS structure analysis shows that it is a comprehensive system (Novas et al., 2012; Roque et al., 2020_a, 2020_b; Simons, 1991) in which information is used in a diagnostic or interactive manner, depending on the purpose and strategy. The integration dimension is particularly relevant as interdependencies increase, since integrated information provides a comprehensive view of the set and the means of coordination between organizational units (Novas et al., 2017, Roque et al., 2018_a).

4.5.4. Relationship between MACS and the Internationalization model

Dinefer strategic imperative is usually present, as the Executive Director claims:

> *No matter how well the organization of all the information systems is (accounting or operational). The most important is to understand the business and to manage it to attract and retain customers! However, the internationalization continuity depends a lot on the MACS in the subsidiaries; there is a constant company adaptation which increases the degree of organization; it is fundamental to align the system with our strategy.*[1]

Therefore, the strategy is modified and adapted according to the information that derives from the MACS. This conclusion supports our proposition, that MACS implies changes and conditions the IP.

The interviewee was then asked about changes in MACS' structure as the IP was developed and, if so, to identify those changes. The Executive Director argued that:

> *The process of change is inevitable with the internationalization, both in terms of control and accounting. Internationalization leads to a continuous improvement of the subsidiaries' MACS. There is a constant adaptation of the company, which increases its degree of organization. On the other hand, it is fundamental to align the system with our strategy. Hence, some authority has been delegated, especially in the subsidiaries. However, there are still some centralized activities. There is concern with the fact that the MACS presents not only financial but also non-financial data. This happens because the*

[1] Statement on an informal visit.

information grows over time and the information that derives from control and quality is more objective and more synthetic, allowing an easier reading and decision making.

So, there is effectively a strategic alignment between top hierarchy and operational managers, the information is more objective, synthetic and decision-oriented, there are more actions, less bureaucracy, and a greater focus in the future. Given this, we can conclude that the strategy implies changes in the MACS, namely with regard to the type of information.

When we study the relationship between MACS and the internationalization model, we can verify that Dinefer started its IP on the basis of sporadic and then direct exports, and, only later, it started to open subsidiaries abroad. After analyzing the evolution of the company and the development of its IP, we can conclude that the internationalization model adopted is the U-Model, clearly identifying the following phases: 1st, 2nd, and 4th. The third phase is non-existent because in the business sector this company belongs to (automotive components industry) there is no need to establish a commercial branch, as we could see in the section about the company's internationalization strategy and its adopted model.

The adopted model (U-Model) uses the information that derives from MACS in a diagnostic style, fundamentally in the first and second phases of the process (Johanson and Wiedersheim-Paul, 1975); that is, in the phase of sporadic or intermittent export activities (see table 1) and in the direct exports phase, through representatives or independent partners. Therefore, MACS is used to monitor the results achieved and correct deviations from the previously established performance objectives. Thus, the system supports and sustains the IP in these phases.

Subsequently, the U-Model of internationalization is supported by an interactive use of MACS information in the fourth phase (Johanson and Wiedersheim-Paul, 1975), that is, during the industrial subsidiaries' creation strategy, in order to increase the market share. The use of the system is reported to the whole team and the achieved performance depends on this involvement, as the interviewee suggests. For this purpose, according to the interviewee:

Face-to-face meetings are held in the subsidiary's host countries to analyze the accounts and performance evolution. A quarterly analysis is also performed on the main financial statements, which are sent by the accounting offices of the subsidiary's host country, with which this commitment was established. These meetings are decisive for the subsidiaries' future management.

The information is used in an interactive manner, allowing its proper flow and fostering debate and dialogue within the organization itself, thus, constituting a fundamental mechanism for the knowledge creation and integration (Agbejule, 2006, Roque et al., 2020$_a$,

2020$_b$). This result is in line with what was argued by Osma et al. (2018, p.42), that is, the pressures from external stakeholders influence the interactive use:

> *[…] to implement new ideas and ways to accomplish the tasks; to establish and negotiate medium/long-term goals and objectives; to debate hypotheses and plans of action, to achieve established plans and objectives, to align performance measures with strategic objectives, to allow a permanent coordination with subordinates, to assess and adequately control subordinates and still function as a continuous learning tool.*

Given the characteristics of this type of system, it is noticeable its use in the internationalization expansion phases by creating productive subsidiaries; 4th phase of the establishment chain (Novas et al., 2012, Roque et al., 2020$_a$,2020$_b$).

Regarding the nature of the information, the U-Model is based on the MACS according to the different stages of the process and its strategic information needs. The system provides a wide range of useful information; for example, information that determines the execution of the different functions, such as production or marketing, which are specifically affected by the occurrence of cultural events, as the case of India, and require reflection in the decision-making process. It also provides integrated and aggregated information on the effect of the decisions of a functional unit on the performance of other functional units, since there is dependency among the subsidiaries.

It is clear that, in the early stages of the company's life, the information required in the IP tends to assume a simpler form (Roque et al., 2018$_a$). However, as it develops, and it chooses to open subsidiaries, the information tends to be more aggregated, allowing to process a substantial amount of information in a certain period of time (Bouwens and Abemethy, 2000), connecting the operational and the strategic levels (Chenhall, 2005a), in comparison to the company's initial stage. Thus, the U-Model is based on a MACS in which the information is aggregated in order to capture a large volume of information and, at the same time, is a system in which the information is integrated, allowing a broader and more comprehensive vision of the set and means of coordination among the various subsidiaries (Chia, 1995).

Regarding the type of decision supported in the development of the IP, we can conclude that the company's MACS supports all decisions; namely, resource allocation, performance evaluation and control decisions, particularly in what concerns to the subsidiaries', as suggested by Novas et al. (2012). Thus, Dinefer's IM is supported by a MACS directed towards resource allocation decisions, essentially to plan and coordinate the subsidiaries' activities (Naranjo-Gil and Hartmann, 2006; Novas et al., 2012), that is, in the 4th phase of the establishment chain, where "the implemented system provides useful information to support

decisions, namely whether we should invest or not, to define our goals, our strategy, whether we should hire staff or not, whether our performance is achieved or not," according to the interviewee.

On the other hand, it should be noted that the interviewee considered that the financial information from MACS is very important, although qualitative information is important as well "to allow a permanent coordination with subordinates, to assess and adequately control subordinates and still function as a continuous learning tool." The information is also directed towards performance evaluation decisions, that is, towards aspects related to the monitoring and control of the organizational goals, as well as the evaluation of the managers and the organizational units' performance: "[…] to establish and negotiate medium/long-term goals and objectives; to debate hypotheses and plans of action, to achieve established plans and objectives, to align performance measures with strategic objectives […]."

Based on the analysis presented (table 4.2.), we can conclude that MACS condition the development of the IP, in particular by the availability of the necessary information for decision-making. In turn, the latter is adjusted to the IP needs, experiencing some adjustments related to information requirements. Therefore, we suggest that MACS facilitate internationalization strategy implementation, which implies some changes in the system.

Table 4.1. Results analysis between MACS and IM

<table>
<tr><td colspan="2" rowspan="2">MACS Dimensions</td><td colspan="3">U-Model
Johanson & Wiedersheim-Paul (1975) phases
Phases adopted by the company</td></tr>
<tr><td>1st Phase</td><td>2nd Phase</td><td>4th Phase</td></tr>
<tr><td rowspan="2">Utilization</td><td>Diagnostic</td><td colspan="2">Diagnostic use of the MACS information, essentially in the first and second phases of the U-Model.</td><td></td></tr>
<tr><td>Interactive</td><td></td><td></td><td>U-Model is supported by an interactive use of MACS information, in the fourth phase.</td></tr>
<tr><td rowspan="2">Information</td><td>Aggregation</td><td></td><td></td><td>U-Model is supported on the aggregation information, especially in 4th phase, because it's necessary to aggregate a large amount of information in this stage.</td></tr>
<tr><td>Integration</td><td colspan="3">Integrated information is produced by MACS in all phases of the U-Model, but in the 1st and 2nd phase this information is less important.</td></tr>
<tr><td rowspan="2">Decision type</td><td>Resource allocation</td><td></td><td></td><td rowspan="2">MACS support all type of decisions, mainly in what concerns to the subsidiaries</td></tr>
<tr><td>Performance evaluation</td><td></td><td></td></tr>
</table>

4.6. Conclusions

As observed in other studies, Dinefer has developed its IP incrementally. This was initiated through direct sales, that is, exports, and subsequently the process was developed through the opening of subsidiaries abroad. Through this process, the company was intended to follow the client and to survive.

The steps for the company's subsidiaries opening follow the assumption of the gradual and incremental model of Johanson and Vahlne (1977) and the Establishment Chain (Johanson and Wiedersheim-Paul, 1975), which allow concluding that the adopted model is the U-Model.

Once the relationship between MACS and the IM has been established, we can conclude that the system is used whenever the company feels the need to obtain information in order to support its strategy. The IP develops in phases, demanding as it evolves new information from the MACS, thus forcing it progressively to adapt (Roque et al., 2020_a, 2020_b). There are, therefore, changes in the design of the MACS, particularly in the characteristics of the information provided (passive role of the system) and in the way MACS information is used (active role of the system) during the IP. Thus, during this process, MACS information can be used in a diagnostic or interactive manner, the information can be aggregated or integrated, and the decisions can be resource allocation or performance evaluation.

This research brings scientific contributions in several ways. Firstly, we contribute to increase knowledge about the MACS-internationalization strategy relationship, since there are still few studies on this subject (Araujo et al., 2010, 2011; Florez et al., 2012; Gomez-Conde and Lopez-Valeiras, 2018; Vélez et al., 2008, 2014, 2015) and for the growing stream of accounting literature that examines the Levers of Control framework (Asiaei et al., 2018; Kruis et al., 2016). Secondly, this research is innovative, since, as far as we know, it is the first time the relationship between MACS and a specific internationalization model (U-Model) has been studied. We analyze how MACS are used, what are the characteristics of the information coming from MACS, and what kinds of decisions are supported by MACS in each phase of the U-Model development. Thirdly, this research introduces a dynamic and "inside-out" approach (Chenhall, 2005b) of the relationship studied, when most studies use a static and "outsider-in" approach. This new approach allowed us to examine the adjustment that occurred in MACS (in terms of information use, information needs, and decision supported) in each phase of the U-Model. In addition, this study confirms previous research findings (Coller et al., 2018; Naranjo-Gil, 2016) on the active and passive role of MACS. Finally, this research

helps to increase knowledge in practice, as it helps companies to understand how they can adjust their MACS according to their U-Model development phase.

We can conclude, therefore, that a MACS adjusted to the information needs of the company can facilitate the IP implementation. However, as in other studies (Roque et al., 2020_a,2020_b), this process implies an adjustment in MACS.

The study results also highlight the fact that MACS are used throughout the IM in a differentiated way, depending on the information needs, evidencing some aspects of the contingency theory (Grabner and Moers, 2013; Otley, 2016; Roque et al., 2020_a, 2020_b).

Aware of the limitations of this work, namely the fact that the analysis is limited to a single case study, it is unfeasible to make generalized conclusions. We need to recognize that the study of MACS does not always lead to establishing that what works in one organizational context will work in another (Saulpic and Zarlowski, 2014), since different configurations and uses of MACS will result in different reactions (Otley, 2016).

We suggest the replication of this study in other companies from different activity sectors, in order to study the impact of MACS over different internationalization models. Alternatively, the development of a quantitative study applied to Portuguese companies that allows analyzing the relation between the company's IM and the MACS characteristics could also be suggested.

5. Management Control System Design in Innovation-Related Internationalization Strategies (I-Model)

Abstract

This chapter seeks to analyze the relationship between organizational structure, represented by the Management Accounting Control Systems (MACS) and strategy, and to understand how MACS fit the internationalization strategy and to what extent this affects the MACS design. To answer this objective, a case study was carried-out in a services sector company. The findings suggest that in an *I-Model* internationalization process the MACS should be used throughout the process in a differentiated way, allowing an information output to respond to the information needs. These results contribute to the scarce knowledge on MACS and strategy fit.

Keywords: Internationalization Strategy, *I-Model*, Innovation, Management Accounting, Control Systems.

5.1. Introduction

The companies' structure depends on the contingencies variables of each organization at a given context, such as its strategy, the environment in which the company operates, the technology at its disposal and the characteristics of its participants (Chandler, 1962). So it's natural that the companies' structure was adjusted to their strategies, thus finding an intimate relationship between the strategy and the organizational structure (Chandler, 1962). The companies' internationalization process is considered a growth strategy (Welford and Prescott, 1994). And, the organizational changes are influenced by the company's internal and external characteristics (Otley, 1980; Chenhall, 2003), so there is no single, universal, structure of Management Accounting and Control Systems (MACS).

The literature has studied the relationship between internationalization MACSs (Haldma and Lääts, 2002; Carenzo et al., 2011; Roque et al., 2019b), but there is no referenced to the relationship between innovation-based models of internationalization (*I-Models*) and the company's MACS structure.

Therefore, this study aims to answer the following research questions: (1) How does the I-models internationalization strategy imply (or not) changes in the MACS design? and (2) How does the company's MACS design facilitate (or not) the implementation of the *I-Models* internationalization strategy?

In order to answer these research questions, a qualitative study was developed, through a case study, in a Portuguese company in the service sector in engineering and consulting. This company develops the internationalization process through the implementation of the *I-Model.*

The following section reviews and discusses the existing literature on the innovative models of internationalization and MACS. In section 2 the methodology is presented, and the empirical study is analyzed. Section 3 presents the results', the conclusions, limitations and some recommendations for future studies.

5.2. Literature Review

5.2.1. The internationalization by an Innovative Model

The globalization of the economy transformed the internationalization into one of the most important strategies for companies that focus on growth (Lu and Beamish, 2005; Sapienza et al., 2006; Xie et al., 2009). However, Internationalization is an ambiguous term, and its definition varies according to the phenomenon under study (Chetty and Campbell-Hunt, 2004; Singh et al., 2010) and according to a variety of factors, such as the company's characteristics, size, seniority, human and financial resources and environmental issues (Child and Hsieh, 2014).

Is, thus, a process that registers the company's growing involvement in the international operations (Ruzzier et al., 2006) or an adaptation of the business operations (Calof and Beamish, 1995) or even a de-internationalization phenomenon (Benito and Welch, 1997, Chetty and Campbell-Hunt, 2003).

Literature has over time approached the Internationalization Model (IM) (Crick, 1995, Wortzel and Wortzel, 1997, Reuber and Fischer, 1997), and there are many models developed (Roque et al., 2019$_a$). One of the most reference models in literature was the Innovation models (*I-Model*). This model views the internationalization as a process in which the steps are analogous to adopting a new product (Rogers, 1962), and the simple exports decision making are understood like "a process of innovation adoption" (Reid, 1981, pp.102) for the company (Bilkey and Tesar, 1977, Cavusgil, 1980 and Reid, 1981), allowing to contribute to its incremental performance (Andersen, 1993; Rogers, 1962).

According to Andersen (1993), the most relevant innovation models are developed through several phases.

In the 1970s, Bilkey and Tesar (1977) formulated a model can be summarized in three phases. In phase 1, companies usually begin to internationalize through sporadic export. In phase 2, they begin to export regularly to a country "psychologically" closer. Finally, in phase 3, they export to other countries that are "psychologically" more distant, progressively increasing their involvement.

Cavulgil (1980) developed a model that addressed the export process in 5 phases: pre-involvement, reactive involvement, limited involvement, active involvement and commitment.

Reid (1981) also proposed a model composed of 5 phases, indicating that the decision makers' attitude, experiences, motivation and expectations have a significant and determinant impact on the internationalization process.

Czinkota (1982) proposed a model that derives from the model presented by Bilkey and Tesar (1987) and he showed that the companies, in the various phases of internationalization, have very different reciprocal characteristics, namely in terms of organization, management and other internal characteristics.

Leonidou and Katsikeas (1996) conclude that, despite the divergences between the models proposed in the literature, these allow to characterize, in a general way, the companies' exporting process in three phases: (1) pre-involvement, which assembles the companies that only sell domestically and which are not interested in exports, and also those that consider the possibility of exporting, and that have already developed this process and have since been interrupted; (2) initial involvement that gathers companies that export sporadically, and (3) advanced involvement, which involves companies that export regularly to various markets and may have characteristics that commit them to a greater involvement in the internationalization.

5.2.2. Management Accounting and Control Systems Design

In this study we assume that MACS are structures which use information derived from the MACS to support decision-making and to achieve the company's strategic goals (Chenhall, 2003) and they simultaneously include controls, personal and top management, and their performance depends on the company's structure (Gomes and Salas, 2001).

To characterize the MACS design we consider four, of the most referenced dimensions of MACS (Agbejule, 2006; Ahrens and Chapman, 2004; Ballvé, 2006; Berland et al., 2006; Bisbe and Otley, 2004; Bouwens and Abernethy, 2000; Hartmann and Vaassen, 2003; Henri, 2006; Naranjo-Gil and Álvarez-Dardet, 2006; Naranjo-Gil and Hartmann, 2006, 2007; Thorén and Brown, 2004) grouped into two categories, as suggested by Novas et al. (2017), namely:
The type of information provided by MACS with two dimensions "aggregation" and "integration".

The type of decision supported. MACS support decisions regarding “performance evaluation” and “resource allocation”.

It’s possible register a certain dynamism between MACS dimensions (Agbejule, 2006; Bisbe and Otley, 2004; Henri, 2006). The information’s provided by the system can oscillates between aggregation and integration of the information. The information aggregation favours the management of decentralized units, it allows a large volume of information to be processed over a given period of time and it is relevant to the various domains of the organizational reality (Bouwens and Abernethy, 2000).

In turn, the information integration provides the coordination mechanisms between the different organizational units, becoming fundamentally relevant in decentralized structures, for both the decision-making process as well as in terms of control (Chia, 1995). Even allows to understand the cause-effect relationships between the operational structure, strategy, objectives and other aspects, such as customers and suppliers. On the other hand, it includes a measurement component related to the provision of several measures that are related to financial aspects (customers, organizational processes and innovation) (Chenhall, 2005a).

The “type of decision” dimension allows its applicability, whether in the context of “resource allocation” (support in the decision-making process), or in the “performance evaluation” context (evaluation and control) (Naranjo-Gil and Hartmann, 2006).

The type of decision related to the resources’ allocation corresponds to the use of the MACS for planning and coordination (Novas et al., 2017) and it is associated to the management and distribution of monetary and non-monetary resources by the different decentralized units, in order to instill responsibility to the managers, in management and in their activity performance (Naranjo-Gil and Hartmann, 2006).

Regarding the type of decision for “performance evaluation”, the system focuses essentially on how performance can be improved (Novas et al., 2017), using the system information to monitor and control the organizational objectives (Naranjo- Gil and Hartmann, 2006), as well as in the managers’ performance control and the organizational units they manage (Silvi, 2012).

5.2.3. The relationship between the Innovative Model and MACS

It is noteworthy that companies that internationalize have access to a potentially larger market and, therefore, are able to obtain a greater performance (Kafouros et al., 2008), with a natural propensity for innovation.

Regarding the type of information provided by MACS, in the model's initial phase (according to Bilkey and Tesar, 1977), the *I-Model* aims the information aggregation and, then, in the subsequent phases (phases 2 and 3), a dynamism between the aggregation and integration (Simons, 1995), where the integration assumes a greater weight. Considering that the aggregation reunites a large amount of information, in a certain time period, which is useful for the organizational reality knowledge (Bouwens and Abernethy, 2000), this will allow the full development of the internationalization process' phase 1, according to Bilkey and Tesar (1977), thus preparing the process for the next phases. Between phase 1 and phase 2, the aggregation will improve the management of decentralized units, compare more alternatives, innovate and gain a better understanding of the relationships established between the organizational units (Bouwens and Abernethy, 2000). In turn, the information integration allows the consolidation of coordination mechanisms between the different organizational units, supporting the decision-making process and also control (Chia, 1995), which is recorded and required in the *I-Model* phases 2 and 3.We recall that the systems, in which information is more integrated, allow understanding the cause-effect relationships between the operational structure and the strategy and promote the adoption of preventive measures with financial aspects (Chenhall, 2005a), such as innovation.

Regarding the decision type category, promoted by the MACSs, according to the structure of Novas et al. (2017), and according to Bilkey and Tesar (1977), the *I-Model*, is supported, in all its phases, by systems that allow the Resources management, as well as a performance evaluation, especially in phases 1 and 2. The MACS must be useful for planning and coordination (in the Resources Management), in all the phases, and allow a wide organizational objectives' monitoring and control (Naranjo-Gil and Hartmann, 2006) and the performance of those responsible for the organizational units that manage (performance evaluation) (Silvi, 2012), fundamentally from the moment it reaches a more active phase (IM's phase 2).

5.3. Research Methods / Methodology

To answer the research questions: (1) How does the internationalization strategy imply (or not) changes in the MACS design? and (2) How does the company's MACS design facilitate (or not) the implementation of the internationalization strategy? a qualitative study was developed, in a Portuguese company in the service sector in engineering and consulting.
The company was selected by convenience, since it is a company located in the interior of Portugal that participated in the "IX Symposium COTEC Europe", on February 10, 2017. Two in-depth interviews were conducted with the company´s CEO and CFO. The interviews details are presented in table 5.1. Similarly, to other studies (Simons, 1990; Archer and Otley, 1991; Francisco and Alves, 2012), a single case study was developed (Yin, 1993, 2014) between September 2017 and January 2019.

Table 5.1. Key informants' characteristics - Procifisc

Interviewee name	Responsibilities	Date / interview duration	Place
Filipe Lourenço	Chief Executive Officer (CEO)	September 2017 90mn	Corporate headquarters
João Medroa	Chief Financial Officer (CFO)	November 2018 95mn	Corporate headquarters

The interview questions were adapted from previous studies (Burns et al., 2003; Major et al., 2011; Novas et al., 2017). The critical incident technique was used (Flanagan, 1954; Hettlage and Steinlin, 2006; Hay, 2014), since it allows collecting information in a reflexive logic, accessing the subjective information, focused on the form, as situations and events are lived and experienced by the interviewees (Chell, 2004). The data was interpreted and triangulated, based on documentary analysis of information provided by the company. The key informants were selected by the company. Initially, the CEO was appointed, since he is responsible for the entire company's internationalization process. Later, to complete and extend our study on the financial side, we request an interview with the person responsible for accounting and control in the internationalization process. The company selected the CFO. Our proposed research is presented in Figure 5.1.

The two MACSs' categories analyzed, were related to the different phases of the *I-Model*, as proposed by Bilkey and Tesar (1977) and Leonidou and Katsikeas (1996).

We assume that in the initial stages, the *I-Model* is supported by a system more limited in the search for innovative solutions, since the managers are focused on the results control and deviations correction, associated to the established performance objectives (Simons, 1995).

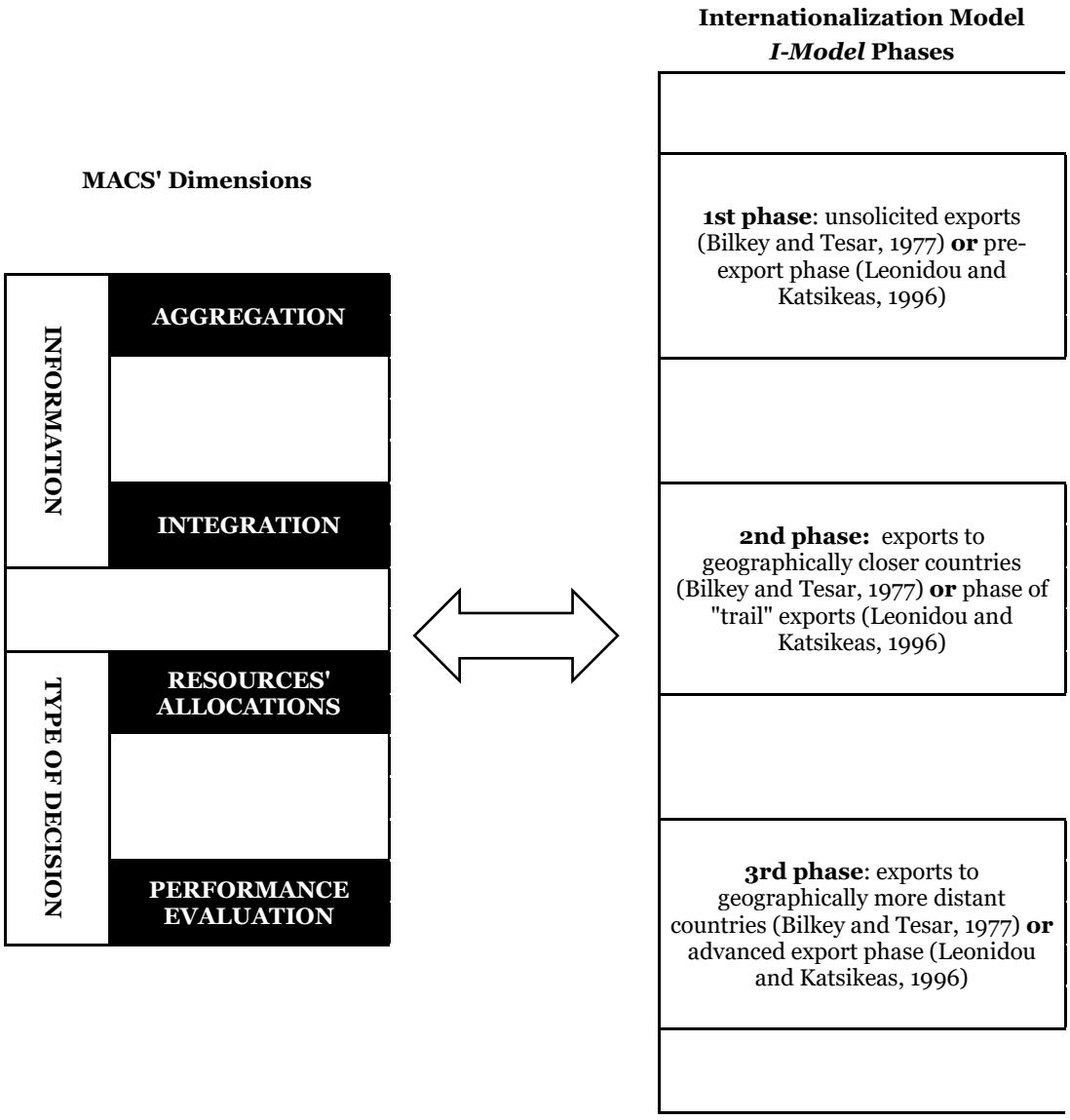

Figure 5.1. Research model: MACS design vs I-Model

5.4. Study Results and Discussion

5.4.1. Company's presentation

Procifisc – Engineering and Consulting, Lda (http://www.procifisc.pt/) is a Portuguese company dedicated to the development of engineering, architectural and consulting services since 2007.

The company's promote research, development, and innovation to ensure a sustained growth, based on the creation of new products and services, increasingly adapted to the market's evolution, which allows to characterize the internationalization process as an innovative process by an innovative model.

5.4.2. The Company's Internationalization and the innovative model

The internationalization process started in 2012, in order to respond to the emerging challenges that the market presented. Actually, Procifisc has three legally established companies abroad: Angola (since 2014), São Tomé (since 2013) and Brazil (since 2014). It exports to Mexico, Spain, the Dominican Republic (since 2015) and to Mozambique and Timor (since 2016).

The way of entry and establishment used by the company in the international market was initially through sporadic exports and through the establishment of companies in the host country at a later stage (Bilkey and Tesar, 1977; Leonidou and Katsikeas, 1996).

With new markets the CEO assume, there was as an adaptation to the innovation potential, regarding responsiveness and the creation of new services that were scarce in the market (Cunha and Verhallen, 1998). The internationalization process is assumed as an innovation for the company and that it allows its incremental development (Bilkey and Teaser, 1977; Cavulgil, 1980; Reid, 1981).

The internationalization process was developed 5 years after the start of the company's activity (pre-exports phase) and the whole process is based on a behavioral theory that stems from an incremental form, where market factors and justifications for the process are evaluated based on intuitive arguments of the process promoter and manager, we find, in a first line, the basis for the characterization of the *I-Model* presented by Andersen (1993).

According to the interviewees the most important criteria in choosing the first external market were the existing contacts and the eminent business opportunities. For the CFO, penetrating a market where knowledge exists, for example, through the establishment of partnerships "*increases access and facilitates success in business opportunities*", but *"implies a reduction in the capacity of the managerial control that can lead to non-conformities in the quality of the work developed."*

The internationalization process was facilitated by the host countries' contact and linguistic proximity, which, as we have previously seen, constituted a criterion for ranking the international markets. With this fact we can confirm and characterize the *I-Model*'s second phase, in which the process' design and development begins, in an active way, to geographically and culturally closer countries.

With this analyze we validate the *I-Model* characterization, according to Bilkey and Tesar (1977) and Leonidou and Katsikeas (1996), where exports are progressively assumed to geographically more distant countries and an advanced export phase is reached.

5.4.3. The company's Management Accounting Control Systems

To analyze the nature of the information dimension, we questioned the interviewees to characterize the system. According to the interviewees, the system provides: "Information on costs and other measures, associated to the various departments; Disaggregated information (e.g. fixed and variable costs); Sectoral information, related to specific areas (for example, sections of a department, cost's center, etc.); The definition of precise objectives for the activities performed by the different areas of the organizational structure; Studies on the effect of certain events on concrete time periods (e.g. reports, trends, comparisons); The possibility of obtaining information prepared to allow the construction of scenarios."
However, according to the interviewees, the system is incomplete, because "it does not respond to some factors, it does not provide: processed information to show how different functions are specifically affected by the occurrence of certain events; information on the effect of the decisions of a functional unit on the performance of other functional units; and information on the effect of decisions, taken on a particular functional unit, on the unit itself and their influence on other decisions. However, for the CEO the system don't provide information in appropriate formats for the construction of indicators and decision models,

but the CFO recognizes a different view, the system allows it to build indicators and structure decision models.

This imperfect system threaten the development of the internationalization process based on innovation. The information integration allows, as we have seen, to understand the cause-effect relations between the operational structure and the strategy, as well as to promote the adoption of preventive measures with financial aspects (such as innovation) (Chenhall, 2005a). However, this system's inability can be justified by the fact that the decision-making process is based on more intuitive arguments, as proposed by Andresen (1993), where information is naturally more aggregated and there are few clear arguments for the procedures' classification and explanatory variables. Thus, we keep in mind that the dynamism between aggregation and integration occurs between the various phases of the internationalization process, with an oscillation (Simons, 1995) and a complementarity in the different phases (Agbejule, 2006; Bisbe and Otley, 2004; Henri, 2006).

Relatively to the "type of decision" the interviewees were asked to discuss the decisions regarding the distribution of financial and non-financial resources, as well as decisions related to monitoring the goals and control the objectives execution, by the units or services under his supervision. So, we deduced that the type of decision supported by MACS information is directed not only to management, evaluation and control of resources, but also to a constant concern with performance evaluation.

5.4.4. The relationship between MACS and the IM

Therefore, we validate the relationship between the MACS design and strategy, as it is altered and adapted, according to the information that derives from the system, thus conforming and validating our proposal.

We still asked the company's interviewees about changes in the MACS' structure, as the internationalization process was being developed, and we simultaneously asked him to identify those changes. The CEO stated that "*… the company has undergone changes at the Management Control level, namely changes that were fostered by the Quality Management certification process. Tasks and responsibilities were also simultaneously defined for each department and each job, all the information was centralized in management software that allows the regular data monitoring and control and we supported the collaborators' permanent training*.

The internationalization, thus, fostered "the machine refinement".

The CFO fundamentally highlights the responsibility delegated to each department, and the ability to get information daily from the system: *"Tasks have been defined to be executed specifically by each department, and each worker, and everything is controlled through a management software, available and accessible to all for daily monitoring."*

The system provides useful information to support decisions and define the strategy. It allows everyone to steer the management to investment, or vice versa. If the information's usefulness effectively allows it, it is because the information is integrated and available to all. Regarding the information's nature, the *I-Model* is based on the system, also according to the different stages of the process and its information needs.

The information that the system provides is, in our perspective, stimulated by the phase of the process that the company is going through. In the early stages, the information is simpler. As it develops, it tends to become more aggregated, allowing a large amount of information to be processed, in a given period of time (Bouwens and Abemethy, 2000) and, at the same time, being increasingly integrated (Chenhall, 2005a), allowing a broader and more complete view of the coordination set and means between the different companies (Chia, 1995), according to the needs.

Regarding the type of decision, and according to the interviewees, the MACS supports both resource allocation decisions and performance evaluation decisions (Novas et al., 2017). We find that, as the internationalization process develops, it is important to obtain feedback to consolidate decisions regarding the distribution of financial and non-financial resources, as well as to consolidate decisions related to the monitoring and control of the implementation goals and objectives by the units or services under supervision.

Therefore, the Procifisc's IM is supported by a MACS directed to resource allocation decisions, in the 3 phases of the *I-Model*, essentially to plan and coordinate the other companies' activities (Naranjo-Gil and Hartmann, 2006). However, the information is also directed towards performance evaluation decisions, whether being of monitoring or controlling objectives, or for the evaluation of both human resources and the organization's, fundamentally in the phases 2 and 3.

After establishing the relationship between the MACS design and the IM followed by the company, we conclude that there is a bilateral relationship. The MACS responds to the

process' information deficiencies and conditions it, although it assists it in the decision-making process, and the system is progressively adjusted to the information needs of the model.

5.5. Conclusions

The IM followed by the company fit the models presented by Bilkey and Tesar (1977) and by Leonidou and Katsikeas (1996), which allows us to conclude that the adopted model is the *I-Model*.

In the relationship between the MACS and the IM, we conclude that Procifisc adapts its MACS' design as the internationalization process evolves. The MACS facilitates the internationalization strategy's implementation, which reveals that it contributes to the company's permanence and development in international markets.

In phase 1 of the IM, *I-Model*, the MACS was based on an aggregated way and with the purpose of assisting the decision-making process, essentially in the resource's allocation management. This result is based on the fact that the system, at an early stage, does not have as many information reporting abilities because the need is simply little stimulated by the process. The dimensions of interaction, integration and support to performance evaluation decisions are only considered downstream, after phase 2 of the IM.

This study contributes to the knowledge on the fit between structure (MACS) and strategy (I-M) and its effects on the company's MACS design.

Due to the fact that our data is limited to a single case study, we propose a replication of the study in other companies, to understand what IM is mostly adopted and what relationships are being established with the MACSs as the process unfolds.

Finally, in a more challenging way, we suggest to broaden this study's scope and replicate it through a quantitative approach to internationalized Portuguese companies, in order to analyze the relationship and effects between these companies' IM and their MACS.

6. The Use of Management Accounting and Control Systems in The Internationalization Strategy – A Process Approach

Abstract

The general objective of this study is to contribute to the understanding of the relationship between strategy and organizational structure, namely how the use of Management Accounting and Control Systems (MACS) contributes to the successful implementation of the internationalization strategy and consecutively to the improvement of the company's performance.

We conducted a single case study in a Portuguese company in the services sector using interview and desk research. The company's internationalization model (IM) was characterized and studied, through a process approach. Subsequently, the relationship between the MACS use and the implementation of the internationalization strategy was analyzed. Results suggest that MACS were not only instrumental to the implementation of the company's internationalization strategy, but also "shaped" it, and were "shaped" by it.

The study contributes to the MACS literature showing how the internationalization process and the MACS use fits to improve the company's performance.

Keywords: Internationalization, Internationalization strategy, *I-Model*, Management Accounting and Control Systems.

6.1. Introduction

The internationalization is currently considered as one of the companies' competitiveness factors and growth strategies (Welford and Prescott, 1994). However, the adoption of this strategy is not simple (Fernández and Nieto, 2005). The current instability forces and constrains the companies to constantly adjust their activities in order to grow. In this process, there is a systematic adaptation between strategy and structure.

Chandler (1962) concluded that the companies' structure was adjusted to their strategies, thus finding an intimate relationship between the strategy and the organizational structure. Therefore, it is perceptible that the structure depends on the contingencies of each organization at a given moment. Hence, there are variables that contribute to this, such as strategy, environment, and technology (Chandler, 1962). This fact leads several authors to assert that there is no single, universal technical structure of management control. It changes with the company's internal and external characteristics (Otley, 1980; Chenhall, 2003).

The relationship between internationalization and MACS has been widely studied in the literature (Haldma and Lääts, 2002; Luther and Longden, 2001; Carenzo et al., 2011), however there is no reference to the relationship between a particular IM and the company's MACS use during the development of the process.

Thus, with this chapter we try to answer the following questions: (1) How does the internationalization strategy imply (or not) changes in the MACS use? and (2) How does the company's MACS use facilitate (or not) the implementation of the internationalization strategy?

A qualitative research study was developed, through an exploratory case study, in a Portuguese company in the service sector, in engineering and consulting. This company represents a successful case of implementation of an innovation-related I-M (*I-Model*).

In terms of structure, after this introductory section, this study is composed by a literature review section. Next, the methodology is presented, and the empirical study is analyzed. Finally, in a third section, we present the results' analysis and discussion. We also present the study's conclusions, its limitations and some lines for future research.

6.2. Literature Review
6.2.1. The internationalization process

The internationalization of a company consists in the extension of its strategies of products-markets to other countries, from which results a total or partial replica of its operational chain (Roque et al., 2017; Roque et al., 2019$_a$). Faced with ever-changing markets, the companies must necessarily adapt to their environment, in order to respond to the emerging challenges. The need for innovation at an organizational level has become permanent.

Murteira (1997) states that the degree of an organization's innovation can be justified by three levels of behavior of the company: (1) the external level, including products and markets; (2) the internal level, namely technological equipment and processes, human resources, organization, and R&D, and (3) the level of systemic positioning, internationalization and trans-nationalization strategies, mergers, strategic alliances, joint ventures, etc. In this last level (the level of an organizational behavior of systemic positioning) the internationalization process, of the *I-Model* company is seen as an innovation and underlies an incremental performance in the internationalization of the companies (Andersen, 1993; Rogers, 1962).

Innovation models view the internationalization as a process in which the steps are analogous to adopting a new product (Rogers, 1962). Each stage in the process is seen as an innovation for the company (Bilkey and Tesar, 1977; Cavusgil, 1980; Reid, 1981), allowing to contribute to its incremental development.

Some approaches to the *I-Model* gradually represent the various phases of the internationalization and they consider that the action of an external agent is an incentive to start the process. However, according to Andersen (1993), the interpretation of the differences about the internationalization process' nature is only a semantic question. This author argues that this model is developed based on innovation in the business perspective. To Lin (2010), the different stages of the *I-Model* are related to the export rate, which, in turn, is proportional to the company's turnover, and the company progresses in the process as turnover increases.

There are many models developed, that compete for the *I-Model* classification, namely with regard to the companies' involvement in the export process, in the perspective of adopting innovation.

In our study we analysed the four most relevant innovation models in different phases of the process, such as Bilkey and Tesar (1977), Cavusgil (1980), Czinkota (1982) and Reid (1981),

and also we highlight the study of Leonidou and Katsikeas (1996) which contributes in this area.

Analyzing the different perspectives of the most relevant innovation models, we conclude that the internationalization decision is affected by different *Push* or *Pull* forces (Andersen, 1993).

To Bilkey and Tesar (1977) and Czinkota (1982), the model is divided into six phases. The company is not interested in exporting, in phase 1, and it only satisfies unsolicited orders. It is, however, partially interested in phase 2, which leads to the conclusion that there is a "push" or an external change mechanism that initiates the export decision. To Cavusgil (1980) and Reid (1981), the model is divided into five phases, and the company is more interested in exports, and it is more active during the early stages. In these models, there is a "pull" mechanism or an internal change that explains the transition to the next phases (Lin, 2010).

Leonidou and Katsikeas' (1996) model allows to characterize, the companies' exporting process in three phases: (1) pre-involvement, which assembles the companies that only sell domestically/nationally and which are not interested in exports, and also those that consider the possibility of exporting and those that have already developed this process and have since been interrupted; (2) initial involvement that gathers companies that export sporadically, and (3) advanced involvement, which involves companies that export regularly to various markets and which may have characteristics that commit them to a greater involvement in the internationalization.

6.2.2. Management Accounting and Control Systems use

The MACS is a structure that simultaneously contemplates an information network, in which the system collects, processes, and communicates information, and another of relationships that discipline and influence behaviors' (Roque et al., 2018_a).

A MACS' dimensions' approach is usually used in management accounting research, because it allows considering specific, more tangible aspects and, at the same time, more subjective, more intangible objectives, which a macro perspective would not allow.

In this chapter, we consider two of the most referenced dimensions in the MACS literature the diagnostic and interactive uses of MACS (Cf. p. e. Agbejule, 2006; Ahrens and Chapman, 2004; Ballvé, 2006; Bisbe and Otley, 2004; Hartmann and Vaassen, 2003; Henri, 2006; Naranjo-Gil and Álvarez-Dardet, 2006; Naranjo-Gil and Hartmann, 2006, 2007; Roberts, 2003; Sjoblom, 2003; Thorén and Brown, 2004), grouped into a category named the style of use of the MACS (Novas et al., 2017).

Some authors (Agbejule, 2006; Bisbe and Otley, 2004; Henri, 2006) argue that there is a complementarity between the various system's dimensions. In the case of the information use, an association is detected between the "diagnostic" and the "interactive" dimensions.

This dynamic, according to Simons (1991, 1995), allows to manage the organizational tensions that derive from the users' interests, either from the "diagnostic" type dimension information, associated to a more traditional role, or from the one that derives from a system with a more "interactive" role, associated to more active systems.

Thus, it is natural that, as the MACS' use evolves from a "diagnostic" type to a combination of both or only to an "interactive" system, the dynamics generated by the contradictory, but complementary, elements inherent to each of the dimensions' increases (Naranjo-Gil and Hartmann, 2006; Tuomela, 2005; Henri 2006).

The systems in which the style of information use is "diagnostic" are formal systems that the managers use to control results and correct deviations from the established performance objectives. These are limited systems, regarding the search for innovative solutions and the identification of opportunities, once the attentions are essentially addressed to the performance variables (Simons, 1995). These are systems characterized by the ability to evaluate processes' outputs, by the existence of measures that exist to allow for comparison and corrective measures to deviations which will equate it with the traditional definition of management control (Simons, 1991). Success factors are simply defined, and involvement is simply implicit in an already deliberate strategy (Pešalj et al., 2018).

The "interactive" type systems, are systems that foster innovation, learning and the search for new solutions, which triggers the emergence of new strategies, as their participants interact and respond to emerging opportunities and threats (Novas et al., 2017). These are less restricted, more superficial and, at the same time, more informal control systems. The control is focused on communication and cooperation, which allows information to flow and fosters debate and dialogue within the organization itself, thus forming the fundamental mechanisms for knowledge creation and integration (Agbejule, 2006). In these systems, the manager reports the system's use personally, regularly and frequently to his subordinates. It is used to define regular meeting schedules of interconnection with direct subordinates and others, in order to review data and the action plan's results (Simons, 1991).

6.2.3. The relationship between MACS (use) and the I-Model

The relationship between the internationalization and the MACS use is systematically adapted, since we assume, similarly to several authors (Samson et al., 1991; Simons, 1987,

1990; Henri 2006), that the strategy changes and conditions the organizations' structure, namely the MACS (Chandler, 1962).

This structure adaptation to the strategy is easily understood in models based on innovation, such as the *I-Model*, where the simple export process is, as we have seen, considered an innovative process (Rogers, 1962; Andersen, 1993).

Gomez-Conde *et al.* (2013_a) studied the internationalization's direct effect, mediating effect and moderating effect on the relationship between the MACS' interactive use and innovation. Despite the direct and positive relationships between the internationalization degree and innovation, the authors failed to demonstrate the mediating or moderating effects of internationalization in the relationship between the MACS and innovation. However, the authors found statistically significant relationships when the sample is disaggregated, according to the internationalization degree. The authors argue that a less interactive use can jeopardize innovation;

> *"In highly internationalized companies, it may occur that too high an internationalization degree is reached that it may be excessive or inadequate and may create dysfunctions. The results suggest that the less interactive use of the MCSs can contribute to reducing the risk of internationalization but will consequently mitigate the positive effect that the interactive use of the MCSs could have on the Commitment to Innovation."* (Gomez-Conde et al., 2013_a, p. 62*)*

One of this work's great contributions is the conclusion they have reached, since the MACSs' interactive use is not necessarily the only source of information and motivation that leads companies to a greater commitment to innovation. The impact of the MACSs' interactive use varies according to the internationalization level the company is at.

Hence, the *I-Model* supports itself in a MACS that includes a dynamic style of information use (Simons, 1995), the diagnostic and interactive type, that enables to make comparisons and take corrective measures to reduce deviations, as well as in systems that allow communication and cooperation, in order to let information flow and develop knowledge (Simons 1991, 1995), essential for the development of IM, such *I-Model*.

6.3. Research Methods / Methodology

In order to examine the relationship between the model adopted in the internationalization process and the MACS use, and similarly to other studies (Simons, 1990; Archer and Otley, 1991; Francisco and Alves, 2012) a case study was developed, in a Portuguese company, in the

services sector. Our research questions how does the internationalization strategy imply (or not) changes in the MACS use? and, how does the company's MACS use facilitate (or not) the implementation of the internationalization strategy? call for a qualitative approach. According to Yin (2014), when it comes to "why" or "how" questions, conducting a case study is the most appropriate research method. The proposed research model is presented in figure 6.1.

Two MACS use dimensions (interactive use and diagnostic use) were analyzed. These dimensions were related to the *I-Model* characteristics and to the different phases of evolution of the model, as proposed by Bilkey and Tesar (1977) and by Leonidou and Katsikeas (1996).

We assume that the *I-Model* must be supported by a "diagnostic" use of the MACS in the initial stage of the process development (phase 1), and by a more interactive use in the subsequent phases (phases 2 and 3).

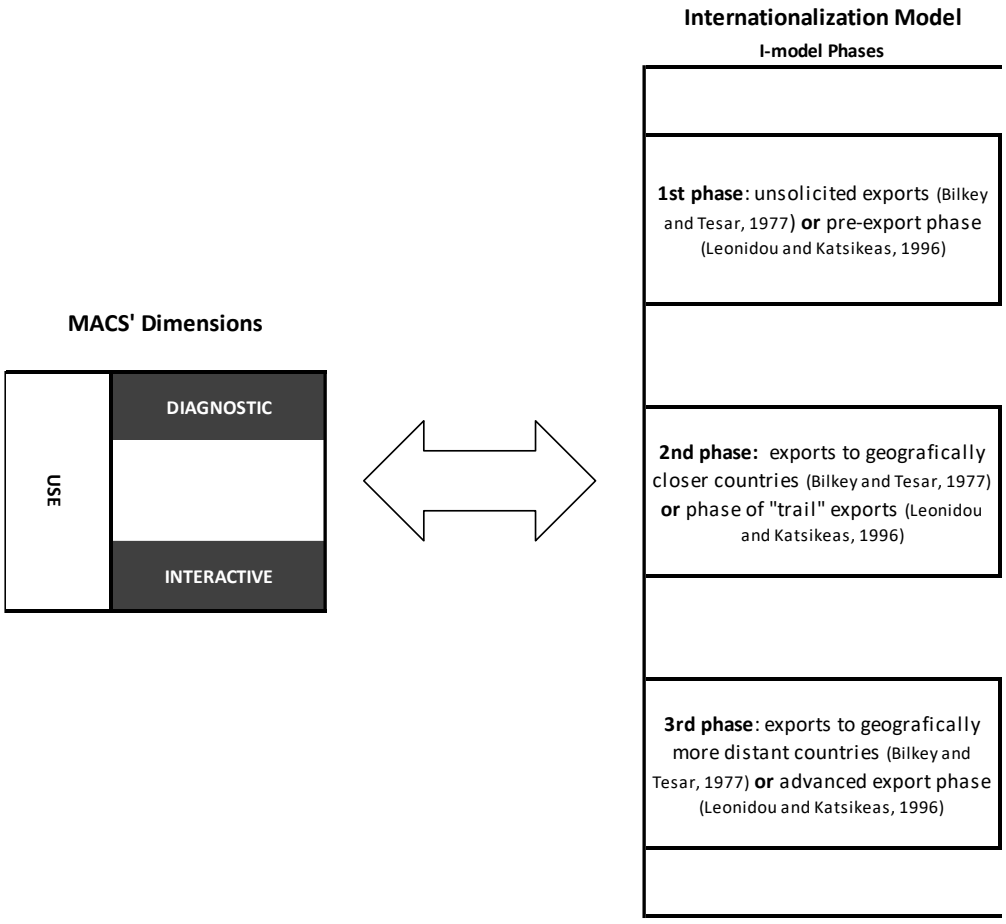

Figure 6.1. Research model: MACS use vs I-Model

The company studied develops its activity in the construction industry and civil engineering sector, namely engineering projects elaboration. And, was selected by convenience, due to its participation in the "IX Symposium COTEC Europe", on February 10, 2017. This company assumed that the commitment to the internationalization of its services was based on innovation, which simultaneously boosted its performance and organizational growth.

Hence, we have sought to understand how the IM influences and/or is influenced by the MACS use. To this end, and similar to other studies (Naor et al., 2015; Pellinen et al., 2016) a qualitative research work was developed, embodied in a single case study (Yin, 1993, 2014). The data collection was performed through a semi-structured interview to the company's CEO (responsible person for the process), with questions, that were adapted from other studies (Burns et al., 2003; Major et al., 2011; Novas et al., 2017).

The information was also interpreted and triangulated, based on documentary analysis of information provided by the company. The interview and other data collection took place between September and December 2017.

6.4. Study Results and Discussion

6.4.1. Company's Description

Procifisc – Engineering and Consulting, Lda (http://www.procifisc.pt/) is a Portuguese Company that develop their activity, since 2007 in the sector of engineering, architectural and consulting services. It has 3 non-subsidiary companies, that is, companies from the same economic group, where there is no account consolidation.

Research, development, and innovation are the company's biggest bets to ensure a sustained growth, based on the creation of new products and services, increasingly adapted to the market's evolution, which allows to characterize the internationalization process as a process of "adoption of innovation", as suggested by the *I-Model*.

6.4.2. Procifisc Internationalization Model

The Procifisc internationalization process started in 2012, due to a need for the company's expansion and growth. Procifisc CEO compares its work with what *"the Portuguese navigators did 500 years ago"*, justifying that the uncertainty leads to the knowledge discovery and development.

There was an adaptation to the innovation potential, regarding responsiveness and the creation of new services that were scarce in the market (Cunha and Verhallen, 1998). The process is assumed as an innovation for the company and it allows its incremental

development, as suggested by Bilkey and Teaser (1977), Cavulgil (1980) and Reid (1981). It is, thus, latent to verify that the model adopted by the company is the *I-Model*.

The way of entry and establishment used by the company in the international market was initially through sporadic exports and through the establishment of companies in the host country at a later stage (Bilkey and Tesar, 1977, and Leonidou and Katsikeas, 1996).

After this first analysis we find, the basis for the characterization of the *I-Model* presented by Andersen (1993), the process was developed after 5 years of the company's activity pre-exports phase) and that the whole process is based on a behavioral theory that stems from an incremental form.

The process was facilitated by the host countries' contact and linguistic proximity, which, as we have previously seen, constituted a criterion for ranking the international markets. This confirms and characterizes the *I-Model*'s second phase, that is, the phase in which the process' design and development begins, in an active way, to geographically and culturally closer countries.

Currently, Procifisc has three legally established companies abroad: Angola (since 2014), Sao Tome (since 2013) and Brazil (since 2014). It exports to Mexico, Spain, the Dominican Republic (since 2015) and to Mozambique and Timor (since 2016). The future was projected to the foreign markets, namely Africa and South America.

The international scenario and the current situation favor cooperation between people and companies, aiming the exploration of all the means and paths to business success and the internationalization process development.

The description of the internationalization strategy once again corroborates the *I-Model* characterization, namely the third stage of the process development, according to Bilkey and Tesar (1977) and Leonidou and Katsikeas (1996), where exports are progressively assumed to geographically more distant countries and an advanced export phase is reached.

6.4.3. Evolution of the Procifisc's Management Accounting Control Systems

In order to characterize Procifisc's MACS use during the IP, we questioned the interviewee about the main changes in the Management Control, during the last years. The CEO noted that *"to keep up with the company's growth, it was necessary to create a cohesive and trustworthy structure for the management body to draw the necessary conclusions for the decision-making at all levels of the business. The management, accounting and control of*

everything are possible, as long as there is a system that reports the various situations, whether financial or not. The dialogue, the meetings and analysis are also fundamental."
The CEO believes that the MACS provides useful information to support decisions and define strategy. It allows to guide the management for the investment or not.
The accounting system in international companies is controlled locally; however, it lacks weekly reporting to the CEO. The system works, as well as a qualitative control mechanism (Pinzón et al., 2011), with two different dimensions, one side of interaction through meetings and contacts with intermediaries and, another side, of diagnosis, with reports analysis. These conclusions are similar to those of Ramirez-Garcia et al. (2013), a system that allows to measure results and control deviations (Simons, 1995).

6.4.4. The relationship between Procifisc I-Model and MACS use

The relation between the defined strategy and the system use is, therefore, registered and validated. The style of use of information is more objective, more synthetic and interactive.
Through Procifisc's constant concern to continually detect the global market's needs and to accurately identify the customers' requirements and expectations, the company has been extending its activities scope to international markets. This company began its process, after 5 years of activity, based on the sporadic export of its services. Only later, did it consolidate this process, through the companies' opening in the international market.
Analyzing all the historical evolution and the subsequent internationalization process evolution, we conclude that the adopted model, uses the information reported by the MACS, through a diagnostic approach, fundamentally in the first phase, and the beginning of the development of the second stage of the process. That is, at the stage of unsolicited exports (Bilkey and Tesar, 1977) or pre-exports stage (Leonidou and Katsikeas, 1996) and in the phase of exports to geographically closer countries (Bilkey and Tesar, 1977) or phase of export "trail" (Leonidou and Katsikeas, 1996). In the second phase, there is a complementarity between the various system dimensions (diagnostic and interactive), similarly to that advocated by several authors (Agbejule, 2006; Bisbe and Otley, 2004; Henri, 2006). In these phases, the MACS supports and is used to control the achievement of results and to correct deviations from the previously established performance objectives and it allows, or not, the evolution to subsequent phases. It should be noted that reports are analyzed for this purpose.
Analyzing the model's evolution, we verify that it is supported in a MACS of interactive use, in the most active phases of the process, namely in phases 2 and 3, that is, when developing exports, either to countries geographically closer or more distant, or in the advanced export

phase (Bilkey and Tesar, 1977; Leonidou and Katsikeas, 1996). According to the CEO, the MACS "provides daily information, which facilitates the control and it allows to verify the report's information and to aid in our decisions."

At this stage, although the company is controlled locally, the CEO analyzes the weekly information report, which is sent to him in a formal way, which facilitates the CEO's control and allows, as Simons (1991) suggests, to set agendas of regular meetings for the interconnection with direct subordinates and others, in order to review data and the action plan's results.

"In practical terms, we choose to continue, discontinue or simply give up the internationalization process, in a given market, through the results we obtain, whether they are financial or non-financial, and this basis is given by the information analysis that is reported by the MACS." (CEO). After this analysis, we conclude that there is a strong relationship between the MACS use and the IM (strategy).

6.5. Conclusions

The IM followed by the company fit the models presented by Bilkey and Tesar (1977) and by Leonidou and Katsikeas (1996), which allows us to conclude that the model adopted by the company is the *I-Model*.

Procifisc adapts its MACS' use as the internationalization process evolves. The MACS use facilitates the internationalization strategy's implementation, which reveals that it contributes to the company's permanence and development in international markets.

In phase 1 of the IM, *I-Model*, the use of the MACS is more traditional, the information is used for diagnostic purposes. This result is based on the fact that the system, at an early stage, does not have as many information reporting abilities because the need is simply little stimulated by the process. In the following phases there is a complementarity between the various MACS dimensions (diagnostic and interactive).

Aware of the limitations of this study, due to the fact that it is limited to a case study, which makes it impossible to generalize the conclusions, we propose this study's replication in other companies and whit another dimensions of MACS, and replicate it through a quantitative approach to internationalized Portuguese companies.

7. Management Control in *Born Global* Firms: a Case Study

Abstract

This study examines the interrelationship between the structure and the internationalization strategy of *Born Global* (BG) firms. We seek to understand how and to what extent the internationalization process (IP) affects the Management Accounting and Control Systems' (MACS) and how it contributes to a successful IP implementation. A case study is analysed, and data were collected from documents and in-depth interviews. The study´s findings suggest that the existence of a MACS adjusted to the BG's information needs can facilitate the IP implementation. This study evidences an active (use) and passive (design) role of MACS'. This is the first work to explore how the internationalization model affects the MACS and how MACS contributes to a successful IP implementation.

Keywords: *Internationalization Strategy, Case study, Born-global firm, Management Control Systems, Management Accounting*.

7.1. Introduction

Nowadays, Born Global (BG) firms are considered a major source of economic growth, contributing significantly to the development of many countries (Ahlstrom and Ding, 2014). They "are emerging in substantial numbers worldwide, and likely reflect an emergent paradigm, with the potential to become a leading species in the ecosystem of international trade" (Knight and Cavusgil, 2004:137).

Although there have been some studies on BG firms, the research remains underdeveloped (Knight and Liesh, 2016), and knowledge about the internationalization process (IP) development is still very limited and fragmented (Gassmann and Keupp, 2007, Melén and Nordman, 2009). Studies about how and why BGs internationalize are requested (Perényi and Losoncz, 2018) and some authors suggest qualitative studies to deepen the research knowledge (Dzikowski, 2018; Liesch et al., 2007).

The relationship between strategy and structure early aroused researchers´ attention. For example, Chandler (1962) concluded that changes in the corporate strategy precede and lead to changes in the organization's structure. "A new strategy required a new or at least refashioned structure if the enlarged enterprise was to be operated efficiently" (Chandler, 1962:15). Chandler´s definition of structure has two facets, first, the lines of authority and communication between the different administrative offices and officers and, second, the information and data that flow through these lines (1962:14). As an information system, the Management Accounting and Control System (MACS) integrate the organizations' structure and can therefore be defined as a tool that managers use to maintain or alter patterns in the organizational activities and to implement strategies (Anthony and Govindarajan, 2007). However, little is known about MACS effects in the strategy's implementation (Frigotto et al., 2013; Roberts, 1990; Skaerbaek and Tryggestad, 2010).

Henri (2006) presents two distinct lines of research in the study of the relationship between strategy and MACS. The first emphasizes the strategy effects on MACS; while the second emphasizes the MACS' effects on strategy. This latter approach recognizes and studies the MACS' role throughout the whole strategy implementation process, using a procedural and dynamic approach. This is the approach used in this work.

Some authors (Cumming et al., 2017; Ismail, 2013; Lin et al., 2017; Puck and Filatotchev, 2018; Roque et al., 2019$_b$, 2018$_a$; Tessier and Otley, 2012) have sought attention to the need for further studies that aim to understand how MACS can assist firms in strategy implementation. Therefore, two questions were asked: (1) How did the company's MACS facilitate (or not) the Born Global Internationalization Model (BGIM) implementation; and

(2) How has the BGIM implementation involved (or not) changes in the MACS. And, if so, which? In order to answer these questions, a qualitative research study was developed, through an exploratory case study in a Portuguese firm in the technology sector.

In terms of structure, this study begins with a literature review section. In this section, we present the internationalization model adopted by the studied firm and the BG concept used in this study. Additionally, we characterize the relationship between MACS and the IP. In a second section, we present the empirical study and the case study results are analyzed and discussed. Finally, we present the conclusions, the limitations and we suggest some lines for future research.

7.2. Literature Review

7.2.1. Internationalization Models and BG firms

The IP is usually associated with the firms' normal growth (Roque et al., 2019$_a$) and is almost immediate in sectors of the economy heavily connected to research and development and to technology. Firms in the technological sector, usually named *international new ventures, born globals and global start-ups*, appeared in the present globalization era (Liesch et al., 2007), they follow the BGIM and undertake international business from an early stage in their development, often since they were legally established (Gabrielsson and Kirpalani, 2004). Although markets react positively (Gleason and Wiggenhorn, 2007), this early and rapid internationalization process poses new challenges, namely in terms of limited resources (Bembom and Schwens, 2018). However, by contrast, some researchers suggest that "resource scarcity can be a driver of, rather than an impediment to, early and rapid internationalization" (Keep and Gassman, 2009:616). These conflicting views still exist today.

In the literature, the two dominant models are the *U-Model* (Johanson and Wiedersheim-Paul, 1975; Johanson and Vahlne 1977), in which the internationalization is presented stepwise and in an incremental way, and the *I-Model* (Bilkey and Tesar, 1977; Cavusgil, 1980; Reid, 1981; Czinkota, 1982; Andersen, 1993), which perceives the internationalization as an innovation process. However, the literature has been highlighting other models such as the BGIM (Knight and Cavusgil, 1996; Bell, 1995). The incremental IP of older multinationals contrasts with the early, rapid IP of BG firms and research is needed "to explain how BGs achieve precocious internationalization and superior international performance" (Knight and Liesch, 2016:98).

The BG's expansion is due to the growth of information and communication technology and to the globalization phenomenon (Knight and Cavusgil, 2004). Technological progress allows

the internationalized firms to significantly reduce their transaction costs. Hence, the technological evolution improves and facilitates internationalization, removing barriers (Madsen and Servais, 1997), and this evolution contributes to a shorter products' life cycle, which allows small firms to timely respond to changes in consumer behavior (Rennie, 1993). According to Bell et al. (2003), BG are firms that can be classified as "knowledge-intensive firms", using new technologies and scientific knowledge to enhance competitive advantage; and as "knowledge-based firms", creating new technologies, which will become the basis for products and services' development.

BG strategy requires an early adjustment of the organizational structure to an increasingly global market, allowing to obtain transversal information for a good needs' diagnosis and to assist the decision-making process (Dimitratos et al., 2003), leading to a good performance.

BG definition is not consensual, and many researchers use divergent criteria to operationalize the BG concept (Dzikowski, 2018; Rassmussen and Madsen, 2002; Rialp-Criado et al., 2002). Some authors (Moen and Servais, 2002), argue that BG are small, technologically oriented firms, operating in international markets since their inception, developing their IP in an accelerated way, with sales to foreign market reaching a percentage of 25% of the total, in the first three years of the company's life (Bell et al., 2003). For others, BG are firms that simultaneously adopt a vision and strategy to become international or even global, practically from the date of their creation (Bell, 1995; Gabrielsson and Kirpalani, 2004; Knight and Cavusgil, 1996, 2004; Oviatt and McDougall, 1994; Rialp et al., 2005[a, b]), seeking to obtain significant competitive advantages, derived from resources usage and outputs sale in several countries (Oviatt and McDougall, 1994). So, the success of this type of firms necessarily lies in a global vision. Firms must "think globally" to become global (Persinger et al., 2007).

The literature has emphasized some specific features of BG firms (Liesch et al., 2007). Hence, SMEs that internationalize are usually examples of successful cases; some firms challenge the conventional internationalization theories, since they internationalize directly and with highly innovative products, outlining the internal market; and they contradict the myth that small firms' strategic options are limited by the scarcity of resources.

The BGs' early and rapid internationalization has raised the curiosity of some authors (Andersson, 2000; Andersson and Wictor, 2003; Chetty and Campbell-Hunt, 2004; Crick and Jones, 2000; Etemad, 2004; Freeman and Cavusgil, 2007; Gabrielson and Kirpalani, 2004; Madsen and Servais, 1997; McAuley, 1999; Oviatt and McDougall, 1994; Persinger et al., 2007; Thanh and Chong, 2008), who explain these firms' success based on variables, such entrepreneur's personality, competitive environment, contact networks, resources and organizational structure.

However, a rapid IP's can bring some challenges. So, Braunerhjelm and Halldin (2019) concluded that the BGs' future perspectives depend on their ability to cope with the costs and risks derived from the fast internationalization. This "coping ability" is supported by MACS.
Hence, the literature on BG shows two distinct research strands (Gassmann and Keupp, 2007). In the first, internationalization patterns are analysed over time (Knight and Cavusgil, 2004). In the second, we find studies that analyse firm's internal factors, such as managers' personal traits or firm's characteristics (Jones and Coviello, 2005; Knight and Cavusgil, 1996; Kundu and Katz, 2003; Moen, 2002; Rialp et al., 2005$_b$). However, few studies focus on the firms' organizational features from the structural point of view, based on the competitive advantage that allows them to internationalize. Therefore, this work intends to fill this gap, ascertaining how the organizational structure, namely MACS, is affected and affects the IP.

7.2.2. Management Accounting and Control Systems and internationalization strategy

MACS can be used to maintain or modify models or standards in organizational activities and also to implement strategies (Anthony and Govindarajan, 2007; Henri, 2006). MACS design should be specific to a firm respecting its organizational structure (Gomes and Salas, 2001). MACS use management accounting information to achieve goals (Chenhall, 2003) and simultaneously include control mechanisms of various types (Malmi and Brown, 2008, Strauss et al., 2013). The MACS is thus fundamental to provide managers the information that allows them to evaluate the strategy's implementation, to assist in the decision-making process (Soobaroyen and Poorundersing, 2008, Hammad et al., 2013) and to implement the necessary adjustments to achieve the organization's goals (Gomez-Conde et al., 2013$_a$).
As the literature developed, different MACS classifications have emerged with a distinction being made between financial and non-financial control, formal and informal controls, action controls and results' controls and more and/or less rigid controls (Tsamenyi et al., 2011). In this study, MACS have been classified into three categories, according to six dimensions (Novas et al., 2017): (1) in the "Style of use of information provided by MACS", the "diagnostic" and "interactive" dimensions are grouped; (2) in the "Nature of information provided by MACS" two dimensions, "aggregation" and "integration", are reflected, and finally (3) in the "Type of decision supported by MACS" category, "performance evaluation" and "resource allocation" dimensions are grouped.
Systems in which the style of use of information is "diagnostic" correspond to formal information systems used by managers to control outcomes and to correct performance

deviations, thus being limited systems in terms of searching for innovative solutions and identifying opportunities (Simons, 1995). These systems match the management control's traditional definition (Simons, 1991). On the other hand, "interactive" systems promote innovation, learning and the search for new solutions. They stimulate new strategies as managers interact with emerging opportunities and threats (Novas et al., 2017). Control focuses on communication and cooperation, which allows information to flow and foster debate and dialogue, creating and integrating knowledge (Agbejule, 2006). The distinction between an interactive and diagnostic usage of information and control mechanisms was initially presented by Simon (1995) and it aimed to distinguish the firms' management control systems.

Regarding the type of information provided by MACS, aggregated information favors management of decentralized units, allows a large volume of information to be processed over a given time period and enables managers to compare more alternatives and to gain a better understanding of the relationships established among the different organizational units (Bouwens and Abernethy, 2000). On the other hand, integrated information enables the understanding of the cause-effect relationships between the operational structure, strategy, goals and financial results (Chenhall, 2005a). It even provides the coordination mechanisms among the different organizational units, thus being fundamental in decentralized structures, in terms of the decision-making process, as well as in terms of control (Chia, 1995). Hence, firms with more aggregated and more integrated information have more sophisticated MACS.

Concerning the type of decision supported by MACS, "resource allocation" and "performance evaluation" decisions are considered. Resource allocation correspond to a MACS' usage for planning and coordination purposes (Novas et al., 2017) and is defined as the distribution of monetary and non-monetary resources over the different decentralized units, in order to allow managers to performed their activities (Naranjo-Gil and Hartmann, 2006). All the information is focused on resources' distribution and, in situations of uncertainty, better information will obviously result in a better resources' usage (Baines and Langfield-Smith, 2003).

In "performance evaluation" decisions, the system focuses essentially on how performance can be improved (Novas et al., 2017), using information for monitoring and controlling organizational goals (Naranjo-Gil and Hartmann, 2006; Reck, 2001; Reed, 1986), as well as for the organizational units and managers' performance control (Silvi, 2012).

MACS' dimensions are usually considered in isolation, however in some cases there might be some overlapping. Therefore, the relevance of a given dimension or a particular dimensions' configuration, at a given moment, might result from a particular context (Bouwens and

Abernethy, 2000, Bedford and Sandelin, 2015) or even from the stage in the organization's lifecycle (Moores and Yuen, 2001). A given MACS' structure may work in one organizational context and not work in another (Saulpic and Zarlowski, 2014). Therefore, different MACS' configurations and usages have different consequences for the firm (Otley, 2016).

Little is known about the MACS' effects on the strategy's implementation (Frigotto et al., 2013). So, it is assumed that the development of the internationalization strategy is supported by a MACS that provides suitable information to relieve management difficulties. The model is fundamentally supported by a MACS that enables a diagnostic and/or interactive information flow, furthers the decision-making process (Simons, 1991) and creates a system of good practices to stabilize and diffuse the organization's capacities (Novas et al., 2017).

A diagnostic MACS is a more formal control system (Simons, 1995), where there is little intervention of those responsible (Simons, 1991). These are more autonomous systems which do not stimulate the debate nor dialogue (Simons, 1990, Vaivio, 2004). The critical success factors are simply defined and the concern is simply to implement the previously deliberated strategy (Pešalj et al., 2018). In turn, an interactive MACS have a less restricted and more informal control. It provides the BGIM with information that promotes dialogue, knowledge creation and integration that supports the exports development and stimulate innovation (Novas et al., 2017; Agbejule, 2008). With this MACS managers and employees can identify uncertainties and/or opportunities in the strategy, they can therefore develop an alternative strategy and modify the existing management control, as well as performance tools (Pešalj *et* al., 2018).

Regarding the nature of MACS' information, BGIM find support in a system with more aggregated information, that allows to process a large volume of information in a given period of time, which is very useful for decision making purposes (Bouwens and Abernethy, 2000). As already mentioned, BG are firms with a strong technological orientation based on a large set of information, hence there is a predisposition for the information to be more aggregated over time.

Still, BG also needs integrated information to coordinate the different units. This information becomes fundamentally relevant in decentralized structures for both decision-making and control (Chia, 1995). Integrated information allows to understand the cause-effect relationships between the operational structure and strategy (Chenhall, 2005_a).

All the information is essential to managers decision-making, so BG pursue systems which allow support to resource allocation, performance evaluation and control decisions. It is simultaneously necessary to plan and coordinate resources, to monitor the organizational progress toward goal fulfilment, in firms with a strong technological orientation such as BG.

7.3. Research Methods / Methodology

To study the relationship between the BGIM and the MACS' design and use, a single case study was developed in a Portuguese firm, using a procedural and dynamic approach (Henri, 2006). To define MACS three dimensions were considered (Novas et al., 2017): style of use of the information provided, nature of information provided, and type of decision supported. We sought to relate each of these dimensions to the BGIM's main characteristics. The proposed research model is presented in Figure 7.1.

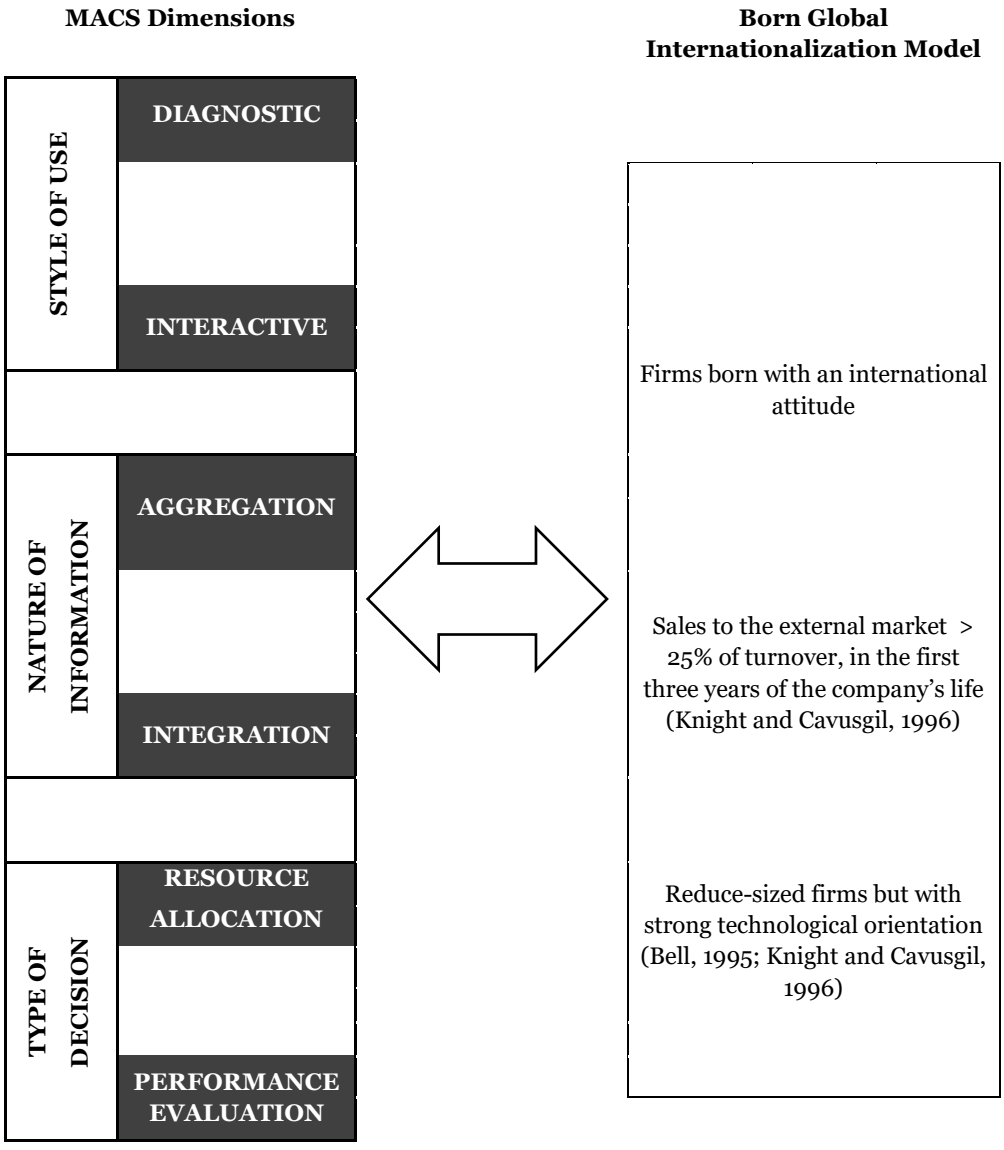

Figure 7.1. Research model: MACS vs Born Global Model

The methodology's selection depends on the phenomenon to be studied (Ryan et al., 2002). This study used a qualitative research approach, through a single case study (Yin, 2014). Data were collected from documents and personal in-depth interviews. The process began with a thorough analysis of the firm's website, and information in press articles.

Qualitative research is recommended for analyzing complex phenomena in areas where little prior knowledge is available (Strauss and Corbin, 1998). The need to conduct qualitative studies has been recognized (Ahrens and Chapman, 2006; Dzikowski, 2018). Qualitative research enables to record information, to perceive reactions to more complex questions, and to analyze the participant's speech, his intentions, actions and interactions in a more intimate way (Dana and Dumez, 2015). Qualitative research goes further (Miles et al., 2014), its usage goes beyond pure induction, contributing to theories' development (Ketokivi and Choi, 2014).

7.4. Study Results and Discussion

7.4.1. Firm and key informants

Critical Software (CS) is a firm in the Information and Communication Technology sector dedicated to software's production and commercialization. CS develops computer engineering solutions that support critical systems, such as entrepreneurial and institutional information and business systems. Its core business is to create infallible software tools. Currently CS has 656 employees and works in outsourcing with software development firms scattered around the world. In 2017, its turnover reached 31.5 M€ and the forecast for 2018 is 37 M€.

In Portugal, CS has its headquarters in Coimbra and two more branches in Lisbon and Oporto. It is represented in various parts of the world, through representative, subsidiaries and partners. In Europe, it is present in Southampton (United Kingdom), Munich (Germany) and Bucharest (Romania). In the American continent, CS has a representation in São José dos Campos (Brazil) and in California (USA). In the African continent, in Maputo (Mozambique) and in Luanda (Angola).

CS's mission is to ensure the correct functioning of organizations and firms' key sectors. Its purpose is to avoid failures "in critical systems" that can endanger and irreparably damage the institutions' image and profitability.

> *'Critical Software enters the scene when failure is not an option. Whether in space, aeronautics or civil area, the Portuguese firm is experiencing an accelerated internationalization, with a rampant turnover. And its eyes are on the future.'*
>
> In: http://upmagazine-tap.com/pt_artigos/proibido-falhar/

CS was selected for convenience and for arousing great curiosity, since it has been a reference in several national and international news, for being considered one of the best 100 firms to work in Portugal (EXAME magazine, 2017 Oct.), for developing software for NASA (SOL Journal, March 19th 2018), for its business volume (Jornal de Negócios, 10th April 2017), among other reasons recognized and referenced in the media.

This is a firm that was born global, and strategically created with the goal of responding to a growing demand in an increasingly more global and more technological world.

Once the firm is chosen, it is important to identify which are the key informants to inquire. For this purpose, an e-mail was sent to the communication office, explaining the study's goals. In response, the information officer, Drª Rita Pimentel, indicated the key informants' identity (see table 7.1.), and specified that they were chosen for the knowledge they possess on the IP and MACS. This "interviewees' self-selection" is part of a Snowball methodology suitable for this type of study (Biernacki and Waldorf, 1981).

Table 7.1. Key informants´ characteristics – Critical Software

Interviewee name		Position of Interviewees	Date and interview length	Place
Pedro Murtinho	CS_INT.1	Chief Financial Officer (CFO) Head of Partnerships & Alliances e Executive Management Team	March 2018 90mn	Corporate headquarters
Liliana Ladeiro	CS_INT.2	Corporate Financial Controller (CFC)	March 2018 95mn	Corporate headquarters

7.4.2. Critical Software's internationalization process and adopted model

In 1998, an academic work, performed by the firm's three founders and published in a scientific journal, caught NASA's attention. The publication presented an advanced technology prototype of software verification and validation, called "*Xception*". This software's mission was to inject system failures, testing them to exhaustion, simulating random errors and search for solutions. After the publication, the founders received an e-mail from NASA and, "still embryo", CS became a supplier for this giant worldwide agency and won an enviable business card. The natural consequence was the opening of a subsidiary in San Jose, California, in less than a year.

Over the years, CS's secret to maintain a high growth rate has lived in a market penetration strategy with high barriers to entry. With this strategy, the firm quickly excelled in the

development of value-added software (the so-called critical software), thus removing itself from the competition (low-cost software industry in Asian countries).

In 2002, sales abroad (exports) exceeded domestic sales, a trend that has since remained over the years, with exports representing about 70% of the company's results.

The strategy to create several subsidiary firms, as well as creating a set of spin-off firms, aimed at exploring new high-technology products and services, has increased and consolidated the IP. The contact with foreign markets is initiated by exports, then the process develops very quickly through subsidiaries' opening.

> *"The entry ways, as in any firm that begins this process, began by exporting "critical mass" and from there we quickly realized that the solution would be a much greater investment in the process and the creation of subsidiaries."* (CS_INT.1)

Currently, the firm exports to 11 countries and has subsidiaries in Southampton (United Kingdom), San Jose (USA), Bucharest (Romania), São José dos Campos (Brazil) and Maputo (Mozambique).

The entire process was initially structured by the company's CEO. Nevertheless, with the exponential growth across borders, the responsibility delegation of the process has been shared with other elements responsible for the different markets. Nowadays, the company's CFO is the element who gathers and analyses the whole process and thus represents a key informant to answer our questions.

In order to develop the study and deepen the knowledge about the IP, we asked the interviewees to comment on the motivation behind the IP's origin. They stated that:

> *"Because of US' internal mandatory issues. That is, NASA was our first customer and the US required them to establish relationships with suppliers settled on American soil. That was the starting point. We have established ourselves to meet the needs of our main client."* (CS_INT.1)
>
> *"Motivation was our core business. The services we have to offer forced internationalization."* (CS_INT.2)

"CS_INT.1" added that the variables for the process development were essentially two: (1) a business which "captures" special customers, such as space agencies, and which force the firm to develop across borders; and (2) the desire to increase margins, a process that was encouraged by the establishment of partnerships (with European Space Agency and other countries).

The interviewees also mentioned that in this process the market choice was clearly influenced by the existing relationship, by the market's size and potential, by the contact with the partner and the opportunity to grow alongside important competitors, which is a positive variable

that enhances development. On the other hand, territorial, linguistic and cultural proximity are less important variables, although the firm has a strong presence in Portuguese-speaking countries, namely Brazil, Angola and Mozambique.

When questioned about the process' main difficulties, the interviewees referred the human resources qualification and culture as the major obstacles to the process development. Hence, we questioned whether they resort to the company's employee mobility abroad to mitigate this difficulty. "(CS_INT.1)" stated that:

> *"Despite the difficulties in hiring and qualifying workers, we always hire local people. We look for references, but even so, the training ends up hampering the process. In Europe, we occasionally confirm the mobilization of some employees."*

The interviewees also emphasized the political and fiscal variables as conditioning factors. Brazil had fiscal barriers, and, Angola and Mozambique, political constraints.
Nevertheless, there are also opportunities in countries that should be explored: *"Countries like Romania are attractive, there are tax incentives and no IRS is paid."* (CS_INT.1)
In order to understand the relationships established across borders, we asked the interviewees about possible partnerships, "CS_INT.1" said: *"We have established a commercial partnership (with Player) because there are markets, such as Africa, where we cannot sell directly."*

With the unfolding of the interview, we realize that geographical expansion is part of CS's nature. Hence, and in order to understand the predictions for expansion, we questioned the interviewees about potential markets for future investments. Accordingly, the future the markets could be the United Kingdom, Germany and Scandinavia, as they gather attractive conditions for development, namely the culture, human resources, proximity to customers and suppliers.
The results obtained confirm that the model adopted by the firm is the BGIM. As, the firm was effectively born with an external orientation (Kinght and Cavusgil, 2004; Rialp et al., 2005b), assuming an international position and following all the assumptions and prerequisites to be classified as such, namely the sales volume in the first years of business (Rennie, 1993), an investment in knowledge (technological investment) (Bell et al., 2003), the development of networks (partnerships) (Zhou et al., 2007; Madsen and Servais, 1997) and the adoption of a certain organizational structure (Simões and Domiguinhos, 2001). Other BG characteristic are validated, such as belonging to a technological sector and initiating the IP towards geographically or psychologically distant countries.

7.4.3. The Management Accounting and Control System

After characterizing the model adopted, we asked the interviewees about the existence, importance and evolution of the relationship between the internationalization model and MACS. The respondents replied that:

> *"Yes, the impact was progressive, as the process evolved, the system was being improved, in order to answer our needs."* (CS_INT.1)
>
> *"The impact is recorded in an evolutionary and stable way, allowing the process analysis, according to the information provided by the system."* (CS_INT.2)

In order to understand CS's MACS design evolution, we asked the interviewees about the changes that occurred in the last decade.

> *"We use the A.K.A. Dynamics NAV system, which is an enterprise resources planning (ERP) software solution, which translates subsidiaries' accounting information and enables a global information reporting structure with weekly periodicity for managers and a monthly periodicity to the management board."* (CS_INT.1)

"CS_INT.2" added that in parallel a *Business Intelligence* tool, named *"Data Farol"*, was built. This software allows the manager to perform control and measure the costs structure. The existence of new accounting and control software is considered by the interviewees a very important tools to assist management control.

> *"It is crucial having a real control over the whole group anywhere in the world, whether it is financial control, performance control, quality… a structure able to answer the daily management problems."* (CS_INT.1)
>
> *"It is necessary to have tools that assist us in financial reading because budgets and transfer prices are a constant challenge, especially in internationalization processes as dynamic as ours."* (CS_INT.2)

Regarding management control techniques, CS adopted the *Activity Based Costing*, in the last decade, as well as the *Balanced Scorecard*, which is systematically reviewed every 3 years. Despite the control tools' help, the whole process is a little complicated.

> *"The firm is metanational, i.e. each department is a firm on a multinational scale, which increases the difficulties, especially in terms of communication. We must adapt to the different languages and culture of the host country. The departmentalization is vertically structured."* (CS_INT.1)

Therefore, and in order to evaluate and characterize the MACS, regarding the style of use of the information provided (diagnostic and/or interactive), we asked the interviewees to identify how the implemented MACS provides information to managers. Hence, the interviewees considered the system very important to implement new ideas and ways of accomplishing the tasks, as well as to discuss hypotheses and action plans. They referred that the system allows aligning performance measures with strategic goals, establishing a permanent coordination with subordinates and evaluating them adequately, since project teams are established that perform the individual evaluation on a quarterly basis and that condition the awarding (performance evaluation).

Nevertheless, they ascribe only a medium importance to the possibility of the system to assist the identification of strategic key areas, as well as establishing and negotiating medium and long-term goals and objectives and still allowing this system to be a learning tool.

Regarding the nature of information provided (aggregated and/or integrated), both interviewees consider as extremely important the information that enables to determine costs and other measures related to the various departments; the integrated information related to fixed and variable costs, sectoral information related to specific areas (departments, cost centers), namely of each task (time controls), consolidated information and information by sector.

Considering the third MACS' dimension (Novas et al., 2017), we asked the interviewees to comment on the type of decision supported by MACS, regarding the financial and non-financial resources' allocation (e.g. materials, human resources, time), as well as decisions related to monitoring and control of the goals and objectives' fulfilment by the units or services under its supervision. Concerning decision making, the interviewees classify MACS as highly important, as well as all the financial information, quantitative information, non-financial information and the qualitative information reported by the system. "CS_INT.2" also emphasized the high relevance of the formal information system, whose outputs (reports) are received periodically from each branch.

Finally, we asked the interviewees to evaluate the relationship between the MACS and the IP.

> *"Almost all the IP' decisions depend on MACS' results."* (CS_INT.1)
>
> *"The system is directly related to the IP and it influences the internationalization's structure. There is a MACS's impact on the decisions that are made for the branches in every level. Everything is evaluated and the IP depends on the assessment that is made."* (CS_INT.2)

7.4.4. Relationship between the Management Accounting and Control System and the Internationalization Model

Regarding the MACS' structure, we confirmed that the system's characterization follows the assumptions of Novas et al., (2017) and Simons (1991). It is a complete system in which the information's usage is mostly interactive. The diagnostic use of information is "marginalized" in this type of firms, since it is more superficial, less dynamic and with little involvement (Simons, 1990; Vaivio, 2004). CS shows a great involvement, promotes innovation, learning and seeks new solutions (Novas et al., 2017). It builds knowledge and information integration mechanisms (Agbejule, 2008). Therefore, it is a firm that relies on a MACS that reports mostly integrated information.

Information provided to support the IP is aggregated and integrated and facilitates multi-level decision-making. The aggregated information allows to process information for the various domains of the business reality (Bouwens and Abernethy, 2000). And since CS is a firm with a great technological orientation that supports itself in a large set of information to support its expansion, there is a propensity for the information to be more aggregated, as verified in the literature review. However, we confirmed that CS also resorts to integrated information since there is the need to coordinate the different units, to make decisions and also to control each branch (Chia, 1995).

In terms of the type of decisions supported, CS relies on a system that provides information that allows to support resource allocation decisions and performance evaluation. It is, thus, in this dimension, a very complete system of tangible and intangible control.

7.5. Conclusions

In this study, we have showed that with the BGIM advances in information technology and globalization facilitate knowledge acquisition and the IP evolution (Chetty and Campbell-Hunt, 2004; Madsen and Servais, 1997).

The studied firm has developed its IP since its inception. A few months old, CS opens its first branch. In addition, it developed immediate contact with international markets through exports and it quickly expanded its network by opening more branches. This entire path has allowed to identify the BGIM.

After the analysis of the relationship between MACS and the BGIM, we conclude that the firm uses MACS according to its information needs. The IP develops and systematically requires new information from MACS. In turn, MACS follows this evolution, progressively adapting to

the IP's needs. We therefore verify changes in the MACS' design, namely in the characteristics of the available information (MACS´s passive role) and in terms of the way the information is used (MACS´s active role), during the IP. Thus, in this process, the style of information usage is mostly an interactive style. Regarding the information's nature, the information can be aggregated and/or integrated to support resource allocation and performance evaluation decisions.

Hence, we conclude that the firm has a great entrepreneurial orientation and, through MACS, it attains the information needed to foster innovation and develop knowledge, in order to achieve success in the international markets. The MACS is tailored to the information needs and facilitates the internationalization strategy's implementation. However, this process involves adjustments in MACS.

Remembering our research questions, we ascertain that the company's MACS facilitates the internationalization strategy's implementation and development, (1) since it collects useful and crucial information for the IP. And, cumulatively, the adopted model implies changes in the MACS (2), namely in adopting and adapting accounting and control tools which allow to support the IP.

In terms of contributions, this study evidences the existence of MACS' roles (passive and active) in the BGIM, in consonance with other recent studies (Naranjo-Gil, 2016; Coller, Frigoto and Costa, 2018). It also emphasizes that MACS are used throughout the BGIM in a differentiated way, according to the information needs, and it highlights the importance of a dynamic and well-structured system that allows to help firms with technologically challenging characteristics, such as these. There is no study comparing both MACS and BGIM in a single case study. Thus, the present study fills this gap in the literature. Finally, this work also contributes to reinforce the contingency theory-based research results, since there is a MACS' adaptation (Grabner and Moers, 2013; Otley, 2016) to the IP's contingent factors (Ginsberg and Venkatraman, 1985).

However, some study's limitations are assumed, mainly because the analysis is limited to a single case study, which disables conclusion generalization. Nevertheless, we sought to increase the conclusions' robustness by interviewing several key informants. This limitation can be overcome by performing further case studies, which will enable us to perform comparative analysis later.

8. Internationalization Strategy and Management Accounting and Control Systems - a Network Approach

Abstract

Internationalization has become crucial to the economic development, especially to companies with a more technological and scientific nature. This type of company has aroused curiosity as they quickly begin their internationalization process (IP), adopting the Born Global model shortly after its creation. It has also been noted that, when these companies seek to benefit from mutual flexibility, the opportunity to use technical and economic knowledge, and even the collective assumption of costs and risks, it is usual for them to resort to the internationalization model based on Network Theory.

Considering that internationalization is part of the company's growth strategy and that this may require an adjustment of the information structure, namely the Management Accounting and Control System (MACS), it becomes relevant to understand how IP affects MACS.

We conducted a single case study in a Portuguese company in the health sector, using interviews and documentary analysis. The data was analyzed using *NVIVO 12 Plus software*, and the results obtained show a differentiated use of MACS throughout the IP.

Our results show that MACS needs to be adjusted to facilitate the implementation of the IP by being used in a more dynamic and differentiated way according to the IP information needs, further corroborating the existence of MACS' passive and active roles. This conclusion is currently gaining more importance due to COVID-19, which will certainly bring many changes in the companies' strategy (PI) and structure (MACS).

To the best of our knowledge, this study is pioneering in linking the company's internationalization models with MACS and in trying to understand how a good adjustment may lead to the internationalization strategy's success.

Keywords: *Born Global*; Internationalization; Management Accounting and Control System; Network, Strategy.

8.1. Introduction

Considering the growing pressures on SMEs to improve competitiveness, productivity and flexibility levels, and an increasingly active presence of companies in global markets, the study of internationalization has been gaining relevance (Ribau et al., 2018; Kuivalainen et al., 2012; McAuley, 2010). According to the literature, the internationalization process (IP) may occur in several ways, implying changes at the company's internal organization level and requiring a deep knowledge of the market's functioning (Freeman and Cavusgil, 2007; Chetty and Campbell-Hunt, 2004; Reuber and Fischer, 1997).

Traditionally, the IP develops in stages, however, recently, several authors (Coviello, 2006; Oviatt and McDougall, 2005; Zahra, 2005) have identified companies that contradict this traditional view since they are actively linked to the international market since birth (Ribau et al., 2018). These companies follow the *Born Global* internationalization model (BGIM), as they have a predefined projection towards the international market, and their goal is to provide a faster and more adjusted response to changes in consumer desires (Rennie, 1993). Therefore, these companies follow a strategic development, regardless of their age or size (Oviatt and McDougall, 1997).

On the other hand, when entering a network, some companies establish relationships that become true "*bridges to foreign markets*, providing firms with the opportunity and motivation to internationalize" (Coviello and Munro, 1997: 365). In this sense, the association of networked companies is seen as a solution and assumed as a Network Model of Internationalization (NTIM) (Johanson and Mattsson, 1988, Hadley and Wilson, 2003). The interaction of the different actors in a networked structure is based on trust and common long-term interests (Johanson and Mattsson, 1988). The network allows these companies to develop activities and control resources (Hallén et al., 1991), simultaneously inducing development and change at the level of the network itself (Johanson and Mattsson, 1988). The adaptation process is thus eminent and necessary (Hallén et al., 1991), mutual and iterative, as the company's results are interconnected with the results of the companies with which it interacts. As the company evolves, whether in terms of product/services diversity or even expanding into new markets, the informative needs change, becoming increasingly more aggregated and integrated. These changes will be reflected in the type of information needed to support the decision-making.

Being Management Accounting and Control Systems (MACSs) information systems by nature, these changes may affect them. Therefore, the design of MACSs is essential to provide managers with knowledge and information that allows them to assess the implementation of the strategy and make the necessary adjustments to achieve the organization's goals (Gomez-Conde et al., 2013). It seems that "assessing the appropriate information mix to monitor the achievement of strategic intent is a relevant line of inquiry, but it is also important to understand the associations between information type and the development and implementation of strategy" (Bhimani and Langfield-Smith, 2007:4). However, little is known about the effects of accounting (Skaerbaek and Tryggestad, 2010) or management control (Frigotto et al., 2013) on the implementation of the strategy. Some authors (Tessier and Otley, 2012; Ismail, 2013; Puck and Filatotchev, 2018; Cumming et al., 2017; Roque et al., 2017, 2018_a, 2018_b) have drawn attention to the need for further studies that seek to understand how MACSs can help companies to implement their strategy. Therefore, this study is part of a traditional line of research focused on the relations between strategy and structure of organizations (Chandler, 1962). However, contrary to this classic approach that analyses this relation in a static way (Henri, 2006), a dynamic approach (Bhimani and Langfield-Smith, 2007) will be used to analyze the relationship between the internationalization strategy and the MACS as a company's information system. That is, how MACS should be designed and used to ensure a successful IP, represented in this case by the NTIM and the BGIM.

Hence, the following research question arises: How should the MACS adjust to the BGIM and NTIM for a successful internationalization strategy?

In order to answer this question, a single case study was developed in a Portuguese company in the health sector. This company was chosen for its relevance in the international context and for having developed its IP through the adoption of NTIMs and BGIMs.

This article is structured in the following way: We begin by reviewing the NTIM and the BGIM. Then, we analyze and define the MACSs and present the theoretical framework that supports the empirical study. The following section describes the study design and methodology and discusses the results. At least, some considerations and suggestions for future research are made.

8.2. Literature Review

8.2.1. Networks and Born Global models of internationalization

The importance of the relationships between companies for international expansion has been highlighted in recent years (Ratajczak-Mrozek, 2017; Ciravegna et al., 2014; Seifriz et al., 2014). Some researchers have focused on the importance of network cooperation in achieving greater performance and profitability (Smith et al., 1995; Gulati et al., 2000; Seifriz et al., 2014; Barbosa et al., 2016) since it is proven that the association of network companies fosters the potential of the IP (Johanson and Mattsson, 1988; Sharma and Johanson 1987). Internationalization is promoted by the gradual acquisition of new knowledge through commercial relationships between the actors of the network (Johanson and Vahlne, 2009; Johanson and Mattsson, 1988), and it is no longer a sequential process, but it now occurs in "leaps" through the network interconnection, being dependent on the company's positioning in the network (Hertz, 1996). A network encompasses a set of two or more institutions, allowing interconnected exchanges (Axelsson and Easton, 1992; Sharma, 1993; Roque et al., 2019_a). Hence, companies develop relationships that allow them to access resources and sell their products and services (Johanson and Mattsson, 1988). Thus, the companies that belong to a network benefit from mutual flexibility, the opportunity to use a set of technical and economic knowledge, and even a collective assumption of costs and risks (Bachmann, 1999). This theory considers internationalization as a process in which continuous relationships are established, which may be maintained, developed or terminated, according to the company's goals (Johanson and Mattsson, 1988). Therefore, what determines the company's success in new markets is its position in the established network of relationships, and the greater the degree of international penetration and integration, the greater the relationships' number, obviously.

Some studies (Coviello and Munro, 1997; Zain and Ng, 2006, Johanson and Vahlne, 2009) indicate that the market's choice and the way of entry are strongly influenced by the company's network, "the greatest function of a network is to provide contacts that can be used when necessary for the company, such as when you want to enter an external market" (Freeman and Cavusgil, 2007:7).

However, a company may also use a network to learn from mistakes and successes and thus follow in the footsteps of its partners and even competitors. In this respect, Bonaccorsi (1992) found that some small companies manage to accelerate their internationalization process by obtaining information through the network and imitating other organizations. In this context, we can understand that the BGIM may result from the NTIM.

According to Bell et al. (2003), the companies that follow the BGIM can be classified as "knowledge-intensive companies" (that use new technologies and scientific knowledge to increase their competitive advantage by increasing productivity, new offers to the market and introducing new distributing channels) and as "knowledge-based companies" (that bet on the creation of new technologies, assuming this creation as the basis for the development of products and services). Born Global are defined as companies that, since their creation, aim at becoming global (Gabrielsson and Kirpalani, 2004; Persinger et al., (2007); Roque et al., 2019_a). Over time, Born Global companies have contributed to the growth and economic development of many countries (Ahlstrom and Ding, 2014). These companies are born with an outward orientation, assuming an international posture (Knight and Cavusgil, 2004; Rialp et al., 2005_b; Roque et al., 2019_a), and that internationalize very quickly without any performance period in the national market (Oviatt and McDougall, 1994; Bell et al., 2003; Gabrielsson and Kirpalani, 2004; Roque et al., 2019_a).

However, the definition of this type of company is not consensual (Rassmussen and Madsen, 2002; Rialp - Criado et al., 2002). For some authors (Knight and Cavusgil, 1996; Knight, 1997; Moen and Servais, 2002), Born Globals are small, technologically oriented companies that have been operating in international markets since their creation, in which the IP is developed very quickly, with sales to the foreign market reaching a percentage of 25%, in the first three years of activity. For others, Born Global are companies that simultaneously adopt an international vision and strategy, practically since its creation (Rennie, 1993; Knight and Cavusgil, 1996; Oviatt and McDougall, 1994; Bell, 1995), seeking to obtain significant competitive advantages from the use of resources and the sale of outputs in several countries (Oviatt and McDougall, 1994).

8.2.2. Role and structure of the Management Accounting and Control System

MACSs are part of the structure of the organizations and may be defined as tools that managers use to maintain or change patterns in organizational activities and to implement strategies (Anthony and Govindarajan, 2007). They are simultaneously control mechanisms (Malmi and Brown, 2008; Burns et al., 2013) that systematically use management accounting information to achieve goals (Chenhall, 2003). They can be considered fundamental tools to provide managers with essential information to assess the implementation of the strategy and make the necessary adjustments to achieve the goals of the organization (Gomez-Conde et al., 2013_a).

In this respect, and similarly to other studies (Roque et al., 2017, 2018$_b$, 2019$_b$, 2020$_a$), and in order to operationalize the MACS' study, we will resort to the Novas et al. (2017) framework. These authors classified the MACS into 3 categories and six dimensions: (1) "Style of use of information" provided by MACS, a category which groups the diagnostic and interactive dimensions; (2) "nature of information" provided by MACS, a category which considers the aggregation and integration dimensions, and finally (3) "type of decision supported" by MACS, that is, the category that covers the performance evaluation and resource allocation dimensions. These dimensions can be considered in an isolated or complementary way. The importance attributed to the various dimensions may vary according to the moment or context in which the company is located (Bouwens and Abernethy, 2000; Bedford and Sandelin, 2015) and may therefore depend on the degree of the IP's development. Hence, the MACS' design is not standardized (Novas et al., 2012). Each system comprises unique characteristics, according to the company's specificities and importance of each of its dimensions at a given moment.

8.2.3. The relationship between the Internationalization Models and the MACS

As we saw before, the NTIM involves two or more institutions that permit interconnected exchanges (Axelsson and Easton, 1992) between them. This situation allows the exchange of resources (Sharma, 1993), greater mutual flexibility from the institutions, cooperation versus the opportunity to use a set of technical and economic knowledge, and simultaneously the collective assumption and sharing of costs and risks (Bachmann, 1999). These relationships must be supported by a wide range of knowledge and information.

Similarly, through knowledge, the BGIM also seeks a way to improve the managerial ability to deal with the costs and risks associated with the rapid development of the internationalization process (Braunerhjelm and Halldin, 2019). Therefore, the BGIM is developed, seeking support in a MACS that provides adequate information to mitigate the managerial difficulties, allowing an adequate information flow for diagnostic purposes and/or a more interactive management of the decision-making process (Simons, 1991). It also seeks to create a best practices' codification system in order to stabilize and disseminate the organization's capabilities (Novas et al., 2017).

The NTIM, in turn, is developed, seeking support in a MACS that provides information for an interactive use, in order to foster innovation, learning and the search for new solutions, which triggers the emergence of new networks, as their participants interact and respond to the

opportunities and threats that arise (Bachmann, 1999; Kaufmann, 1994; Belso-Martínez, 2006; Roque et al., 2018$_a$; Sharma and Blomstermo, 2013; Leppäaho et al., 2018; Andersson and Sundermeier, 2019). It is a model in which a more interactive use of information is expected, given the characteristics of Network Theory and the fact that an interactive use of MACS is flexible enough to absorb novelty and adapt to unexpected events (Gomez-Conde and Lopez-Valeiras, 2018).

Regarding the nature of the information provided by MACS, the NTIM relies on increasingly aggregated and integrated information as the company evolves, whether in terms of product/service diversity or expansion into new markets. Informative needs tend to adapt and therefore change, becoming more aggregated and integrated, compared to the initial stage of the company. The integration of information is especially relevant as the interdependence increases between organizations (Chia, 1995) since integrated information allows a broad and complete view of the whole and means of coordination between different organizational units. The characteristics, integration and aggregation of information are thus considered contingently. Roseira and Brito (2007) highlight the knowledge and information that companies receive through their network of suppliers; these authors draw attention to the fact that it is not only a problem of quantity but also a problem of the "nature" of the information. Adaptation is thus a need (Hállen et al., 1991), it is a mutual and iterative process in which the results of a company are interconnected with the results of the companies with which it interacts (Kronen, 1995).

In the BGIM, the information that derives from the system tends to assume a more aggregated nature. Given the characteristics of the model, the aggregation of information allows processing a large volume of information in a given period of time, and it is useful for the various domains of business reality (Bouwens and Abernethy, 2000). Born Globals are companies with a great technological and scientific orientation that rely on a large set of information in order to prepare for their expansion. There is, therefore, a tendency for information to be more aggregated over time or during the life cycle. However, during the IP, these companies also seek integrated information, to coordinate and control the different subsidiaries (Chia, 1995), consequently establishing a cause-and-effect relationship between the operational structure and the strategy (Chenhall, 2005$_b$).

Regarding the type of decision supported by the MACS, both internationalization models use the system as an information provider to support resource management decisions, to plan and coordinate activities and to evaluate and control performance; in order to control and monitor the goals and performance in participating in the network (Bisbe and Malagueño,

2015; Bisbe and Otley, 2004; Henri, 2006; Gómez-Conde et al., 2013; Chenhall, 2007; Langfield-Smith, 2007; Sharma and Blomstermo, 2013; Leppäaho et al.,2018; Roque et al., 2020$_a$, 2020$_b$, 2019$_b$).

8.3. Research Model / Methodology

After the literature review and following the same line of other studies (Simons, 1990; Roberts, 1990; Archer and Otley, 1991; Roque et al., 2017, 2018$_a$, 2020$_a$, 2020$_b$), with this work, and from the conceptual model portrayed in Figure 8.1., we sought to understand how should the MACS adjust to the BGIM and NTIM for a successful internationalization strategy?

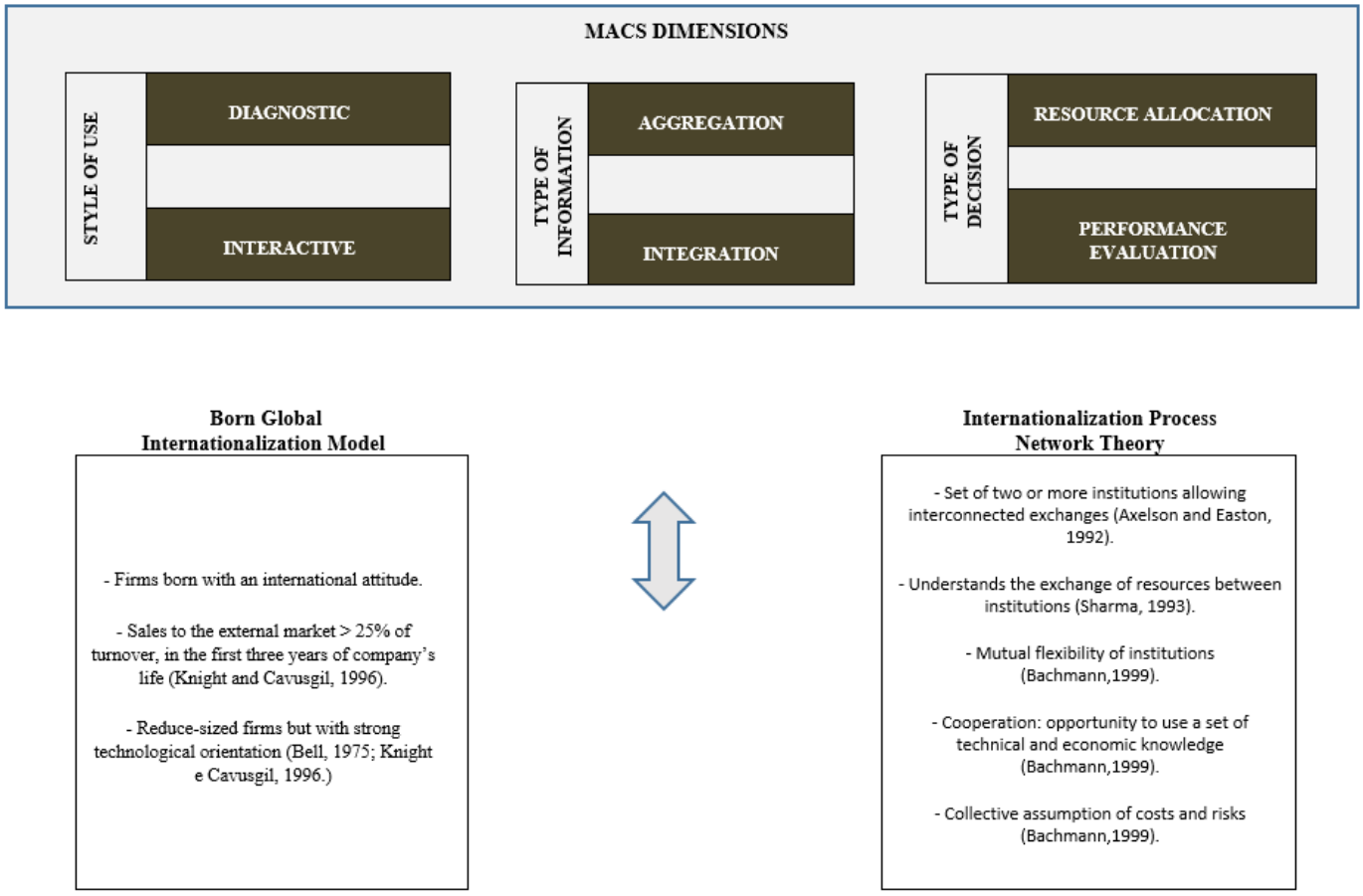

Figure 8.1. Research model: MACS vs Born Global Model and Network Theory Model

8.3.1 Research Design

To answer our research question, a single case study was developed according to Yin's (1993, 2005) approach. Due to limited prior knowledge, we felt the need to use a qualitative approach (Ahrens and Chapman, 2006; Dzikowski, 2018) since it allows recording more information in more detail and perceiving reactions more intimately (Dana and Dumez, 2015). This qualitative empirical research allows an in-depth investigation of a contemporary phenomenon within its real-life context (Yin, 1993, 2005).

Multiple sources of data collection were used to provide triangulation. And, data were collected through documentary analysis and three semi-structured interviews, in which the interview guide (Appendix 1) had been adapted from other studies (Burns et al., 2003; Major et al., 2011; Novas et al., 2017).

The interviews' content was analyzed using the *NVIVO 12 Plus software*. And, to answer the research question, the information was collected and analyzed around 3 themes: (1) The characteristics of the Internationalization Model; (2) The characteristics of the MACS and (3) The relationship between the Internationalization Model and the MACS.

8.3.2. Selecting the company and the key informants

Usually, cases are selected because they are particularly suitable for illuminating a phenomenon (Eisenhardt, 1989) and offer opportunities for unusual research access. In this case, our contact was first established at a Postgraduate Seminar at Coimbra *Business School* – ISCAC, on the theme "*Digital Branding beyond Borders*", which took place on September 27th, 2018. This company was represented by the Marketing and Communication Director. After a small informal conversation, we decided that the company would be an interesting case to explore, and an invitation to participate in this study was made. This company had aroused some curiosity for being a company in the health sector, whose brand is rising internationally and where an IP with appropriate characteristics for the study was pre-diagnosed.

After informing th6 company on the scope of the study, three key informants were selected (see Table 8.1.). For this selection, we used the *Snowball* methodology, which is appropriate for this type of study (Biernacki and Waldorf, 1981).

Table 8.1. Key informants´ characteristics – Stemlab

Respondents' names and code		Respondents' position	Interview date and duration	Place
Dr. Mónica Brito	S_INT.1	Chief Operating Officer (COO), and administrator and responsible for the internationalization operation in the Swiss market.	October 2018 100 minutes	Company headquarters
Dr. Pedro Sá	S_INT.2	Controller and International Markets Manager	October 2018 95 minutes	Company headquarters
Dr. Ana Canha	S_INT.3	Marketing and Communication Director	October 2018 90 minutes	Company headquarters

8.4. Study Results and Discussion

8.4.1 Company description

Stemlab, S.A., was founded in 2003 in Cantanhede (headquarters) – Portugal, by a group of professionals in the life sciences field. This company was a pioneer and leader, in Portugal, in the isolation and cryopreservation of stem cells from blood and umbilical cord tissue. Crioestaminal was the first cryopreservation laboratory authorized by the Ministry of Health through the Authority for Blood and Transplantation Services, and it is one of the European banks to be accredited by the American Association of Blood Banks in Portugal.

This company seeks to actively participate in the development and provision of the most advanced technologies of preventive and personalized medicine: (1) Enabling access to personalized therapies based on stem cells; (2) Developing R&D projects aiming to discover new cell therapies; (3) Providing advanced diagnostic technologies.

As a result of its core business and innovative path, internationalization has naturally emerged as the way forward. The company (at the date of the interview) had three subsidiaries, Celvitae in Spain, Stemlab in Switzerland, and Crioestaminal in Portugal, and exports its services.

8.4.2. The Internationalization Process

Internationalization was vital for *Stemlab, S.A.* The foundation of the business is science, and naturally, borders could not constitute barriers to the development. In 2006, a partnership was established with an Italian company, Hematos (online sale of medical products in the gynaecological field). *Stemlab, S.A.*, took advantage of Hematos' market knowledge, which facilitated its insertion in the market and involved lower costs than creating

a new company. The files of every customer were recorded in an information system, accessible in every country where it operates, which ensured great control over the status of each customer's process.

Responding to the need for further expansion, in 2008, it entered the Spanish market, establishing a company in Barcelona, *Crioestaminal Spain SL*. In the relationship with the Spanish customer, the samples are collected in Spain and sent to Portugal via a road carrier to be processed and stored in the group's laboratory in Cantanhede. It was at that time that *Stemlab, S.A.*, established itself as the largest company in the industry in the Iberian Peninsula and the third in the European Union. Finally, in 2010, and in the same strategic line, a company was bought in Madrid, Celvitae. After 6 months, a merger between the two Spanish units occurred, and the headquarters remained in Madrid.

Over the years, the Swiss market started gaining the company's attention and, in 2015, through a project submitted to Portugal 2020, a company was created in Switzerland, and a brand: *Stemlab - Science for life*.

According to INT.1, in addition to the maturity of the market, there was little knowledge in Switzerland about the possibility and importance of storing stem cells. Hence, the market was naturally receptive and not saturated.

> *"This was a market which was observed for a long time and was receptive to consumption"* says S_INT.1.

Still, in 2015, *Stemlab, S.A.*, returned to Italy with the same approach as in 2006 (commercial partnership). It established a new partnership with a new "*player*", and later, in 2017, another one. Both partnerships still remain today. Being companies in the same field, they, therefore, established *B2B* relationships.

However, the company's geographical expansion does not stop there. China has a small representation through a partner that invests in medical clinics and nuclear medicine, whose goal is to implement a stem cell bank with European regulations. These partners are associated with the ideal partner that is *Stemlab, S.A.* since they have the necessary know-how for undertaking this project.

In Portugal, the umbilical cord stem cell cryopreservation market fell 20% between 2011 and 2012 due to a decrease in the birth rate and purchasing power, which led *Stemlab, S.A.* to seriously invest in the internationalization process. However, during the internationalization process, some difficulties were encountered:

> *"Although Portugal has been seen favorably to the tourism sector, in recent years, in the health sector, the effort of being interpreted this way is a great challenge.*

Internationally, Portugal is seen as a more "backward" country in terms of health and science, which often makes relationships difficult," says S_INT. 1.

On the other hand, *"The Portuguese market was small, and a large investment had been made in the area, requiring some return, that is, making this investment in Portugal profitable." Says S*_INT. 2.

Therefore, that *"(...) was the solution for the development and growth of our product,"* says S_INT. 3.

After characterizing the IP, the interviewees were asked about the most important criteria in choosing the first foreign market. From their answers, we could conclude that geographical proximity came first. The reason is that, in this sector of activity, the time variable associated with logistical conditions, such as transportation, is vital for the development and growth of the activity.

> *"... the conditions of transport and timing are not trivial in guaranteeing storage in perfect conditions, they are decisive variables in the choice of the market," says S*_INT.1.

In second came customs and traditions and, in third, the linguistic variable.

Having highlighted the most important criteria for choosing the first market, we asked the respondents about the main motivations for this process. The interviewees emphasized:

> *"The limitations of the domestic market, the need to follow customers and partners and also the access to new markets with growth potential,"* says S_INT. 1.
>
> *"In Portugal, we were very restrained, and we tried to approach and win the market through our partners,"* says S_INT. 3.

Next, we inquired the interviewees about the main obstacles faced during the IP. They unanimously underlined the challenges in human resources management, the legal aspects and the associated bureaucracy.

In order to further explore the process, we invited the interviewees to comment on the main changes and the importance of internationalization. Analyzing the responses obtained allowed us to recognize some of the changes introduced:

> *"Productivity is naturally enhanced by the internationalization process. The workload is increasing, and the challenge of performing in the most efficient*

and effective way possible increases productivity considerably," says S_INT. 1.

Thus, and according to the interviewees, internationalization is an extremely important process for the development of the company.

"It contributes to a significant increase in market share" (S_INT. 2). *"And to the company's success,"* says S_INT. 3.

Nevertheless, it also requires some wear and tears on resources.

"In general, it contributed to some wear and increased the demand and the need for availability of the entire team." says S_INT. 1.

Currently, the strategic goals of internationalization involve increasing the penetration of the cryopreservation service in Portugal, increasing the market share and stabilizing the international markets: Spain, Switzerland, Italy.

Analyzing the results using the *NVIVO 12 Plus software*, namely the analysis of the entry modes, the application "text search" and the "tree diagram" output, we found that there were two ways of entry and establishment used in the IP: (1) the direct opening of subsidiaries, such as the case of Spain (Barcelona, right at the beginning of the process, and then Madrid, by acquiring a company), and Switzerland, which contributes to the validation of the adoption of the BGIM model; and also by (2) the establishment of partnerships, such as the cases of Italy and China, which lead us to conclude that another of the adopted models is the NTIM.

8.4.3. The Management Accounting and Control System

Having such an active and dynamic IP, meeting the information needs to assist control and management is crucial. In order to understand the evolution of the MACS' design, we asked the interviewees which were the changes in terms of the techniques used in the MACSs.

Through the content analysis of the responses, we found that the *Balanced Scorecard* is the adopted control tool, which is highlighted, especially at *Celvitae* in Madrid and at *Stemlab, S.A.*, *Crioestaminal* in Portugal. Strategic Management Accounting and some non-financial Performance Measures are other auxiliary control tools adopted by the company. The adoption of these tools allowed to answer to the increase in information needs, resulting from the evolution of the IP.

To analyze the situation, the respondents were asked about the use of the information provided by the MACS. In their opinion, the system is used actively, regularly providing information through monthly *Reporting*, allowing the control to be streamlined. There is a

diagnostic use of the information provided by MACS, that is, aggregated information (synthesis) and also integrated information, since it allows the management of the various business units.

> *"The information from the Business Units is monthly transferred to the company's Directors, thus, the information is shared with Accounting through the Cost Centers, and therefore the Heads of Departments are informed,"* says S_INT.1.

The generation and integration of information, however, raised some difficulties that have been resolved over time.

> *"There is a software that allows us to connect the Spanish and Portuguese accounts. Since the accounting of the Spanish company is performed in Portugal, by myself. However, initially, it was necessary to turn to outsourcing because it was very difficult to adapt the software. In the case of Switzerland, as there are very specific rules and regulations, until today, we use and keep an outsourcing firm that provides accounting services. The accounting control is assured through many face-to-face meetings and also in a virtual way (Skype), as the goal is to systematically audit the accounts,"* says S_INT.2.

As the system evolved, there is:

> *"more activity and less bureaucracy. There is an increase in information that is undoubtedly more objective and synthetic, very well oriented to help us respond to what we want," says S*_INT. 3.

In order to understand how the MACS is used and resort to the framework proposed by Novas et al. (2017), we asked respondents to identify how they use the information provided by MACS. Their responses reveal a more interactive use, as they state that:

> *"The MACS allows reading information in a very practical way. The information allows us to understand which activities are programmed and processed in each subsidiary, or in a certain partnership, and thus it becomes easier to control the goals and establish cooperation between subsidiaries or in the network," says S*_INT. 2.
>
> *"The system allows filtering information, and so we can use it to formulate our interpretations. It is very important to keep us aligned with the strategy*

*or else to evaluate and adjust it. It allows us to control people, to establish our goals and hence it helps us along the way," says S_*INT. 3.

Since 2006, when the first partnership was established with Italy, every customers' files were recorded in an information system, available and accessible in the countries where it operated, thus ensuring great control over the process' status and tasks' execution. Regarding the nature of the information, aggregated and/or integrated (Novas et al., 2017), the interviewees claimed that the information provided by MACS was highly important, namely the one that is related to studies on the effect of certain events in concrete time periods; the information that is prepared to allow the construction of scenarios; and the information that shows how different functions (e.g. production, marketing) are specifically affected by the occurrence of certain events (cultural events for example).

Considering the 3rd dimension of the MACS framework (Novas et al., 2017), we asked the interviewees to comment on the type of decision supported by the MACS, distinguishing the decisions related to the distribution of financial and non-financial resources (e.g. materials, human resources, time), from the decisions related to the monitoring and control of the execution of goals and objectives by the units or services under their supervision. The interviewees attributed high importance to formal information, represented by the monthly report between the subsidiaries. And they classified the informal system's information as very important *"mainly for Commercial Activity, Internal communication and Knowledge Management," says S_*INT.3. As well as all the financial information, non-financial quantitative information and qualitative information that the system reports.

Finally, we directly asked the respondents about their perceptions of the impact of the IP on the MACS' design. The interviewees' responses suggest that the impact works in both ways, that is, the IP influences the MACS, and, in turn, it also influences the IP (Bisbe and Malagueño, 2015; Bisbe and Otley, 2004; Henri, 2006; Gómez-Conde et al., 2013; Chenhall, 2007; Langfield-Smith, 2007; Roque et al., 2019_b, 2020_a, 2020_b).

The information collected from interviews and document analysis was analyzed using the *NVIVO 12 Plus software* option "text search" and the expression "impact" and the option "word tree", showing that the system is heavily influenced by IP.

8.4.4. Relationship between the Internationalization Model and the Management Accounting and Control System

From the analysis performed on the information collected, using documentary analysis and interviews, we found that the models that describe the company's path are two, and they correspond to NTIM and BGIM.

Regarding the MACS' design, we have shown that the system follows the assumptions by Novas et al. (2017) and Simons (1991). It is a complete system in which the information has a predominantly interactive use, either because of the establishment of partnerships (NTIM) or by the adoption of the BGIM. A diagnostic style of use of information provided by MACS would not adjust to the company's model, especially the NTIM, since it confers a more superficial and discontinuous, less dynamic and with little involvement information output (Simons, 1990; Vaivio, 2004), when the results obtained, suggest the existence of a great involvement. Innovation is part of the process, and learning is naturally stimulated (Novas et al., 2017). There are mechanisms for integrating information and knowledge (Agbejule, 2006) throughout the organizational structure, and thus in the relationship between the IP, namely its models, and the MACS, the information is mostly intended for an integrated use of knowledge.

Regarding the nature of information, it is assumed in both models in an aggregated way. However, the aggregation of information is mostly highlighted in the BGIM since it is necessary to process a large volume of information (Bouwens and Abernethy, 2000). The information is also used in an integrated way, in both models, to coordinate, control and make decisions in each subsidiary (Chia, 1995), thus simplifying the decision-making process at various levels.

Stemlab, S.A. relies on a MACS, which allows obtaining information to support both resource management and performance assessment decisions, in both models (Novas et al., 2017; Sharma, 1993; Gabrielsson and Kirpalani, 2004; Leppäaho et al., 2018).

Hence, when assessing the relationship between the internationalization models and MACS, our results suggest that the style of use of MACS information is essentially interactive, the information can be both aggregated and integrated, and it is used to support resource management and performance assessment decisions. Additionally, the adopted models (NTIM and BGIM) implied changes in the MACS, defining its configuration. We show that accounting and control tools have been adopted and that its information sharing has been adapted to the various requirements. Therefore, we conclude that the MACS adjusts to the different models (NTIM and BGIM) so that the IP develops successfully (Davila and Foster,

2007; Sharma and Blomstermo, 2013; Bisbe and Malagueño, 2015; Bisbe and Otley, 2004; Henri, 2006; Gómez-Conde et al., 2013; Lin et al., 2017).

8.5. Conclusions

In the developed study, we can verify that the IP was adopted practically since the creation of *Stemlab, S.A*. Initially, this company started by strategically adopting the establishment of partnerships and, later, it opted to create subsidiaries in unknown markets and in which partnerships had not been explored. This entire course indicates that there are two IMs adopted and configured by *Stemlab, S.A*.: NTIM and BGIM.

Having established the relationship between the IM and the MACS, we conclude that this company uses the MACS according to its information needs. The configuration of the MACS accompanies the internationalization's evolution, progressively adapting itself to the process' needs. In both adopted models, the MACS' style of using information is mainly interactive, regarding its nature, the information may be aggregated and/or integrated, and the information output allows to support decisions at the resource management level, as well as performance assessment, thus we verify a passive role of the system (evidenced in the characteristics of the information provided) and an active role during the IP (evidenced in how the information is used).

Thereby, we conclude that the internationalization models imply adjustments in the MACS, and the latter provides the necessary information to develop the knowledge and successfully consolidate the internationalization strategy, and in this way, we were able to answer our research question: How should the MACS adjust to the BGIM and NTIM for a successful internationalization strategy?

This study presents several scientific contributions at their origin. On one hand, it is an innovative work as it relates the MACS and two specific internationalization models (NTIM and BGIM), emphasizing the existence of several MACS' roles (passive and active) in the IP (Naranjo-Gil, 2016; Coller, Frigoto and Costa, 2018). It also enabled us to analyze the characteristics of the information originating in the MACS and the type of decisions supported in each IM. A dynamic *"inside-out"* approach (Chenhall, 2005_b) was introduced, which allowed us to analyze the MACS' adjustment to each IM. On the other hand, this study helped to increase knowledge on the accounting literature which examines the *Framework Levers of Control* (Kruis *et al.*, 2016; Asiaei *et al.*, 2018) and the relationship between MACS -

Internationalization Strategy (Gomez-Conde and Lopez-Valeiras, 2018; Velez et al., 2014, 2015; Araujo et al., 2011, Florez et al., 2012).

For purposes of future research and aware of the limitation caused by the fact that it is a single case study, we suggest the replication of this study in other companies in order to extend the study to other internationalization models. In the same research stream, we suggest a comparative analysis with multiple cases study to compare different internationalization models and study patterns common to cases and theory (Eisenhardt, 1989). And, another suggestion could be performing a quantitative study applied to companies, in specific sectors, in order to deepen the analysis of the predominant internationalization models, in this sector (Sharma and Blomstermo, 2013; Leppäaho et al., 2018).

Finally, and considering the global business environment and how it affects international ventures, we also highlight the approach to Covid-19 disease for study in the future. According to recent data (Wright, 2020; Zahra, 2021), the changes Covid-19 has made in the global business environment have been deep, profound and lasting. However, these changes present a multitude of challenges and opportunities for international entrepreneurs and their ventures. In a pre-Covid-19 era, some authors have already awakened us to the complex-systems internationalization (Chandra and Wilkinson, 2017) and visualization (Schotter, Buchel, and Vashchilko, 2018), and now there is finally the opportunity to develop more creative studies, which allow the construction of a support tool for the survival of companies in the international market (Zahra, 2021), and which mitigate the negative impact of Covid-19 (Gomez-Conde et al., 2020).

9. Internationalization Model and Management Accounting and Control System - a Multi-Case Study

Abstract

This research draws on the Resource-Based view of the firm and Dynamic Capabilities Theory to analyze the impact of the Internationalization Model (IM) in Management Accounting and Control System (MACS), to the extent that this positively influences the internationalization capacity.

For this purpose, a multiple case study was performed in Portuguese companies. Data were collected using semi-structured interviews, internal reports, news from the media and website content analysis.

The results suggest that the adopted IM impacts the MACS since it is configured according to the IM's needs.

This study aims to contribute to a deep understanding of the relationship between the IMs and the MACSs, constituting a tool that will help companies understand how they may adjust the MACS to the development of the IM. The results suggest the existence of several roles (passive and active) of MACSs in the strategy implementation process. It also indicates contributions to the Resource-Based View Theory and the Dynamic Capabilities Theory.

This is the first multi-case study to analyze the impact of IMs on MACSs' configuration and use.

Keywords: Internationalization; *U-Model*; *I-Model*; Networks Theory; *Born Global*; Management Accounting and Control Systems.

9.1. Introduction

The internationalization study has generated a growing interest over the years (Ribau et al., 2018; Kuivalainen et al., 2012, McAuley, 2010; Eternad, 2004). This phenomenon may occur in several ways, whether through exports, opening subsidiaries, creating joint ventures, establishing networks (Singh et al., 2010), or it may be operationalized through various Internationalization Models (IMs).

This whole process, which requires a deep knowledge of the market (Freeman and Cavusgil, 2007; Chetty and Campbell-Hunt, 2004; Reuber and Fischer, 1997), naturally implies changes and adaptations of the companies and their operations (Calof and Beamish, 1995; Hallén et al., 1991). Associated with the change process, the need to obtain knowledge and information becomes vital in order to assess the implementation of the strategy and make the necessary adjustments to achieve the organization's goals (Gomez-Conde et al., 2013_a). The Management Accounting and Control System (MACS') role here is analogous to an information provider, which assists the manager in the decision-making process.

The relationship between strategy and structure was highlighted by Chandler (1962) and, since then, although there has been research on MACSs and Internationalization (Gomez-Conde and Lopez-Valeiras, 2018; Mitter and Hiebl, 2017; Gaffney et al., 2014; Gómez-Conde et al., 2013_a, 2013_b; Hsu and Pereira, 2008; Pangarkar, 2008), the knowledge around this relationship is still very limited (Crespo et al., 2019; Puck and Filatotchev, 2018; Cumming et al., 2017; Roque et al., 2017, 2018_b, 2019_b; Ismail, 2013; Frigotto et al., 2013; Tessier and Otley, 2012; Skaerbaek and Tryggestad, 2010; Langfield-Smith, 2007; Sykianakis and Bellas, 2005).

In recent years, there has been a growing development in the literature regarding the relationship between MACS and Strategy (Gimbert et al., 2010; Bisbe and Malagueño, 2012; Franco-Santos et al., 2012; Lopez-Valeiras et al., 2015; Gomez-Conde and Lopez-Valeiras, 2018; Gomez-Conde et al., 2019; Ramon-Jeronimo et al., 2019; Garcia-Àlvarez et al., 2019). Nevertheless, there is still little knowledge on the effects of MACS on the strategy implementation process (Coller et al., 2018; Frigotto et al., 2013; Skærbæk and Tryggestad, 2010).

Few studies analyze the uses of the MACS in the internationalization process (Florez et al., 2012; Gomez-Conde and Lopez-Valeiras, 2018; Araújo et al., 2010, 2011, 2011; Velez et al., 2008, 2014, 2015), we suggest a new approach to studying the impact of the MACS in the internationalization models (U-Model, I-Model, Networks Theory and Born Global),

providing an inside-out perspective (Chenhall, 2005b). We, therefore, contradict the classic view, in which strategy is assumed in a static way and analyzed from a content perspective, and therefore we resort to a procedural and dynamic approach (Henri, 2006), both at the level of strategy and structure.

In this sense, we ask the following research question:

RQ: How does the internationalization strategy influence the MACS' configuration and use? And, are there differences between the studied internationalization models?

In order to respond to this question, a cross-case analysis was developed (Eisenhardt, 1989; Eisenhardt and Graebner, 2007) in Portuguese companies. Similarly, to Mitter and Hiebl (2017), we considered that the MACS is an important capacity enhancer for internationalization, thus contributing to the consistency of the Resource-Based View Theory (RBV) and the Dynamic Capabilities Theory.

The chapter is structured as follows. In the next section, we review previous studies on internationalization models, namely: *U-Model, I-Model*, Networks Theory and *Born Global*, because these are the IMs adopted by the companies under study. We then cover the definition of MACS, and we analyze its configuration. That said, the theoretical framework that underlies the study is designed. The following section presents and discusses the research design, methodology, and results obtained. Finally, some final considerations are presented, and lines of future research are suggested.

9.2. Literature Review

9.2.1. Internationalization models

Internationalization is increasingly associated with the survival of companies, and there are clear differences in development between companies that adopt the internationalization strategy and those that do not (Mas-Verdú et al., 2015).

One of the most important and most useful theories in the study of internationalization strategy is the Resource-Based View Theory (RBV) (Peng, 2001; Hoskisson et al., 2000). The Resource-Based View theory allows us to explore how internationalized companies create, access and control specific resources to obtain competitive and sustainable advantage (Barney, 1991).

There are various modes of entering markets across borders (Freeman and Cavusgil, 2007; Chetty and Campbell-Hunt, 2004; Reuber and Fischer, 1997), either through exports, contracts and/or direct investment (Anderson and Gatignons, 1986; Hill et al., 1990). The entry may be registered in an incremental or accelerated way, and both lines have specific characteristics about the timing and structure of the strategy for entering a foreign market

(Prange and Verdier, 2011). In this way, dynamic resources are also adapted to the modeway of entry (incremental or accelerated) in a foreign market, thus suggesting a predefined path for the creation of differential capacity (Prange and Verdier, 2011).

The form of internationalization varies according to many factors, including dimension, age, type of management (Ribau et al., 2018), the organization's view (Coviello, 2006; Oviatt and McDougall, 2005; Zahra, 2005) and it has specific consequences regarding the control of operations, commitment of resources and in terms of the spread of risks (Hill et al., 1990). Therefore, companies gradually build the receptivity to change, accumulating capacities, such as learning and cultural adaptability (Sapienza et al., 2006).

The secret to success in the internationalization process lies in the company's ability to constantly reconfigure and adjust resources and capacities to the international contingencies (Kogut and Singh, 1988; Li, 1995).

This study will present the characteristics of four IMs, which tend to be adopted by Portuguese companies and are simultaneously identified in our studies.

9.2.1.1.U-Model

U-Model (UM) is a model that focuses on the market's specific knowledge (Clark et al., 1997), and it enables a dynamic view of the international expansion following a progressive/gradual and incremental logic (Johanson and Vahlne, 1977) from simple exports to direct investments (Hilal and Hemais, 2003). In this model, external aspects, such as conditions for competitiveness or market potential (Pedersen, 2000), are ignored, and preference is given to elementary aspects, such as the psychological proximity (Johanson and Wiedersheim-Paul, 1975).

This IM involves a sequence of four distinct phases, which Johanson and Wiedersheim-Paul (1975) named the establishment chain, namely: (i) sporadic export phase, which allows the company a first contact with the market; (ii) exports through an agent phase, which allows increasing market knowledge, requiring, on the other hand, a greater commitment of resources; (iii) establishing a commercial subsidiary phase; and finally, (iv) establishing a productive subsidiary phase.

9.2.1.2. I-Model

Similarly, to the UM, the *I-Model* (I-M) is defined as an incremental IM where each step is seen as an innovation (Rogers, 1962; Andersen, 1993; Bilkey and Teaser, 1977; Cavusgil,

1980; Reid, 1981). Our work highlights and unifies the models proposed by Bilkey and Tesar (1977) and by Leonidou and Katsikeas (1996).
Bilkey and Tesar (1977) recommend a model based on 3 phases, according to the geographical distance, namely: (1) unsolicited exports; (2) exports to geographically closer countries; and (3) exports to geographically more distant countries. In turn, Leonidou and Katsikeas (1996) identify 3 distinct phases in the development of the I-M: (1) the pre-export phase, when the company begins to assess exports' viability; (2) the "trail" of exports, when the company starts exporting irregularly; (3) the advanced phase of exports, that is, a level at which the company exports regularly and builds other forms of commitment to international markets.

9.2.1.3. Networks Theory

The Networks Theory is currently considered a theoretical approach and simultaneously one of the most popular IM (Ratajczak-Mrozek, 2017; Ciravegna et al., 2014; Seifriz et al., 2014).
A network can be understood as a set of two or more institutions allowing interconnected exchanges (Axelsson and Easton, 1992; Sharma, 1993). The established relationships allow creating opportunities, for example, to use a set of technical and economic knowledge, as there is mutual flexibility (Bachmann, 1999), thus increasing cooperation and promoting the motivation for the company to internationalize (Sharma and Johanson, 1987).
In the Networks Theory IM (NTIM), in addition to promoting the sales of products and services (Johanson and Mattsson, 1988), costs and risks' responsibilities are also shared (Bachmann, 1999).

9.2.1.4. Born Global

The *Born Global* IM (BGIM) is a model adopted by companies that, since their creation, have followed the vision of becoming global (Roque et al., 2020_a; Persinger et al., 2007; Knight and Cavusgil, 1996; Bell, 1995; Gabrielsson and Kirpalani, 2004).
This model is usually adopted by small companies, with new and rapidly changing technology, intensive in knowledge (Bell et al., 2003), showing an accelerated internationalization at birth, and may export a quarter or more of their sales to the foreign market, in the first three years of the companies' life (Knight, 1997; Moen and Servais, 2002; Bell, 1995; Knight and Cavusgil, 1996). Most of these companies initially expand internationally through exports to naturally similar countries (Chetty and Campbell-Hunt, 2004; Freeman and Cavusgil, 2007); however, cultural similarity and geographical proximity are not always registered.

9.2.2. The Management Accounting and Control System

In the literature review, we find that the definition of MACS has not been consensual (Malmi and Brown, 2008; Lavia Lopez and Hiebl, 2015). Anthony and Govindarajan (2007), similarly to Simons (1995), argue that MACSs are tools that allow the company to maintain or change its organizational activities in order to achieve the proposed objectives. According to Malmi and Brown (2008) and Burns et al. (2013), MACSs are control structures and mechanisms of various types that systematically use management accounting information to achieve objectives (Chenhall, 2003). Other authors (Bedford and Malmi, 2015; Langfield-Smith, 2007) emphasize the role of MACSs, associated with the use of resources, in order to achieve the company's goals. Therefore, companies adopt MACS depending on their objectives, strategy, and context (Bedford and Malmi, 2015).

However, most researchers corroborate the fact that MACS is an important provider of information, assisting managers in the decision-making process and accordingly to the different levels of the organization (Burns et al., 2013; Malmi and Brown, 2008).

In this perspective of a system that supports management, accounting has been analyzed based on the Resource-Based View Theory (RBV) (Gómez-Conde et al., 2013a; Henri, 2006). The RBV argues that all the resources of an organization (assets, capacities, organizational processes, attributes of the company, information, knowledge, etc.) are fundamental elements for the company to implement strategies and achieve a competitive advantage with sustainability (Barney, 1991; Sirmon et al., 2011).

However, Eisenhardt and Martin (2000) suggest a more specific role for the capabilities, as they assume a moderating role in the relationship between resources and strategy. Capabilities are understood as the organizational processes used to synthesize, acquire and create new applications based on the organization's resources.

In this line of research, MACS can be understood as a capacity of the organization (Henri, 2006), supporting and thus contributing to the Dynamic Capabilities Theory (Weerawardena et al., 2007).

Hence, in our study, we adopted the framework proposed by Novas et al. (2017), which was inspired by Simons (1991, 1995) to configure the MACS system in three categories and six dimensions, as presented in Table 9.1.

Table. 9.1. MACS dimensions

CATEGORY	DIMENSIONS
Style of Use Information	Diagnostic
	Interactive
Information Nature	Aggregation
	Integration
Decision type	Performance Evaluation
	Resource Management

According to Novas et al. (2017), there is no standard for the management accounting system' design. Each system depends on the specific features of the companies, and the importance of each dimension is highlighted according to the needs, the moment/context (Bouwens and Abernethy, 2000; Bedford and Sandelin, 2015) or even the life cycle (Moores and Yuen, 2001), which may be considered in isolation or complementing each other.

9.2.3.The relationship between Strategy and Structure

As mentioned in the introduction, research focused on the relationship between strategy and MACSs is still very scarce (Crespo et al*.,* 2019; Langfield-Smith, 2007; Sykianakis and Bellas, 2005).

Similarly to Chenhall (2007) who relates strategy with MACS, Crespo et al. (2019) associate the company's strategy to the adoption of different types of MACS. They conclude that the adoption/existence of an international strategy strongly influences the adoption of MACS, thus emphasizing the need to adapt MACSs to strategy (Crespo et al.,2019). The same conclusion is shared by other studies (Gomez-Conde and Lopez-Valeiras, 2018; Gómez-Conde et al., 2013_b; Henri, 2006) that show that there is a positive association between MACS and the Internationalization Process; and this is positively associated with organizational performance (Gómez-Conde et al., 2013_b).

Hence, the strategy must be supported by MACS to guarantee success in implementation (Davila et al., 2015). According to Langfield-Smith (2007), the MACSs may simultaneously assist multiple strategic dimensions. However, an adjustment between MACS and strategy is essential, the system must be adapted in detail to a specific strategy (Chenhall, 2007).

The internationalization process increases the need for diversified information; therefore, this process requires the adaptation of the MACS so that the information responds to the different needs of the individuals that constitute the organization (Chenhall, 2007).

Some researchers (Bisbe and Malagueño, 2015; Bisbe and Otley, 2004; Henri, 2006; Gómez-Conde et al., 2013_a) have concluded that MACSs may directly support the development of the

strategic capacities, as they help companies achieve competitive advantage through their driving role.

According to Lin et al. (2017), the MACSs concur to increase the entrepreneurship and performance of *Start-Ups* since they enhance the supply of critical information (Davila and Foster, 2007).

MACSs are an important tool to support the decision-making process, although they may simultaneously be seen as providing feedback on the impact of the adopted strategy (Chenhall, 2007), supporting/fostering, or not, strategic change (Langfield-Smith, 2007). In essence, they assume the Dynamic Capabilities Theory, since they comprise a set of routines through which the company learns resorting to different sources and where the goal in the international context is the development of the market, the network of relationships and internal learning (Weerawardena et al., 2007).

Thus, considering the framework proposed by Novas et al. (2017), the IMs highlighted in our study (UM, I-M, NTIM and BGIM), and the literature review performed, we summarize in Table 9.2. and 9.3. the main conclusions reached.

Table 9.2. Relationship between the IM and the MACS information Use

Internationalization Models	Style of Use of Information	
	Diagnostic	**Interactive**
U-Model (i)sporadic exports' phase; (ii) exports through an agent phase; (iii) establishing a commercial subsidiary phase; (iv) establishing a productive subsidiary phase.	- UM is supported in a MACS of a diagnostic type, in the 1st and 2nd phases, primary and simpler phases (Johanson and Wiedersheim-Paul, 1975). -Limited type of use when searching for innovative solutions and identifying opportunities. It only focuses on performance variables (Simons, 1995; Novas et al., 2017). -The top manager is very independent in using this system. He delegates the operations of the subsystem to staff of groups or to lower managers, and he only relies on them to inform him when his intervention is needed (Simons, 1991) -Arguing is not encouraged, and certain measures are ignored (Simons, 1991; Vaivio 2004). The use is fundamentally in order to control results and correct deviations.	-UM is supported in a MACS of the interactive type, in the 3rd and 4th phases, which are phases of greater commitment (Johanson and Wiedersheim-Paul, 1975). -Innovation, learning and the search for new solutions are encouraged, leading to the emergence of new strategies. Its participants interact and respond to the opportunities and threats that arise (Novas et al., 2017). -Communication and cooperation are emphasized, allowing information to flow and fostering debate, dialogue and integration (Agbejule, 2006). -Regular interconnection meetings are defined with subordinates or other stakeholders in order to review data and results of an action plan (Simons, 1991). -The top manager reports the use of the system at all levels; he uses the information and shares it with the subordinates (Simons, 1991)
I-Model (1) Unsolicited export or pre-export phase; (2) Exports to countries that are geographically closer or the "trail" phase of exports; (3) Export to geographically more distant countries or advanced export phase.	-The diagnostic type enables to make comparisons and take corrective measures to reduce deviations, useful for all the phases of I-M, especially in the 1st phase, since it is the initial phase of the process (Bilkey and Tesar, 1997; Leonidou and Katsikeas, 1996). -I-M supports itself in a MACS that includes a dynamic style of information use (Simons, 1995) depending on the phase.	-The focus on communication and cooperation (Simons 1991, 1995) allows information to flow and develop the phases of the I-M. -Innovation is encouraged (Rogers, 1962, Andersen, 1993), a fundamental ingredient of the I-M. Exports are seen as an innovative process. Therefore, new strategies emerge, which contributes to the model's evolution. -The system promotes exports (Gomez-Conde and Lopez-Valeiras, 2018), encouraging the correct orientation, as it grants a greater number of information that helps the manager's decision-making process (Adler and Chen, 2011). In turn, he obtains and shares knowledge with everyone (Simons, 1991)
Networks Theory	We've decided not to establish a relationship since the Networks Theory presupposes interaction between the members that compose the network (Axelsson and Easton, 1992), thus the diagnostic use is not considered.	-The interactive use fosters innovation, learning and the search for new solutions, which contributes to the emergence of new networks/synergies (Novas et al., 2017; Sharma, 1993).
Born Global	It is used in the embryonic phase of the company since the system does not stimulate the debate nor dialogue (Simons, 1990, Vaivio, 2004), it only focuses on a diagnostic analysis. The goal is the global market (Gabrielsson and Kirpalani, 2004), and it is for this purpose that the diagnostic information is used. It supports itself in this use for a more formal control (Simons, 1995). There is little intervention by those responsible (Simons, 1991). The critical success factors are simply defined, and the concern is simply to implement the previously deliberated strategy (Pešalj et al., 2018).	-Promote the dialogue, knowledge creation and integration that support the exports' development and stimulate innovation (Novas et al., 2017, Aghejule, 2006). -Managers and employees can identify uncertainties and/or opportunities in the strategy (Novas et al., 2017), they can therefore develop an alternative strategy and modify the existing management control, as well as performance tools (Pešalj et al., 2018).

Table 9.3. Relationship between the IM and the MACS characteristics

Internationalization Models	Nature of the Information		Type of decision	
	Aggregation	**Integration**	**Performance Evaluation**	**Resources Management**
U-Model Chain of establishment (Johanson and Wiedersheim-Paul, 1975): (i) sporadic exports' phase; (ii) exports through an agent phase; (iii) establishing a commercial subsidiary phase; (iv) establishing a productive subsidiary phase.	In the initial phases, due to its structure (simple and centralized), the information tends to assume a simpler form. The information aggregation allows to process a large volume of information in a certain period of time (Bouwens and Abernethy, 2000). With the evolution (products/services diversity or expansion into new markets), from the 2nd phase onwards, the information needs tend to be adapted and become more aggregated and integrated.	Information integration increases as interdependence grows (3rd and 4th phases), allowing a broad and complete perspective of the group and means of coordination between the different organizational units (Chia, 1995). Information integration contributes to understanding the relationships between the operational structure and the strategy and objectives and among other aspects (customers, suppliers) (Chenhall, 2005a). MACSs include a measurement component related to the provision of various financial measures (customers, organizational processes, innovation) (Chenhall, 2005a), which assist control at the different phases.	Performance evaluation is highlighted in the 3rd and 4th phases, given the commitment to the market (Johanson and Wiedersheim-Paul, 1975). It associates aspects related to the monitoring and control of the goals and of the performance of those responsible and of the organizational units.	Resource Management is emphasized in the 3rd and 4th phases, where all the information is converted into the appropriate distribution (decision-making) of resources (Baines and Langfield-Smith, 2003), essentially to plan and coordinate the activities that result from it. It implies the distribution of monetary and non-monetary resources among the different decentralized units, thus increasing the managers' control responsibility (Naranjo- Gil and Hartmann, 2006). .
I-Model Phases (Bilkey and Tesar, 1977 and Leonidou and Katsikeas 1996): (1) Unsolicited export or pre-export phase;	The I-M aims the information aggregation, especially in the initial phase (phase 1) because it reunites a large amount of information in a certain period of time, which is useful for the organizational reality knowledge (Bouwens and Abernethy, 2000). Between phase 1 and phase 2, the aggregation will improve the management of decentralized	The I-M seeks integrated information in order to understand the relationships cause-effect between the operational structure and the strategy, and it evaluates the provision of several measures that are related to financial aspects, such as innovation (Chenhal, 2005). In phases 2 and 3, there is a dynamism between the aggregation and integration (Simons, 1995). But integration assumes a greater weight.	The MACS that allows the performance evaluation must be useful to assure a monitoring and control of the organizational goals and the performance of those responsible for the organizational units that they manage (performance evaluation), especially in phases 1 and 2, as they are	The I-M supported in all its phases by systems that allow the Resources' management because it is essential to plan and control resources at all stages since the process is viewed based on innovation (Rogers, 1962, Andersen, 1993).

(2) Exports to countries that are geographically closer or the "trail" phase of exports; (3) Export to geographically more distant countries or advanced export phase.	units, equate more alternatives, innovate and gain a better understanding of the relationships established between the organizational units (Bouwens and Abernethy, 2000).	The information integration allows the consolidation of coordination mechanisms between the different organizational units, supporting the decision-making process and also control (Chia, 1995), which is recorded and required in advanced phases (2nd and 3rd) (Bilkey and Tesar, 1997; Leonidou and Katsikeas, 1996).	the start-up phases of the Internationalization Process.	
Networks Theory	At the beginning of cooperation, information tends to be more aggregated: it gathers a large amount of information that enables the evaluation of the opportunity to use a common set of knowledge (Bachmann, 1999). This evolving model is incrementally based on a dynamism between aggregated and integrated information as the company grows.	Integrated information allows a broad and complete/interconnected perspective of the group and means of coordination between the different organizational units and the network, contributing to the sharing of responsibilities and risks (Bachmann, 1999). The integration dimension is viewed in a contingency way, considering the company's evolution, and it is relevant as interdependence increases between organizations (Chia, 1995).	NTIM is supported by a MACS that encourages performance evaluation and control in order to control and monitor the goals and performance of participating in the network, which contributes to spreading the internal internationalization process.	NTIM relies on the MACS to support resource management decisions to plan and coordinate activities (Novas et al., 2017) within the network itself. The exchange of resources between institutions (Sharma, 1993) presupposes the use of information regarding the decision to control those resources.
Born Global	The aggregated information allows to process a large volume of information in a given period of time, which is very useful for decision-making purposes (Bouwens and Abernethy, 2000) in global firms. There is a predisposition for the information to be more aggregated over time because the goal is global.	The integrated information is necessary to coordinate the different units. The integrated information becomes fundamentally relevant in decentralized structures for both decision-making and control (Chia, 1995). It allows to understand the cause-effect relationships between the operational structure and strategy (Chenhall, 2005a).	Information allows the performance evaluation and control (Novas et al., 2017) of all units/subsidiaries, as it is necessary to evaluate the performance in companies with a great technological orientation that are born "global" and that, since their first years of life, develop all their activity based on exports and the conquest of the foreign market (Gabrielsson and Kirpalani, 2004).	BG pursue systems that allow support to resource allocation because necessary to plan and coordinate resources, to monitor the organizational progress toward goal fulfilment in firms with a strong technological orientation such as BG.

9.3. Research Methods/ Methodology

9.3.1. Design

After the literature review, and similarly to other studies (Simons, 1990; Roberts, 1990; Archer and Otley, 1991; Roque et al., 2017, 2018), based on the conceptual model represented in Figure 9.1, we sought to understand the impact of the IM on the MACS' configuration.

We, therefore, assume a procedural and dynamic approach (Henri, 2006), with which we intend to answer the following research question: How does the internationalization strategy influence the MACS' configuration and use?

The different IMs (UM, I-M, NTIM and BGIM) were related to the three different categories and dimensions of MACSs Style of use of information provided by MACS; Nature of information provided by MACS and Type of decision supported by MACS.

In the relationship established, we assume that the different IMs seek a MACS that allows the use of diagnostic and/or interactive information (1); that provides aggregated and/or integrated information (2); to support resource management and/or performance evaluation decisions (3).

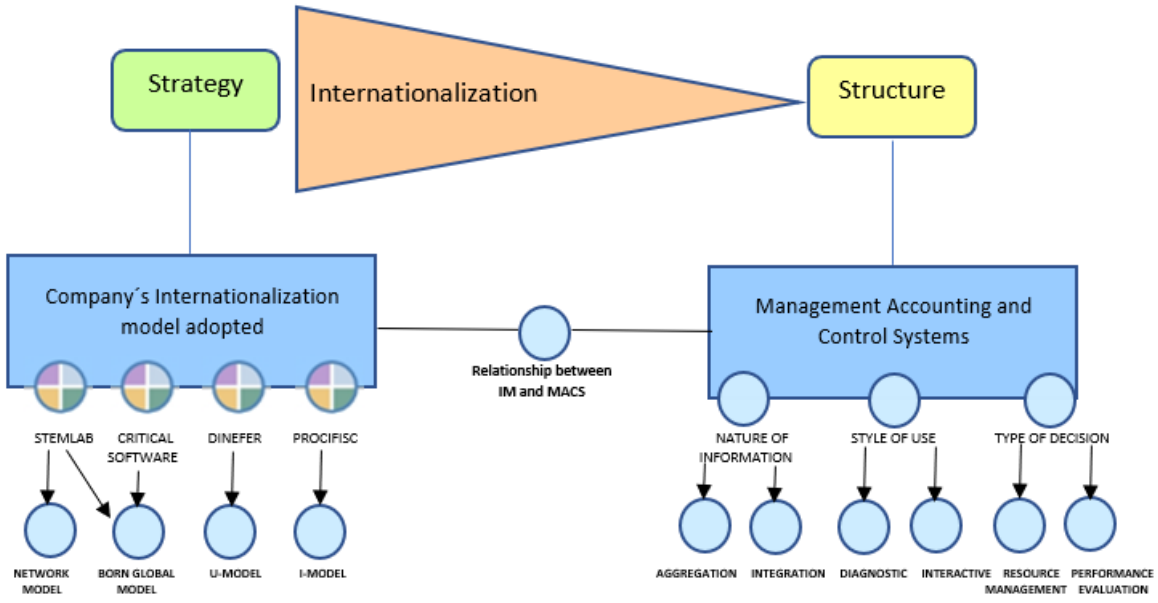

Figure 9.1. Conceptual model: Cross Case

9.3.2. Research setting and data sources

In this study, a qualitative research approach was used to analyze multiple case studies (Eisenhardt, 1989; Eisenhardt and Graebner, 2007), since the "theory building from multiple cases typically yields more robust, generalizable, and testable theory than single-case research" (Eisenhardt and Graebner, 2007, p. 27).

We chose to perform four case studies since that, according to Eisenhardt (1989), in the multiple-case approach, there is no ideal number of cases, however with fewer than four cases, theory is difficult to generate, and with more than ten cases, the volume of data is difficult to cope with.

We used several data sources, primary sources (semi-structured interviews) and secondary sources (publicly available from press reviews or websites and official company documents). Multiple data collection methods were adopted to increase the information base and diversify data to reduce biases (Patton, 2002; Yin, 2003).

The tool which enabled the collection of primary data was the semi-structured interview. The interview guide was designed based on instruments developed and used by other authors and, as such, empirically validated (Burns et al., 2003; Major et al., 2011; Novas et al., 2017). Like in other studies (Ahrens and Chapman, 2006; Dzikowski, 2018), the adopted methodology allows a more particularized analysis based on the details and sharing of "intimate" information (Dana and Dumez, 2015), which are enriching to support the conclusions. In order to perform a content analysis of the interviews and the different documents collected, the *NVIVO 12 Plus software* was used. All the documents were duly encoded and treated, and the results were analyzed through specific matrices.

9.3.2.1. Companies and Key Informants

The invitations to participate in this study arose from the authors, who, when identifying these companies as successful cases in Internationalization, decided to deepen their knowledge about the various models adopted in international markets.

The invitation was performed by sending an email to formalize the proposal. The target companies of the study and some of their characteristics are presented in Table 9.4.

Table 9.4. Details of the Case Studies

COMPANY	Activity sector	Date of Establishment	Turnover	Number of employees	Beginning of the Internationalization Process	Subsidiaries/ location
DINEFER Engenharia e Sistemas Industriais S.A.	Installation of industrial machinery and equipment	1988	9,2 M€	165	2003	Slovakia, Morocco, Brazil (closed in 2015)
PROCIFISC Engenharia e Consultadoria, Lda	Engineering and related technical activities	2007	500.000€	7 + Outsourcing	2011	Angola, São Tomé and Brazil (non-subsidiary companies – only from the same group).
STEMLAB S.A.	Other human health activities	2003	7 M€	70	2006	Spain, Switzerland, Portugal
CRITICAL SOFTWARE S.A.	Computer programming activities	1998	31,5 M€	+ 800	1998	Brazil, Mozambique, USA, Angola, Germany, United Kingdom

The interviewees' selection was defined by the companies under study and based on the specific knowledge of each respondent on the topic (table 9.5). The process of "self-selection" thus allowed contributing to the adoption of a Snowball methodology that facilitates case studies (Biernacki and Waldorf, 1981). On the other hand, the use of the critical incident methodology (Flanagan, 1954; Hettlage and Steinlin, 2006; Hay, 2014) allowed us to collect subjective information in a reflexive logic that derives from situations experienced by the interviewees (Chell, 2004).

The interviewees and the interviews' date and location are presented in Table 9.5.

Table 9.5. Key Informants Characteristics

Interviewee's name		Respondents' position	Interview date and duration	Place
Eng. João Conceição	D_INT.1	CEO	July e October 2016 120 minutes	Company headquarters Castelo Branco
Eng. Filipe Lourenço	P_INT.1	CEO	September e December 2017 180 minutes	Company headquarters Castelo Branco
Dr. João Medroa	P_INT.2	*Chief Financial Officer* (CFO)	November 2018 95 minutes	Company headquarters Castelo Branco
Dr. Mónica Brito	S_INT.1	Chief Operating Officer (COO), and administrator and responsible for the internationalization operation in the Swiss market.	October 2018 100 minutes	Company headquarters Cantanhede-Coimbra
Dr. Pedro Sá	S_INT.2	Controller and International Markets Manager	October 2018 95 minutes	Company headquarters Cantanhede - Coimbra
Dr. Ana Canha	S_INT.3	Marketing and Communication Director	October 2018 90 minutes	Company headquarters Cantanhede- Coimbra
Dr. Pedro Murtinho	CS_INT.1	CFO and Head of Partnerships & Alliances e Executive Management Team	March 2018 90 minutes	Company headquarters Coimbra
Dr. Liliana Ladeiro	CS_INT.2	Corporate Financial Controller (CFC)	March 2018 95 minutes	Company headquarters Coimbra
Dr. João Figueiral	CS_INT.3	Financial and tax consultant; Management partner	March 2019 180 minutes	Company headquarters Coimbra

9.4. Study Results and discussion
9.4.1. The Models Adopted

By analyzing the replies collected through the 9 interviews to the 4 case studies, and after a transcription phase and respective segmentation/coding in the *NVIVO 12 Plus software*, it enable us to relate and analyze the various responses and build a matrix of Cases vs Internationalization Model, according to Table 9.6.

This analysis allowed us to identify, through the number of references in the interviewees' answers, which was the IM adopted by the company (identified as CASE in the *NVIVO 12 Plus software*).

Table 9.6. Cases Matrix vs Internationalization Model
Source: *NVIVO 12 Plus Software*

Case Vs. Model	A: UM	B: I-M	C: NTIM	B: BGIM
1: DINEFER, S.A.	9	0	0	0
2: PROCIFISC, LDA	0	18	0	0
3: STEMLAB, S.A.	0	0	24	23
4:CRITICAL SOFTWARE,S.A.	0	0	0	28

The identification of the IM was made through the segmentation of the respondents' answers, which showed how their company's IP is developed. An evidence-based interviewing approach was used to eliminate the tendency to value opinion over evidence and intuition instead of data. Thus, following the characteristics that we highlighted in the literature review, it was possible to establish the correspondence to the identified IM through the number of references. That is, in each case and for each internationalization model, it was possible to identify the characteristics of the model noted by the respondents.

Therefore, due to the Matrix' (Table 9.6.) output and the analysis of what was found in the text of interviews (9 references/evidence), we conclude that the company Dinefer S.A. adopts the UM and develops its internationalization route based mainly on the 1st, 2nd and 4th phases. In this specific case study, the 3rd phase (the creation of a commercial subsidiary) is suppressed. Given the company's sector of activity (automotive components industry), there is no need to establish the 3rd phase.

In turn, the matrix references indicate that Procifisc, Lda adopts the I-M throughout its entire process (18 references). Stemlab, S.A. simultaneously adopts the NTIM and BGIM because

some characteristics evidenced in the responses lead us to adopt these two models (24 references in NTIM and 23 references in BGIM). Finally, Critical Software, S.A. adopts the BGIM, evidence supported by 28 references found in the transcript of interviews.

9.4.2.The Management Accounting and Control System

Regarding the results on the MACS' configuration of the companies (identified as CASES), according to the dimensions and their respective categories as proposed by Novas et al. (2017), the answers given by the interviewees were also analyzed and referenced.
All the answers were properly segmented and encoded in *NVIVO 12 Plus software,* which enabled us to structure a Case Matrix vs Dimensions, as presented in Table 9.7.

Table 9.7. Case Matrix vs Dimensions
Source: *NVIVO 12 Plus Software*

Case vs Dimensions	A: DIAGNOSTIC	B: INTERACTIVE	C: AGGREGATED	D: INTEGRATED	E: PERFORMANCE EVALUATION	F: RESOURCES MANAGEMENT
1: DINEFER, S.A.	4	6	4	5	1	1
2:PROCIFISC, LDA	9	21	5	11	2	2
3: STEMLAB, S.A.	0	23	3	6	3	3
4: CRITICAL SOFTWARE, S.A.	2	23	6	9	3	3

This segmentation was based on the analysis of the interview transcripts, which allowed to perform identifications with the characteristics of the MACS' structure presented by Novas et al. (2017), and thus through the number of references in the responses, the categories were identified and their respective dimensions.
By analyzing this output, we identified that, except Stemlab, S.A., all the companies under study rely on a MACS. By analyzing this output, we were able to identify that, with the exception of Stemlab, S.A., all the companies under study have MACS where the style of use of information varies between the diagnostic and the interactive type, especially at Dinefer SA., in Procifisc, Lda. At Critical Software, SA, despite the use of diagnostic information, the use of interactive information predominates.
Stemlab, S.A. is the only case study that shows that the information provided by MACS is exclusively for interactive use since this company needs and collects all its information through a dynamic system resulting from the relationships that are established.

Concerning the information nature category, all the companies under analysis rely on a MACS that promotes aggregated and simultaneously integrated information. The dynamism registered in these dimensions results from the companies´ contingencies and the different information needs, and the life cycle stage in which they are found.
Regarding the type of decision that the MACS supports, this takes on a double aspect, either for the Resources Management or the Performance Evaluation.
The information that derives from the system thus manifests itself as fundamental for the decision-making process. Within the scope of performance evaluation, it defines the success or unfeasibility of the goals, and it requires the redefinition of the strategy. Within the scope of evaluation resources, it controls and monitors the organization's resources, which are destined for the established purpose and goal.

9.4.3.Relationship between Strategy and Structure

After analyzing the preliminary results of the IM adopted by the companies, as well as the study of the MACS' configuration, the relationship between the strategy (IM) and the structure (MACS) was studied in order to verify if: How does the internationalization strategy influence the MACS' configuration and use?
To simplify the analysis and weave our results, a Structural Matrix (Table 9.8.) was built using the *NVIVO 12 Plus software*, allowing the correspondence between the strategy and the structure to be established and synthesizing the results based on the interviewees' responses.

Table 9.8. Structural Matrix
Source: *NVIVO 12 Plus Software*

	A: DIAGNOSTIC	B: INTERACTIVE	C: AGGREGATION	D: INTEGRATION	E: PERFORMANCE EVALUATION	F: RESOURCES MANAGEMENT
1: DINEFER, S.A	The information that derives from MACS in a diagnostic approach is used fundamentally in the first and second phases. It is used to control the results' achievement and to correct deviations from the previously established performance goals (Simons, 1991; Novas *et al.,* 2017). ***"The system is useful to inform us of what to do, whether we should invest or not, define our goals, our strategy, whether we should hire staff or not, whether our performance is achieved or not."*** **D_INT.1** ***"Some authority has been delegated, however, there are centralized activities."*** **D_INT.1** There is still little intervention by those responsible (Simons, 1991)	The system provides a wide range of useful information in an interactive form This information is reported to the whole team, and the achieved performance depends on this involvement (Simons, 1991). ***"Face-to-face meetings are held in the subsidiary's host countries to analyze the accounts and performance evolution. A quarterly analysis is also performed on the main financial statements, which are sent by the accounting offices of the subsidiary's host country, with which this commitment was established. These meetings are decisive for the subsidiaries future management".*** **D_INT.1** The UM is supported by an interactive use in the fourth phase in order to increase the market share (Johanson and Wiedersheim-Paul, 1975). ***"Information that determines the execution of the different functions, such as production or marketing, which are specifically affected by the occurrence of cultural events, as the case of India, and which requires reflection in the decision-making process."*** **D_INT.1** It allows information use to flow and fosters debate and dialogue within the organization itself, thus constituting a fundamental mechanism for the knowledge creation and integration (Agbejule, 2006). ***"The system allows to implement new ideas and ways to complete tasks, to establish and to negotiate medium/long-term goals and objectives, to discuss hypotheses and plans of action, to achieve plans and goals, to align performance measures with strategic goals, to conduct a permanent coordination with the subordinates, to properly assess and control the subordinates and to function as a continuous learning system."*** **D_INT.1**	The U-M is based on a MACS in which the information is aggregated in order to capture a large volume of information. (Bouwens and Abernethy, 2000). In the early phases, the information tends to assume a simpler form. However, as it develops and it chooses to open subsidiaries, the information tends to be more aggregated, allowing to process a large amount of information in a certain period of time (Bouwens and Abemethy, 2000) Aggregation is considered contingently according to the phase. ***"The information is much greater over time and information which derives from control and quality is more objective and more synthetic, in order to enable an easy reading and decisions."*** **D_INT.1**	Information tends to be more integrated when the company's choose to open subsidiaries, where it is necessary connecting the operational with the strategic level (Chenhall, 2005a), in comparison to the company's initial phase, because the level of commitment with the market increased. (Johanson and Wiedersheim-Paul, 1975). The system also provides integrated information use on the effect of the decisions of a functional unit on the performance of other functional units since there is dependency among the subsidiaries. ***"The system provides information on the effect of certain events on specific periods of times; it provides information prepared to allow the construction of scenarios; it provides information on the effect of decisions by a functional unit on the performance of other functional units, due to the fact that there is a dependency between the subsidiaries as there are components that are produced in Tunisia for a product that is in production in Morocco."*** **D_INT.1** And system processed information to emphasize how different functions (e.g. production, marketing) are specifically affected by the occurrence of certain events (e.g., cultural events) "***this situation occurs mainly in India since it is a very marked-by-traditions country"*** **D_INT.1** The system in which the information is integrated, allowing a broader and more complete vision of the set and means of coordination among the various subsidiaries (Chia, 1995). ***"Which allows controlling all the expenses, times, consumptions in each subsidiary. This system provides information about product configuration, order management, planning and distribution requirements, in terms of quality management, inventory management, production/manufacturing execution systems and global connection of the parent company with the subsidiaries".*** **D_INT.1**	The information is useful to support all the decisions in performance evaluation and control decisions, particularly in what concerns to the subsidiaries, as suggested by Novas *et al.* (2017). "***The financial information from the MACS is very important, but qualitative information is important too. The implemented system provides useful information to support decisions, namely whether we should invest or not, to define our goals, our strategy, whether we should hire staff or not, whether our performance is achieved or not".*** **D_INT.1** ***"The face-to-face meetings are held in the subsidiaries' host countries, and the financial statements are sent quarterly by the accounting offices."*** **D_INT.1**, Allowing the analysis of the results and performance (Simons, 1991).	The information is useful to support resource allocation decisions, essentially to plan and coordinate the subsidiaries' activities (Naranjo-Gil and Hartmann, 2006), that is, in the 4th phase of the establishment chain (Johanson and Wiedersheim-Paul, 1975). ***"To implement new ideas and ways to accomplish the tasks; to establish and negotiate medium/long-term goals and objectives; to debate hypotheses and plans of action, to achieve established plans and objectives, to align performance measures with strategic objectives, to allow a permanent coordination with subordinates, to assess and adequately control subordinates and still function as a continuous learning tool".*** **D_INT.1** ***"Management control provides daily information, which facilitates control and allows you to verify the information in the report and help with our decisions"*** **D_INT.1**

	A: DIAGNOSTIC	B: INTERACTIVE	C: AGGREGATION	D: INTEGRATION	E: PERFORMANCE EVALUATION	F: RESOURCES MANAGEMENT
2: PROCIFISC, LDA	The diagnostic use is fundamental in the first phase and the beginning of the development of the second phase (Bilkey and Tesar, 1997; Leonidou and Katsikeas, 1996) because they are early phases which need information that enables a macro assessment of the strategy. ***"The use of analytical information at the beginning of the process is extremely important to achieve established plans and objectives." P_INT.2*** In the second phase, there is a complementarity between the various system dimensions (diagnostic and interactive) (Agbejule, 2006; Bisbe and Otley, 2004; Henri, 2006). The information is used to control the achievement of results and to correct deviations from the previously established performance objectives, and it allows, or not, the evolution to subsequent phases. ***"We decided what to do after an initial diagnostic phase. From there, we set our goals carefully and analyzed all the metrics in detail." P_ INT.1***	The interactive use is very important in the most active phases, phases 2 and 3 (Bilkey and Tesar, 1997; Leonidou and Katsikeas, 1996) ***"Tasks have been defined to be executed specifically by each department, and each worker and everything is controlled through a management software, available and accessible to all for daily monitoring." P_INT.2*** The MACS "***provides daily information, which facilitates the control and it allows verifying the report's information and aiding in our decisions." P_INT.1*** In the 2nd and 3rd phases, although the company is controlled locally, the CEO analyses the weekly information report which is sent to him in a formal way, which facilitates his control and allows, as Simons (1991) suggests, setting agendas of regular meetings for the interconnection with direct subordinates and others, in order to review data and the action plan's results. ***"It is necessary to create a cohesive and reliable structure for the management body to draw the necessary conclusions for decision-making at all levels of the business. Management, accounting and control of everything are possible as long as there is a system that reports the various situations, whether financial or not. Dialogue, meetings and analysis are also essential. At the same time, the tasks and responsibilities of each department and each job were defined, all information was centralized in a managerial software that allows for regular monitoring and control of data and permanent training was given to employees". P_INT.1*** ***"A duly certified quality management system with the procedures to be implemented in the various departments was introduced in the company. Defining the tasks to be performed by each department and each employee, we acquired a new management software. We have created a structure in order for the management body to be able to make decisions. There is a greater dissemination of information, the activities are more decentralized, although the information is more objective." P_INT.2***	The aggregation reunites a large amount of information, in a certain time period, which is useful for the organizational reality knowledge (Bouwens and Abernethy, 2000), and assisting the decision-making process, essentially in the resources allocation management, this will allow the full development of the internationalization process' phase 1, thus preparing the process for the next phases. ***"In practical terms, we choose to continue, discontinue or simply give up the internationalization process, in a given market, through the results we obtain whether they are financial or non-financial, and this basis is given by the information analysis that is reported by the MACS." P_INT.2*** Between phase 1 and phase 2, the aggregation will improve the management of decentralized units, compare more alternatives, innovate and gain a better understanding of the relationships established between the organizational units (Bouwens and Abernethy, 2000).	In the subsequent phases (phases 2 and 3), there is a dynamism between the aggregation and integration (Simons, 1995), where the integration assumes a greater weight. The information integration allows the consolidation of coordination mechanisms between the different organizational units, supporting the decision-making process and also control (Chia, 1995), which is recorded and required in the I-Model phases 2 and 3 (Bilkey and Tesar, 1997; Leonidou ad Katsikeas, 1996). The integrated information allows understanding the cause-effect relationships between the operational structure and the strategy and promotes the adoption of preventive measures with financial aspects (Chenhall, 2005a), such as innovation (Chenhal, 2005). ***"Our MACS is very important because it enables us to collect useful information to make financial decisions and more. It is logical that the weight of quantitative information is greater, but at this moment, we are increasingly experiencing the importance of highlighting qualitative information that enables us making decisions at the level of our human resources. The system works as an informer through reports and analyses that are requested since this information is evaluated and filtered according to what we intend to perceive." P_INT.2***	Information is useful for allowing a wide organizational objectives' monitoring and control (Naranjo-Gil and Hartmann, 2006) the performance of those responsible for the organizational units that manage (performance evaluation) (Silvi, 2012), fundamentally from the moment it reaches a more active phase (phase 2 and 3) (Bilkey and Tesar, 1997; Leonidou and Katsikeas, 1996). ***"Information is made available to align performance measures with strategic objectives." P_INT.1*** ***"Management control provides daily information, which facilitates control and allows you to verify the information in the report and help with our decisions." P_INT.2***	The Information is useful for supporting in all phases, the Resources management decisions, but have an especial importance in the 3 phase because is essential to plan and coordinate the other companies' activities (Naranjo-Gil and Hartmann, 2006). ***"The MACS we have formally implemented is very important, as well as the financial information, quantitative, non-financial information, and the qualitative information that is collected from it. All the information is essential to control and manage our resources." P_INT.1***

	A: DIAGNOSTIC	B: INTERACTIVE	C: AGGREGATION	D: INTEGRATION	E: PERFORMANCE EVALUATION	F: RESOURCES MANAGEMENT
3: STEMLAB, S.A.	In this case study, there was no evidence of any relationship between the diagnostic type of use and the adopted Internationalization models. This dimension does not take on importance because it provides a more superficial, less dynamic and little involved information output (Simons, 1990; Vaivio, 2004).	Information is mostly interactive because partnerships are established (Axelsson and Easton, 1992; Sharma, 1993), and the global market automatically assumed (Knight and Cavusgil, 1996; Bell, 1995). There is a great involvement, innovation is part of the process and learning is naturally stimulated (Novas et. al., 2017; Bachmann, 1999) ***"There is a software that enables us to connect the Spanish and Portuguese accounts. However, we initially resorted to outsourcing because it was very difficult to adapt the software. The accounting of the Spanish company is performed in Portugal, by me. In the case of Switzerland, as there are very specific rules and regulations, till today, we resorted and maintain an outsourcing service that provides the accounting service. The accounting control is performed through many face-to-face meetings and also in a virtual way (Skype) with the goal to systematically audit the accounts."*** **S_INT.1** ***"There is monthly Reporting to the management in order to consolidate the accounts of the subsidiaries. There is software that enables us to connect the Spanish and Portuguese accounts. However, we initially resorted to outsourcing because it was very difficult to adapt the software. The accounting of the Spanish company is performed in Portugal, by me. In the case of Switzerland, as there are very specific rules and regulations, till today, we resorted and maintain an outsourcing service that provides the accounting service. The company's accounting control is performed through many face-to-face meetings and also in a virtual way (Skype) with the goal to systematically audit the accounts. Reports are monthly. The Business Units' information is transferred to the company's Directors, thus the information is shared to the Accounting by Cost Centers, and therefore the Heads of Departments are informed"*** **C_Ent.2** ***"We now have an official monthly information report, we hold regular face-to-face meetings. The Business***	Aggregated information is assumed. It is highlighted above all in the BGIM, as it enabled to process a large volume of information as suggested by Bouwens and Abernethy (2000). ***"(There is) more action and less bureaucracy. There is an increase in information and this is undoubtedly more objective and synthetic, it is very well oriented to help us respond to what we want."*** **S_INT.3** ***"The MACS allows you to read the information in a very practical way. We can understand what is being processed at any other subsidiary or in the relationship with a partner and thus control the objectives and establish cooperation between the subsidiaries or in the network."*** **S_INT.2**	Integrated use is necessary to coordinate, control and make decisions at each subsidiary (Chia, 1995), thus simplifying the decision-making process at various levels. ***"The system allows to filter information and with that we can use it to formulate our interpretations. It is very important to keep us aligned with the strategy or else to evaluate and adjust it. It allows us to control people, allows us to establish our goals and thus helps us along the way."*** **S_INT.3** ***"The system obtains information regarding costs and other measures related to the various departments. Disaggregated information (e.g. fixed and variable costs) Sectoral information, related to specific areas (e.g. sections of a department, cost centers, etc.)" S_INT.1*** There are mechanisms for integrating information and knowledge (Aghejule, 2006) throughout the organizational structure. ***"The Business Units' information is monthly transferred to the company's Directors, thus the information is shared to the Accounting by Cost Centers, and therefore the Heads of Departments are informed."*** **S_INT.1**	The information enables performance evaluation (Novas et al., 2017) ***"above all for Commercial Activity and Internal Communication and Management Knowledge."*** **S_INT.3** ***"The formal information system, represented by monthly reports between subsidiaries, allows us to obtain useful information to help assess performance and it makes us question the continuity of our path." S_INT.2***	Information enables to support management decisions (Novas et al., 2017). ***"The system allows to filter information and with that we can use it to formulate our interpretations. It is very important to keep us aligned with the strategy or else to evaluate and adjust it. It allows us to control people, allows us to establish our goals and thus helps us along the way."*** **S_INT.3**

		***Units' information is transferred to the company's Directors, thus the information is shared to the Accounting by Cost Centers, and therefore the Heads of Departments are informed"* S_INT.3**				
	A: DIAGNOSTIC	B: INTERACTIVE	C: AGGREGATION	D: INTEGRATION	E: PERFORMANCE EVALUATION	F: RESOURCES MANAGEMENT
4: CRITICAL SOFTWARE,S.A.	The diagnostic use of information is "marginalized" in this type of firms, since it is more superficial, less dynamic and with little involvement (Simons, 1990; Vaivio, 2004). But "***in the early phases*** the ***system gives us the possibility to assist the identification of strategic key areas, as well as establishing and negotiating medium and long-term goals and objectives and still allowing this system to be a learning tool."* CS_INT.1**	Information use is mostly interactive Novas et al., (2017) and Simons (1991). ***"The system is very important to implement new ideas and ways of accomplishing the tasks, as well as to discuss hypotheses and action plans."* CS_INT.2** There is reporting and monitoring by managers (Simons, 1991). ***"(...) A monitoring committee was created, strategic and management control processes are valued. It is also extremely important for the need for changes in management information, the "Pulsar" system that serves the "Data Farol" was created"* CS_INT.3** .	A large set of information is useful to support the expansion, a firm with a great technological orientation. There is a propensity for the information to be more aggregated. ***"Management control and the system that we have implemented translates information, allows us to obtain more objective, synthetic information. We have a reporting structure which enables us to obtain more information, whether weekly, monthly, and thus assuring security in our actions."* CS_INT.1**	The integrated information is important to coordinate the different units, to make decisions and also to control each subsidiary (Chia, 1995). CS shows a great involvement, promotes *innovation, learning and seeks new solutions (Novas et al*., 2017). It builds knowledge and information integration mechanisms (Aghejule, 2008). ***"We consider as extremely important the information that enables to determine costs and other measures related to the various departments; the integrated information related to fixed and variable costs, sectoral information related to specific departments namely of each task (time controls), consolidated information and information by sector."* CS_INT.3**	The information allows aligning performance measures with strategic goals, establishing a permanent coordination with subordinates and evaluating them adequately, since project teams are established that perform the individual evaluation on a quarterly basis and that condition the awarding (performance evaluation) Novas *et al.,* (2017). ***"The global information system that was created allows us to make decisions related to performance at various levels and to align our goals."* CS_INT.2**	The information allows supported decisions to resources' allocation (e.g. materials, human resources, time...) (Novas et al., 2017). ***"The reports we received periodically from each subsidiary help us to make decisions about the resources."* CS_INT.2 *"We obtain information for the availability of resources, to invest in new technology. The control process is extremely expensive, but through it we are able to allocate resources to invest in new technologies acquisition."* CS_INT.3**

By analyzing the relationship established, we can verify that there is an impact of the IM adopted in MACS in the four companies under study. The MACS undergoes adaptations in order to respond to the information needs, according to each IM and its respective phase (if the model is subdivided into phases):

"The MACS is entirely related to the Process, it was built based on the process and as we evolved." D_INT.1

"The control models must be able to increasingly respond to the information needs we have. In internationalization, we are often conditioned by political, cultural and social aspects. It is obvious that the model must be adapted and built to overcome all the doubts that these variables add to the process, however, it is not simple." P_INT.1

"The MACS responds to our needs, but we must always be assessing so that everything is in symbiosis, especially at the financial level, so that the internationalization process is as safe as possible." S_INT. 2

"We had to adapt the systems to the different cultural realities of the countries in order to obtain the most real information possible to be able to build our scenarios. The system is directly related to internationalization. Our activity is entirely international, and the system must be able to give us the reading of everything we need." CS_INT. 3

The impact recorded depends on the adopted IM and the level of commitment of the internationalization process. Depending on the information needs, MACS will be used as an information provider (Chenhall, 2007; Davila and Foster, 2007) and dynamically adapted (Henri, 2006) in order to satisfy the requirements or to allow or not the strategic change (Langfield-Smith, 2007).

9.5. Conclusions

After analyzing the results of the studies, we were able to verify that the more traditional IMs (UM and I-M), developed in phases in an incremental way (Johanson and Wiedersheim-Paul, 1975; Bilkey and Tesar, 1977; Leonidou and Katsikeas 1996), and there is a dynamism in MACS, especially in the use of information.

After analyzing the results of the studies, we were able to verify that the more traditional IMs (UM and MI) incrementally developed in phases (Johanson and Wiedersheim-Paul, 1975; Bilkey and Tesar, 1977; Leonidou and Katsikeas 1996), and there is a variation in the MACS

configuration among its dimensions, mainly with regard to the category of information use style.
Regarding the type of decision, these IMs use the information to evaluate the performance in more evolved phases/stages as the level of commitment to the market increases. However, given the nature of these IMs, which need information in order to support decisions also to access the resources in all phases/stages, the support in a MACS, which allows sustaining the evolution of the different phases through the monitoring and control of resources, is fundamental.

With regard to NTIM, they use a MACS that allows the use of information fundamentally of the interactive type. The diagnostic type is devalued, given the characteristic/nature of the companies that constitute the network, which require a systematic state of interaction and knowledge sharing between the companies.
Regarding the nature of the information provided by MACS, the NTIM registers the need to obtain integrated and aggregated information, insofar as macro and micro segmented information are needed to respond to its needs and those of the network.
In the type of decision category, NTIM uses the information in order to evaluate the network performance and to simultaneously control and manage the necessary resources to satisfy the needs.

What concerns the BGIM, this proves to be a model that needs a MACS that intensively responds to emerging information needs (Chenhall, 2007) since its role is more active than the other IMs (Coviello, 2006; Oviatt and McDougall, 2005; Zahra, 2005). This is an IM that requires a systematic adaptation of the MACS, given that the company under study (Critical Software) has undergone numerous changes and adaptations in order to permit the collection of information at various levels. The use of information derives much more from the interaction than from a diagnostic use, although its importance in the embryonic phase is remarkable, thus enabling to outline the strategy and corresponding goals in advance. Nevertheless, this IM's focus is especially based on a MACS of the interactive type, promoting the information flow and interaction. The nature of the information varies between the aggregation and integration dimensions, insofar as there is a need to group or aggregate a large volume of information in order to support the expansion and simultaneously to understand that information at a more specific, more integrated level, crucial to the coordination of the different units. All the information that the system provides, and similarly to what happened with the NTIM, it has a double effect on the type of decision, whether in the performance evaluation or in the resources management.

Based on the analysis performed, we can conclude that the IM impact the MACS' configuration, particularly by the availability of the necessary information for decision-making. The MACSs are adjusted to the IM needs, experiencing some adjustments related to information needs. Therefore, we suggest that the MACS facilitates the internationalization strategy implementation, which implies some changes in the system.

In terms of contributions, firstly, this work contributes to the development of knowledge about the relationship between the MACS and the Internationalization Strategy, since there is a lack of research on this issue (Gomez-Conde and Lopez-Valeiras, 2018; Velez et al., 2008; 2014; Araujo et al., 2011, 2010, Florez et al., 2012) and to impel knowledge in the accounting literature on the *Levers of Control framework* (Kruis et al., 2016; Asiaei et al., 2018). Even so, we consider this work to be a strong contribution to the Simons (1995) framework as it establishes a deep understanding of the MACSs' relationship with Internationalization.

Second, this work innovatively contributes to increasing knowledge on the relationship between MACS and a specific IMs (U-Model, I-Model, Networks Theory and Born Global), thus proposing a dynamic "inside-out" approach (Chenhall, 2005b) of the studied relationship (which enabled us to analyze the MACS' adjustments in each IM), while most studies use a static "outside-in" approach. It also emphasizes the existence of several roles (passive and active) of MACSs, contributing to the research in this area, similarly to other studies (Naranjo-Gil, 2016; Coller, Frigoto and Costa, 2018).

Third, because MACSs are used according to the IM in a differentiated and dynamic way depending on the information needs, we must highlight the scientific contribution of this work to both the Resource-Based View Theory (Barney, 1991; Mitter and Hiebl, 2017), since all the resources of an organization including the MACS are fundamental elements for the company to implement strategies and achieve competitive advantage with sustainability, as for the Dynamic Capabilities Theory (Eisenhardt and Martin, 2000) considering that the MACS can be understood as a capability of the organization.

Finally, we emphasize the fact that this work is a tool that can practically help companies adapt their MACSs so that it becomes a useful provider of information for the decision-making process of the companies that adopt different IMs.

In terms of limitations, we underline the fact that this study is limited to a multiple analysis where the minimum number of analysis units (4 companies) was considered (Eisenhardt's 1989). Thus, we suggest conducting a quantitative study applied to Portuguese companies to analyze the relationship between all the different IMs and the MACS' configurations since the results obtained may be generalized, and the main limitation of this study may be overcome.

10. Management Accounting and Control System Adjustment to Internationalization Strategy: Impact on Family Business Performance

Abstract

In this article, we seek to ascertain which internationalization models (IM) predominate in the context of Family Business (FB) and how the Management Accounting and Control System (MACS) fits the IM in order to promote a good performance of the Family Business.

For this purpose, a quantitative study was developed, and data were collected through the application of a questionnaire survey to which 127 Portuguese FB responded. The data collected were subsequently processed using the *IBM SPSS software*.

To our knowledge, this is the first work that analyses the impact of the adjustment between IM and MACS configuration on Portuguese FB IP performance.

The evidence gathered shows that the most used internationalization model in the FB is the U-Model (UM), and that the diagnostic style predominates as regards the style of use of the information provided by the MACS. As for the nature of the information provided by the MACS, the evidence points to significant differences in the FB that adopt the IM Network Theory (NTIM). Here companies need significantly more integrated than aggregated information.

IMs were also found to influence the configuration of MACS, except for the Born Global Internationalization Model (BGIM) but only regarding the aggregated nature of the information where no statistically significant differences were found.

Finally, the evidence collected suggests that an adequate adjustment between MACS and IM at the level of the provision of information to support performance evaluation decisions will have a statistically significant impact on IP performance.

In addition, the impact of the increased uncertainty caused by epidemiological scenarios such as the one we are currently experiencing - *COVID-19* was also analyzed. The results obtained show that, on average, FB use more information from the MACS in an interactive way during the pandemic period, compared to the use of information in the pre-pandemic period, and the difference is statistically significant.

This study fundamentally contributes to a better understanding of the relationship between IMs and MACS and provides a tool to assist FB in adjusting their MACS to their IM.

Keywords: Internationalization Model, Management Accounting and Control Systems, Performance, Family Business.

10.1 Introduction

Despite the growing propensity of FB to internationalize (Tsao et al., 2018), and their recognized contribution to the global economy, little is known about the impacts of internationalization on the performance (Ribau et al.,2017) and/or organizational structure (Mitter et al., 2014) of these types of firms.

In this study, we assume that FB do not all internationalize in the same way since there are several models to implement this strategy (Kontinen and Ojala, 2010; Roque et al., 2019$_a$), which imply changes at the internal organization level of the company and require a deep knowledge of how the market works (Freeman and Cavusgil, 2007; Chetty and Campbell-Hunt, 2004; Reuber and Fischer, 1997).

Thus, and considering the internal organization, the MACS is seen as a fundamental tool that allows managers to provide knowledge and information that enable them to assess the implementation of the strategy and make the necessary adjustments to achieve the objectives (Gomez-Conde et al., 2013$_a$). For this reason, the study of the MACS of FB has raised some curiosity in recent years (Senftlechner and Hiebl, 2015; Duréndez et al., 2011; Hiebl et al., 2015).

Based on the main theoretical currents referenced in the literature about internationalization in FB (*Resource-Based View*, Agency Theory, *Stewardship Theory,* Contingency Theory and Agency Theory) (Mitter et al., 2014; Ivanova et al., 2015), we analyzed the impact of the Internationalization Model (IM) adopted by FB, in the configuration of the MACS.

The main objective of this study is to analyze how the Management Accounting and Control System (MACS) fits into the Internationalization Model (IM) in order to promote a good IP performance of the Family Business (FB). To this end, six research questions (RQ) were formulated:

RQ1 - Which is the IM most adopted by Portuguese FB?

RQ2 - What is the impact of IM on the style of use of MACSs in FBs?

RQ3 - What impact does the IM have on the nature of the information made available by the MACS on FBs?

RQ4 - What impact does the IM have on the importance of MACSs in supporting FB decision-making?

RQ5 - What is the influence of the internationalization strategy on the configuration of FB's MACSs?

RQ6 - What is the impact of the adjustment between MACS and IM on FB IP performance?

To answer these research questions, a quantitative study was developed, which consisted of the application of a questionnaire survey to which 127 Portuguese Family Business

responded. The data collected by telephone were treated through the *IBM SPSS software* in order to test the hypotheses formulated from the literature review.

To our knowledge, this is the first work that analyses the impact of the IM on the MACS and the effect that the adjustment between the IM and the MACS configuration has on the IP performance of Portuguese FB.

The results demonstrate that the IM adopted influence the MACS configuration, with the exception of the BGIM, but only with regard to the aggregated nature of the information where no statistically relative differences were found. Even so, it is verified that for a good Internationalization Process (IP) performance, it is crucial that the MACS provide the necessary information to support performance evaluation decisions.

This study contributes to a better understanding of the relationship between IM and the configuration of MACS and analyzes the possible existence of several roles (passive and active) of MACS in the Internationalization strategy (Naranjo-Gil, 2016; Coller et al., 2018).

This study presents contributions to accounting research that has analyzed the *Levers of Control Framework* (Kruis et al., 2016; Asiaei et al., 2018) and the relationship: MACS - Internationalization Strategy (Gomez-Conde and Lopez-Valeiras, 2018; Velez et al., 2014; Velez et al., 2015; Araujo et al., 2011; Florez et al., 2012; Roque et al.,$2019_{a,}$ 2020_{a};$2020_{b;}$ 2021).

Finally, we highlight the fact that this is the first study that analyzes the influence of the different IM on the configuration of the MACS of the FB, thus constituting an aid tool for FB managers helping them to understand how they can adjust the MACS to the IM development.

In terms of structure, the first phase was carried out of the literature review on the definition of Family Business, IM adopted by these companies, and MACS. After that, the relationship between the IM and the MACS configuration was established and designed the conceptual model. In a second phase, the results of the study and respective discussion were presented. Finally, the conclusions and lines of future research were presented.

10.2. Literature review

10.2.1 Family business

FB have aroused the curiosity of researchers because they are characterized as a type of organization considered unique and complex (Lee, 2006; Lindow et al., 2010), especially due to the lack of conceptual clarity about the merger of family and business (Rantanen and Jussila, 2011). In recent years, interest in FB internationalization has grown in scope and scale. However, despite the proliferation of research in this area, FB internationalization research suffers from fragmentation, and much work is to be done (Debellis et al., 2021). Starting with the concept itself, over time, many definitions have been presented in order to standardize the concept of family business (Smyrnios et al., 1998; Donckels and Fröhlich,

1991; Shanker and Astrachan, 1996; La Porta, Lopez-de-Silanes and Shleifer, 1999; Chua et al., 1999; Klein, 2000; McConaughy et al., 2001; Astrachan et al., 2002; Barth et al., 2005; Miller Le Breton-Miller et al., 2007; Arosa et al., 2010). However, the difficulty persists as it is not easy to present a definition (Chrisman et al., 2005), especially because there are several alternatives of combining elements (family and business) which makes it difficult to operationalize the topic (Frezatti et al., 2017).

According to Chua et al. (2004), it is fundamental to assess the family's involvement in the ownership and management and evaluate the potential for succession (ownership vs management) not to occur jointly, thus it is possible to classify and differentiate FB from non-family business.

After a literature review regarding the definition of FB and similarly to other works (Frezatti et al., 2017), we adopted in our study the approach presented by Zellweger et al. (2011) who, based on the definition of Chua et al. (1999, p. 25), consider that:

> *The family business is a business governed and/or managed with the intention of shaping and pursuing the vision of business maintenance by a dominant coalition controlled by members of the same family or a small number of families in a way that is sustainable across generations of family or families.*

The characterization of FB has been studied under different theoretical perspectives (Chrisman et al., 2005; Dawson and Mussolino, 2014). The most widely used theoretical approaches have been: agency theory (Miller and Breton-Miller, 2014; Schulze et al., 2003; Jensen and Meckling, 1976), the F-PEC Scale (Astrachan et al., 2002), *Stewardship* theory (Breton-Miller et al., 2011; Miller and Breton-Miller, 2006), the *Resource-Based View* (Chrisman et al., 2005; Sirmon and Hitt, 2003, Fernández and Nieto, 2005; Graves and Thomas, 2006; Merino et al., 2015), socio emotional wealth theory (Berrone et al., 2012; Gómez- Mejía et al., 2011), contingency theory (Reid and Smith, 2000), and institutional theory (DiMaggio and Powell, 1983).

However, the literature gives greater prominence to five of these theories to explain the performance of FBs, these are: (1) the *Resource-Based View* (RBV) theory, (2) agency theory, (3) *stewardship theory*, (4) contingency theory and (5) institutional theory.

The RBV (1) argues that resources, whether assets, capabilities, information, knowledge and processes, are a source of competitive advantage (Barney, 1991; Oyadomari, 2008). In a study conducted in Italian FB, Chirico et al. (2011) concluded that the capacity and experience acquired through greater participation of managers in generational cycles contribute to the development of companies.

The agency theory (2) works as an agreement that is established between owners (principal) and managers (agents), in which the principal delegates in the agent some power. In the

study conducted by Gonzalez et al. (2012), a positive effect of the family was found for young small businesses, especially when the founder is responsible for the decision-making process, thus corroborating the principles of the agency theory.

The stewardship theory (3) is a theory that focuses on the figure of managers, where they assume a position of greater reliability, avoiding as much as possible to waste resources, and their goal is to act in the interests of the company, achieving greater return and profit. In this sense, it can be said that this theory is similar to the agency theory (Giovannini, 2010). Based on this theory, Craig and Dibrel (2006) concluded that FB foster more innovation, thus increasing their financial performance and effectiveness compared to non-family business.

In contingency theory (4), we assume that there is no single or universal organizational structure for every organization (Reid and Smith, 2000). There are countless organizational configurations or strategic options, depending on the environmental and organizational context (Ginsberg and Venkatraman, 1985). The adoption of a structure and its configuration occur in close relationship with the internal and external characteristics of the organization (Otley, 1980 and Chenhall, 2003), thus the contingencies represent variables that moderate the effect of a given characteristic on the company's performance (Donaldson, 2001). Casillas and Acedo (2007) conducted a study in FB and confirmed the existence of contingency relationships between entrepreneurial orientation, family involvement and growth.

From the perspective of institutional theory (5), organizations can be influenced by various pressures resulting from the external or internal environment. This theory explains corporate behavior in relation to external pressures (DiMaggio and Powell, 1983), where repetitive social behavior is supported by normative systems and cognitive knowledge. These normative systems attribute meaning to social change and therefore enable self-reproduction of the social order (Greenwood et al., 2008). Alpay et al. (2008) developed a study in FB and concluded that, among the dimensions of institutionalization, transparency had the strongest effect on the quantitative and qualitative performance of FB, while adaptability/change influenced only the qualitative performance of these companies, thus contributing to the validation of the institutional theory.

All these theories support the development of the FB. Naturally this development also involves increasing the growth of FB through internationalization strategies (Graves and Thomas, 2004; Fernández and Nieto, 2005), which are seen as a necessity to ensure the growth and survival of this type of company (Meneses et al., 2014).

10.2.2 Internationalization models in Family Business

The internationalization of FB is seen as an uncertain decision (Fernández and Nieto, 2005), justified by the FB's own unique characteristics. According to Chirico and Schulze (2010), the definition of the family firm matters because it defines characteristics that have a varying influence on internationalization.

Obtaining information on foreign markets is not always easy, and thus, in the face of international uncertainty, relationships with other international partners seem to be a solution allowing to increase the level of IP security (Kampouri et al., 2017), especially for FB.

As previously mentioned, the RBV (Barney, 1991) constitutes one of the main theories used in the study of FB (Fernández and Nieto, 2005; Graves and Thomas, 2006; Merino et al., 2015; Pukall and Calabrò, 2014). The analysis of this theory focuses on the valuable, rare, inimitable, and irreplaceable resources of the company that it exploits so that they contribute the most to its competitive advantages (Barney, 1991), thus contributing consecutively to its success (Baños Monroy et al., 2015). However, given their specific characteristics, FB are usually at a disadvantage in terms of access to resources and capabilities (Fernández and Nieto, 2005; Graves and Thomas, 2004), which may condition their development in the international context (Fernández and Nieto, 2005). The key lies on the one hand, in the company's ability to identify and exploit its resources and develop appropriate strategies to adapt and/or reconfigure them in order to leverage the resulting advantages (Barney, 1991; Graves and Thomas, 2006) and, on the other, in the development of management skills as the IP develops (Graves and Thomas, 2008).

Over the years, several IMs have emerged that allow IP to be operationalized, each of them with its own characteristics that organizations tend to assume and that are justified by the different theories already presented. Mitter et al. (2014), and more recently Marletta and Vescovi (2019), argue that FBs tend to follow the model of internationalization stages, that is, the U-Model - Uppsala Model (Johanson and Vahlne 1977), since companies internationalize sequentially, in stages, and develop their activities to geographically or culturally similar countries (Graves and Thomas 2004, 2008; Claver et al., 2007; Puig and Fernández Pérez, 2009).

However, some authors (Kontinen and Ojala, 2010) consider that not all companies internationalize in the same way, thus operationalizing IP in different ways and consequently undergoing the internal adaptations/changes that this operationalization implies (Freeman and Cavusgil, 2007; Chetty and Campbell-Hunt, 2004; Reuber and Fischer, 1997). This will be the option assumed in this study. Thus, it is presented in Table 10.1, four of the most used IM: the U-Model, the I-Model, the Born Global Model and the Theory of Networks Model. These will be the models used in this research.

Table 10.1 IM characteristics
Source: Adapted from Roque et al., (2019a)

MODELS	CHARACTERISTICS
U-Model	- Exports and direct investments (Hilal and Hemais, 2003). - First, they expand to psychologically closer countries (Johanson and Wiedersheim-Paul, 1975). - Gradual and Incremental extension (Johanson and Vahlne, 1997). - External aspects are ignored as conditions of competitiveness, market potential (Pedersen, 1999). - Focuses on market specific knowledge (Clark et al., 1997). - Process developed by the Chain of establishment (Johanson and Wiedersheim-Paul, 1975): (i) step and sporadic exports; (ii) export stage through an agent; (iii) stage of incorporation of commercial subsidiary; (iv) stage of setting up a production unit.
I-Model	- Exports considered as an innovative process: Innovation Factor (Rogers, 1962; Andersen, 1993). - Process developed by 3 Phases (Bilkey & Tesar, 1977 and Leonidou & Katsikeas 1996): 1st Unsolicited export 2nd Export to geographically closest countries 3 rd Export to geographically more distant countries
Born Globals	- Sales to the external market exceed 25% of the revenue in the first three years of the company's life (Knight and Cavusgil, 1996). - Companies of small size but with great technological orientation (Bell, 1975; Knight and Cavusgil, 1996).
Network Theory	- Set of two or more institutions, allowing interconnected exchanges (Axelsson and Easton, 1992). - It involves the exchange of resources between the institutions (Sharma, 1993). - Mutual flexibility of institutions (Bachmann, 1999). - Cooperation: the opportunity to use a set of technical and economic knowledge (Bachmann, 1999). - Collective assumption of costs and risks (Bachmann, 1999).

10.2.3 Management Accounting and Control Systems

As we have already seen in the previous chapters, it is not easy to find a consensual definition of MACS (Fisher, 1998). It is noted in the literature review that there are authors who "separate" control from accounting (Abernethy and Chua, 1996; Alvesson and Karreman, 2004; Anthony, 1965; Chenhall, 2003; Emmanuel et al., 1990; Fisher, 1998; Green and Welsh, 1988; Langfield-Smith, 1997; Malmi and Brown, 2008; Merchant and Van der Stede, 2007; Otley and Berry, 1980; Ouchi, 1979; Simchi, 1995) while others argue that the terms are inseparable (Chenhall, 2003).

In this chapter, we assume that MACS is a structure that systematically uses management accounting information to achieve objectives (Chenhall, 2003) and simultaneously includes control mechanisms of various types, such as personal control, top management, or organizational control (Malmi and Brown, 2008) whose design depends on the organizational structure (Gomes and Salas, 2001).

According to Gomez-Conde et al. (2013a), the MACS configuration allows managers to provide useful information to assess the strategy implementation and detect the adjustments needed to achieve the organization objectives. The MACS emerges as an

information providing system according to the needs of its users. According to Merchant and Van der Stede (2007), the MACS is configured to involve formal (written and standardized) procedures based on information, protocols and routines used by most companies to align workers' behavior and decisions with the organization's strategic objectives. The MACS thus enables the company's strategic alignment with the organizational structure, creating synergies between its business units, for example, in the case of internationalized companies (Inamdar, 2012), which makes it a tool that assists the internationalization process.

In this chapter, it is assumed that MACS are dynamic systems, which may vary over time. A given dimension's importance may vary according to a specific context (Bouwens and Abemethy, 2000). In this sense, and similar to other studies (Novas et al., 2017; Simons, 1991; Roque et al., 2018$_b$, 2020$_a$, 2020$_b$, 2021), a comprehensive view is adopted, considering that MACS varies according to three dimensions: (1) the style of information use provided, which can be diagnostic or interactive; (2) the nature of information provided, which can assume different levels of aggregation and integration, and finally (3) the type of decision supported, considering the existence of two major groups of decisions, performance evaluation and resource management. It is thus assumed that the MACS design is non-typified because it is composed of unique features according to the specific characteristics of the organization and the importance or function assigned to each of its dimensions (Novas et al., 2017). This non-typification of the system stands out especially in family business (Helsen et al., 2017; Brück et al., 2018; Hiebl et al., 2018; Quinn *et al.*, 2018; Sbarba and Marelli, 2018), which present, as already mentioned, distinct characteristics, and differences in management structures and objectives, and which can have a significant impact on the configuration and use of MACS.

In the context of internationalization, and following Carrera's (2017) line of research, which addresses the accounting knowledge of family business, and which suggests studying the influence of MACS in different environments (such as the international context), we assume that no system is complete, i.e., no system can completely provide information and capture the performance of a unit or organization entirely, since many dimensions are not susceptible to measurement (Ouchi, 1979).

In order to support the definition of the MACS, its dimensions and categories, we draw on the studies of Novas et al. (2017) and Roque et al. (2018$_a$, 2020$_a$, 2020$_b$, 2021), presented in the previous chapters, which led to the elaboration of a framework presented above (see table 3.1.

10.2.4 Relationship between IM and MACS configuration

Despite the growing interest, studies of the relationship between strategy and MACS are still very scarce (Crespo et al., 2019; Langfield-Smith, 2007; Sykianakis and Bellas, 2005), particularly in FB.

As we can see from the RBV, FBs may not be endowed with many resources, but they do possess unique assets and capabilities that can be used as they internationalize (Zahra, 2003), which in turn affect their performance (Crespo, 2020; Grant, 1991; Mahoney and Pandian, 1992). Chrisman et al. (2003), drawing on RBV, highlight "familiarity" and argue that there is a positive contribution of the family that leads to a distinctive capability that can serve as a source of competitive advantage (Chrisman et al., 2003), contributing to wealth and value creation (Frank et al., 2017).

Similarly, to Chenhall (2007), who relates strategy with the MACS, Crespo et al. (2019) also associate the company's strategy (highlighting several types, including the international strategy) with the adoption of different types of MACS. These authors (Crespo et al., 2019) conclude that the adoption/existence of an international strategy strongly influences the adoption of all types of MACS, thus highlighting the need for a successive adaptation of MACS to strategy. This conclusion is also shared by other studies (Gomez-Conde and Lopez-Valeiras, 2018; Gómez-Conde et al., $2013_{b;}$ Henri, 2006) where it is found that there is a positive association between MACS and IP; and the empowerment of this is positively related to organizational performance (Gomez-Conde et al., 2013_{b}). Thus, the strategy is based on the MACS so that the success in its implementation is guaranteed (Davila et al., 2015; Langfield-Smith, 2007).

Langfield-Smith (2007) argues that MACS can simultaneously support multiple strategic dimensions. However, it is essential that there is a specific adjustment between the MACS and the strategy, i.e., the system should be adapted in detail to the strategy in question (Chenhall, 2007). With the development of the IP, consequently, the need for diversified information increases, so this process requires the adaptation of the MACS so that the information responds to the different needs of the individuals that make up the organization (Chenhall, 2007).

This adaptation also occurs in the FB, this process implies changes because the strategy and the entire organizational structure must be redesigned (Mitter et al., 2014).

Some researchers (Bisbe and Malagueño, 2015; Bisbe and Otley, 2004; Henri, 2006; Gómez-Conde et al.,2013_{a}) have concluded that MACS can directly support the development of strategic capabilities, in that through their driving role, they help firms achieve a competitive advantage, contributing to increased entrepreneurship and performance (Lin et al.,2017), as they enhance the provision of critical information (Davila and Foster, 2007).

Still, the literature on MACS in FB is limited, and the results are not very conclusive (Songini et al., 2018). The results show that FB use MACS less than non-family business, however, and despite less use, MACS positively influences organizational performance (Duréndez et at., 2016).

As we have seen, the MACS are an important tool for supporting the decision-making process since they allow for feedback on the impact of the strategy adopted (Chenhall, 2007), supporting, or not, strategic change (Langfield-Smith, 2007). They assume in their essence the Theory of Dynamic Capabilities (Eisenhartt and Martin, 2000) since they comprise a set of routines through which the company learns and adapts from various sources. In the international context, the objective is thus to implement this development of routines and capabilities in the market, in the network of relationships and in internal learning (Weerawardena et al., 2007).

Thus, and considering the theoretical framework carried out on the configuration of the MACS (Roque et al., 2018_a; Novas et al., 2017), and the main conclusions established in the relationship between the strategy (IM) and the structure (MACS) of FB, namely the fact that the literature suggests a greater use of the U-Model (Graves and Thomas, 2004, 2008; Claver et al., 2007; Casillas and Acedo, 2005; Mitter et al., 2014; Marletta and Vescovi, 2019), the following hypothesis is formulated:

H1 - Portuguese Family Business adopt the U-Model more than the other models.

Next, and based on the literature review performed, four tables (table 10.2, 10.3, 10.4 and 10.5) were built, which seek to synthesize the most relevant aspects, identified in the literature, about how the various IM (U-Model, I-Model, Born Global, and Network Theory) are related and can influence the configuration of the MACS and the IP performance in the organization.

Table 10.2 Relationship between the U - Model and the MACS

Relationship between U- Model and MACS						
Internationalization Model	**Style of Information Use**		**Nature of Information**		**Decision type**	
	Diagnostic	**Interactive**	**Aggregation**	**Integration**	**Performance Evaluation**	**Resource Management**
U-Model Stages: Johanson and Wiedersheim-Paul, 1975: (i) sporadic exports stage; (ii) export stage through an agent; (iii) stage of incorporation of commercial subsidiary; (iv) stage of setting up a production unit.	The UM is supported by a diagnostic-type MACS in the 1st and 2nd, primary and simpler stages (Johanson and Wiedersheim-Paul, 1975). Limited type of use when it comes to searching for innovative solutions and identifying opportunities. It only focuses on performance variables. (Simons, 1995; Novas et al., 2017). The top manager is very independent in using this system, especially in FBs (Frezatti et al., 2017; Zellweger et al., 2011; Chua et al., 1999). The senior manager is very independent in the use of this system. He delegates the subsystem operations to group staff or lower level managers and only relies on them to inform him when his intervention is required. (Simons, 1991; Roque et al., 2021) The debate is not promoted, and certain measures are ignored (Simons, 1991; Vaivio, 2004). The use serves primarily to control results and correct deviations.	The UM is supported in an interactive type MACS, in the 3rd and 4th stages, stages of higher commitment (Johanson and Wiedersheim-Paul, 1975; Roque et al., 2021). Innovation, learning and the search for new solutions are encouraged, which leads to the emergence of new strategies. Its participants interact and respond to the opportunities and threats that arise (Novas et al., 2017). Communication and cooperation stand out, allowing information to flow and fostering debate, dialogue and integration (Agbejule, 2006). Regular liaison meetings are set up with subordinates or other stakeholders to review data and action plan results (Simons, 1991). The top manager reports the use of the system at all levels; uses the information and shares it with subordinates. (Simons, 1991; Roque et al., 2021)	In the early stages due to the simple and centralized structure, information tends to take a simpler form (Roque et al., 2021) especially in FB (Kontinen and Ojala, 2010). Information aggregation allows processing a large volume of information, in a given period of time (Bouwens and Abernethy, 2000). With evolution, (diversity of products/services or expansion into new markets), from the 2nd stage onwards the information needs tend to be adapted and become more aggregated and integrated.	Information integration increases as interdependence increases (3rd and 4th stage) allowing for a broad and complete view of the whole and means of coordination between the various organizational units. (Chia, 1995). The integration of information enables the understanding of the relationships between the operational structure and the strategy and objectives and among other aspects (customers, suppliers) (Chenhall, 2005a) The MACS include a measurement component related to the provision of various financial measures (customers, organizational processes, innovation) (Chenhall, 2005a) that assist control in the different stages.	Performance valuation stands out in the 3rd and 4th stages given the commitment to the market (Johanson and Wiedersheim-Paul, 1975 Roque et al., 2021). In steps 3 and 4 it relates aspects related fundamentally to the monitoring and control of the objectives and, the performance of the responsible persons and organizational units (Roque et al., 2019b; 2018a)	Resource Management stands out in the 3rd and 4th stage where all information is converted into the appropriate distribution (decision making) of resources (Baines and Langfield- Smith, 2003) essentially to plan and coordinate the ensuing activities The information for resource management decision implies management in the distribution of monetary and non-monetary resources to the different decentralized units, thus increasing the control responsibility of managers (Naranjo- Gil and Hartmann,2006). .

Table 10.3 Relationship between the I - Model and the MACS

Relationship between I-Model and MACS						
Internationalization Model	**Style of Information Use**		**Nature of Information**		**Decision type**	
	Diagnostic	**Interactive**	**Aggregation**	**Integration**	**Performance Evaluation**	**Resource Management**
I-Model Phases (Bilkey and Tesar, 1977 and Leonidou and Katsikeas 1996): (1) Unsolicited export or pre-export stage; (2) Export to geographically closer countries or export 'trail' stage; (3) Export to more geographically distant countries or advanced stage of exports	It allows comparisons to be made and corrective action to be taken to reduce deviations for all phases of I-M, especially in the 1st phase because it is the initial phase of the process (Bilkey & Tesar, 1997; Leonidou & Katsikeas, 1996). The leadership style of the top manager in FBs may influence diagnostic use since their leadership is very family-centered and constrained to traditional forms of management (Frezatti et al., 2017; Zellweger et al., 2011; Chua et al., 1999; Kontinen & Ojala, 2010). I-M is supported by a MACS that includes a dynamic style of information use (Simons, 1995; Roque et al., 2020$_a$).	The focus on communication and cooperation (Simons 1991, 1995) allows information to flow and the phases of I-M to develop. Innovation is fostered (Rogers, 1962, Andersen, 1993), a key ingredient of I-M. Exports are seen as an innovative process. Thus, new strategies emerge, which contribute to the evolution of the model. The system promotes export (Gomez-Conde & Lopez-Valeiras, 2018), encouraging the correct orientation, as it grants a greater number of information that assists the manager's decision-making process (Adler & Chen, 2011). In turn, the manager obtains and shares the knowledge for all (Simons, 1991)	The I-M aims at the aggregation of information, especially in the initial phase (phase 1), because it gathers a large amount of information in a given period of time, which is useful for the knowledge of the organizational reality (Bouwens & Abernethy, 2000; Roque et al., 2020$_a$). Between phase 1 and phase 2, aggregation will improve the management of decentralized units, more alternatives emerge, and innovation will allow a better understanding of the relationships established between organizational units (Bouwens & Abernethy, 2000; Roque et al., 2020$_a$).	The I-M seeks integrated information to understand the cause-effect relationships between the operational structure and the strategy and assesses the provision of various measures that are related to financial aspects, such as innovation (Chenhal, 2005) In stages 2 and 3, there is a dynamism between aggregation and integration (Simons, 1995). But integration assumes a greater weight. In FB, there is a conservative and traditional management style (Pešalj et al., 2018), but in stages of greater development of IM, there is a greater need to master information at other levels. The integration of information allows the consolidation of coordination mechanisms between the different organizational units, supporting the decision making process and also the control (Chia, 1995), which is recorded and required in the more advanced stages (2nd and 3rd) (Bilkey & Tesar, 1997; Leonidou & Katsikeas, 1996; Roque et al., 2020$_a$).	The MACS that allows for performance appraisal shall be useful to enable comprehensive monitoring and control of organizational objectives and the performance of the heads of the organizational units they lead (performance appraisal) Especially in phases 1 and 2, as they are the start-up phases of the Internationalization Process (Roque et al., 2019$_b$; 2018$_b$; 2020$_a$).	The I-M is supported by the MACS, in all its phases, in order to allow the management of Resources since it is fundamental to plan and control resources in all phases, since the process is faced based on innovation. (Rogers, 1962, Andersen, 1993; Roque et al., 2020 $_a$).

Table 10.4 Relationship between the Born Global Model and the MACS

Relationship between Born Global and MACS						
Internationalization Model	**Style of Information Use**		**Nature of Information**		**Decision type**	
	Diagnostic	**Interactive**	**Aggregation**	**Integration**	**Performance Evaluation**	**Resource Management**
Born Global	BGIM uses diagnostic type information at the embryonic stage of the enterprise, as the system does not stimulate debate or dialogue (Simons, 1990, Vaivio, 2004, Roque et al., 2020b), it only focuses on a diagnostic analysis. The destination is the global market (Gabrielsson & Kirpalani, 2004), and that is what the diagnostic information is used for. It relies on this use for more formal control (Simons, 1995). There is little intervention from caregivers (Simons, 1991; Roque et al., 2020b) as family dominance and traditional leadership style prevail (Frezatti et al., 2017; Zellweger et al., 2011; Chua et al., 1999). The critical success factors are defined, and the concern is simply to implement the previously deliberated strategy (Pešalj *et* al., 2018).	It enables the promotion of dialogue, creation and integration of knowledge that supports export development and stimulates innovation (Novas et al., 2017, Aghejule, 2006). It allows Managers and employees to identify uncertainties and/or opportunities in the strategy (Novas et al., 2017; Roque et al., 2020b), being able to develop an alternative strategy and modify the existing management control as well as adopt performance tools (Pešalj *et* al., 2018).	Aggregated information allows processing a large volume of information in a given period of time, which is very useful for decision-making purposes (Bouwens and Abernethy, 2000) in global companies, considering the types of knowledge (objective or experiential) (Penrose, 1966) that these companies need There is a predisposition for information to be more aggregated over time (even if the time factor differs from author to author, (Dib et al., 2010) because the goal is global.	Integrated information is necessary to coordinate the different units. It becomes fundamentally relevant in decentralized structures, both for decision making and control (Chia, 1995; Roque et al., 2020b). It allows understanding the cause-effect relationships between operational structure and strategy (Chenhall, 2005a). In FBs, the leader is characterized by being controlling and domineering (Frezatti et al., 2017; Zellweger et al., 2011; Chua et al., 1999), their leadership is quite traditional and, therefore, there is a need to obtain integrated information capable of meeting their demands and those of the company.	The information allows the evaluation and control of the Performance (Novas al., 2017; Roque et al., 2020b) of all units/subsidiaries because it is necessary to evaluate the performance in companies with a great technological orientation that are born "global" and that develop since their first years of life all their activity based on exports and the conquest of the external market (Gabrielsson and Kirpalani, 2004; Roque et al., 2020b).	BGIM relies on systems that enable resource management because it is necessary to plan and coordinate resources, to monitor organizational progress towards the achievement of objectives, especially in companies with a strong technological orientation, such as BG (Roque et al., 2020b)

Table 10.5 Relationship between the Network Theory Model and the MACS

Relationship between Network Theory and MACS						
Internationalization Model	**Style of Information Use**		**Nature of Information**		**Decision type**	
	Diagnostic	**Interactive**	**Aggregation**	**Integration**	**Performance Evaluation**	**Resource Management**
Network Theory	The use of Diagnostic Type information in NTIM is less used since in this model Interaction and information sharing between all members that make up the network (Axelsson & Easton, 1992) and the organization is valued, therefore the use of diagnostic is underestimated. However, considering the peculiar characteristics of FB, interactivity is conditioned by the traditional management style (Kontinen and Ojala, 2010), and a use focused on the figure of the company manager is preferred (Pešalj et al., 2018).	Interactive use fosters innovation, learning and the search for new solutions, which contributes to the emergence of new networks/synergies (Novas et al., 2017; Sharma, 1993) It allows information to flow and knowledge to develop (Simons 1991, 1995; Bachmann, 1999). Interactive use is key to enabling interconnection and flexibility (Bachmann, 1999) with other stakeholders (Simons, 1991) and analyzing and setting goals. In FB, interactive use may be constrained by the family-centered management style (Pešalj et al., 2018).	At the beginning of the cooperation, the information tends to be more aggregated: it gathers a large amount of information that allows assessing the opportunity to use a common set of knowledge (Bachmann, 1999). With development, the model relies on a dynamism between aggregated and integrated information as the company evolves. However, in FB, there are some constraints in the relationships established between the participants (Kontinen & Ojala, 2010), which may affect the nature of the information.	Integrated information allows for a broad and complete/ interconnected vision of the whole and means of coordination between the different organizational units and the network, allowing for sharing responsibilities and risks (Bachmann, 1999). The integration dimension is viewed contingently, taking into account the evolution of the company and is relevant as interdependence increases between organizations (Chia, 1995).	The NTIM is based on a MACS that supports the evaluation and control of performance in order to control and monitor the objectives and performance of participation in the network that allows the dissemination of the internal process of internationalization (Roque et al.,2019b). .	The NTIM relies on MACS to support resource management decisions to plan and coordinate activities (Novas et al., 2017) within the network itself. The exchange of resources between institutions (Sharma, 1993) presupposes the use of information with regard to the decision evaluation of Controlling these resources (Roque et al.,2019b). .

Based on the literature review on the relationship between the U-Model (UM), the I-Model (I-M), the Born Global Model, and the Network Theory Model and the MACS (see the most relevant aspects summarized in Tables 10.2, 10.3, 10.4 and 10.5), the aim was to investigate to what extent these four models influence the style of use, the nature of the information and the type of decision supported by the MACS. To this effect, the following Research hypotheses were formulated:

H2 - The style of use of the information provided by the MACS in the FB varies according to the IM.

H2:1 - The style of use of information provided by MACS varies across the IP in FB adopting the UM.

H2:2 - FB that adopt UM use MACS more for diagnostic purposes than interactive.

H2:3 - The style of use of information provided by MACS varies across the IP in FB adopting I-M.

H2:4 - FB that adopt I-M use MACS more for diagnostic purposes than interactive.

$H2:5_a$ - FB that adopt BGIM use more information from MACS for interactive purposes than diagnostic.

$H2:5_b$ - FB that adopt BGIM use more information from MACS for diagnostic purposes than interactive.

$H2:6_a$ - FB that adopt NTIM use more information from MACS for interactive purposes than diagnostic.

$H2:6_b$ - FB that adopt NTIM use more information from MACS for diagnostic purposes than interactive.

H3 - The nature of information provided by MACS in FB varies by IM.

H3:1 - The nature of information provided by MACS varies across the IP in FB adopting the UM.

H3:2 - In FB that adopt UM, MACS provide more aggregated information than integrated.

H3:3 - The nature of information provided by MACS varies across the IP in FB adopting I-M.

H3:4 - In FB that adopt I-M, MACS provide more aggregated information than integrated.

H3:5 - In FB that adopt BGIM, MACS provide more aggregated information than integrated.

H3:6 - In FB that adopt NTIM, MACS provide more integrated information than aggregated.

H4 - The type of decision supported by MACS in FB varies by IM.

H4:1 - The type of decision supported by MACS varies across IP in FB adopting UM.

H4:2 - FB adopting the UM attribute greater importance to MACS information to support Resource Management decisions than to support Performance Evaluation decisions.

H4:3 - The type of decision supported by MACS varies across IP in FB adopting I-M.

H4:4 - FB adopting I-M attribute greater importance to MACS information to support Resource Management decisions than to support Performance Evaluation decisions.

H4:5 - FB adopting BGIM attribute greater importance to MACS information to support Resource Management decisions than to support Performance Evaluation decisions.

H4:6 - FB adopting NTIM attribute greater importance on MACS information to support Resource Management decisions than to support Performance Evaluation decisions.

In order to evaluate the configuration and change in the configuration of MACS after IP and according to IM, the following hypotheses were designed:

H5 - The FB internationalization model influences/changes the style of use information, the nature of information and the type of decision supported by MACS.

H5:1 - U-Model (UM) influences the style of use information, the nature of information and the type of decision supported by MACS.

H5:2 - The I-Model (I-M) influences the style of use information, the nature of information and the type of decision supported by MACS.

H5:3 - Born Global Model (BGIM) influences the style of use information, the nature of information and the type of decision supported by MACS.

H5:4 - The Network Theory Model (NTIM) influences the style of use information, the nature of information and the type of decision supported by MACS.

Finally, explaining FB Internationalization Process Performance is a complex job and findings of the effects of FB internationalization on performance are mixed (Arregle et al., 2021). Thus, and in order to assess what is the impact of the adjustment between MACS and IM on the IP performance of FB and taking into account the findings of works of several authors who studied Internationalization Performance (Crespo et al.,2020; Ribau et al.,2017; Jantunen et al., 2005; Kuivalainen et al., 2007; Aulakh et al., 2000; Zou et al.,1998) the following hypothesis was formulated:

H6 - The fit between IM and MACS has an influence on FB performance.

Additionally, and since the development of this study took place in a pandemic context - *COVID-19*, it was decided that this reality could not be ignored. In this sense, information was collected to analyze the possible impacts of the increased risk and uncertainty caused by this epidemiological phenomenon on the development of IP and on the reconfiguration of the IM and the MACS of the companies. In this context, three more research hypotheses were formulated.
With the first, it sought to measure the impact of the pandemic on IP performance:

H7 - The COVID-19 pandemic had a significant impact on the internationalization performance of FB.

The second, and the third aimed at assessing the impact of the uncertainty generated by *COVID-19* on MACS, were formulated based on the literature calling for greater use of MACS information in contexts of greater uncertainty (Chenhall and Morris, 1986; Johnson and Kaplan, 1987; Chong, 1996; Fisher, 1996; Chenhall and Langfield-Smith, 1998; Baines and Langfield-Smith, 2003):

$H8_a$ - In the face of the uncertainty generated by the COVID-19 pandemic, today FB, regardless of IM, use more MACS information in a diagnostic way than in the pre-COVID-19 era.

$H8_b$ - In the face of the uncertainty generated by the COVID-19 pandemic, today FB, regardless of IM, use more MACS information in an interactive way than in the pre-COVID-19 era.

Thus, in Figure 10.1 presents the conceptual model that was developed and applied.

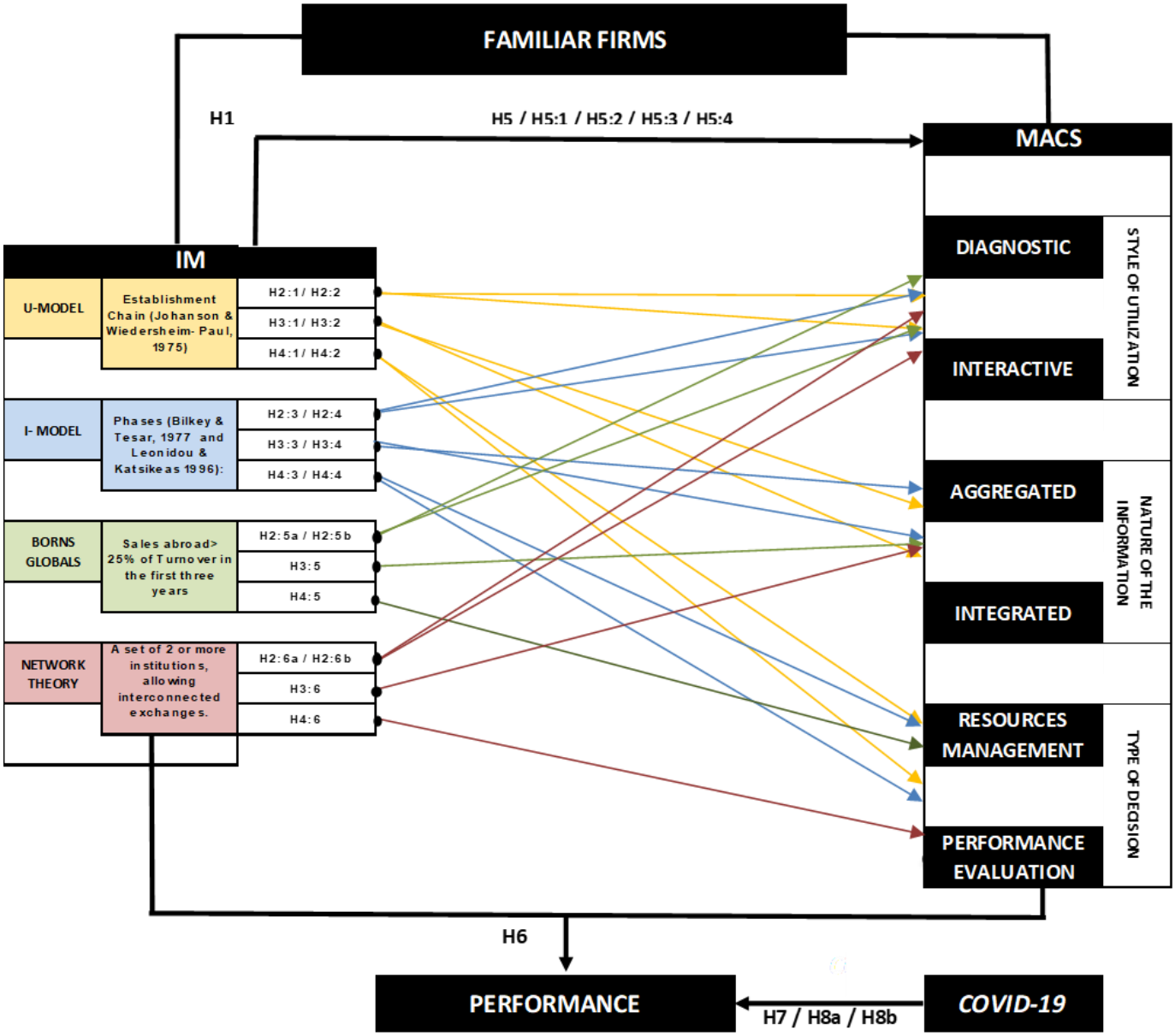

Figure 10.1 Conceptual model: MACS vs Internationalization Models of Family Business

10.3. Research Methods / Methodology

In this research, a correlational design was used to examine the relationships between IM and information use style, the nature of information, and the type of decision supported by MACS information.

A questionnaire survey (Appendix 2) was developed to collect the data necessary to test the hypotheses. The research instrument used - a questionnaire was designed based on the literature review, i.e. it was built from other empirically validated questionnaires in previous studies (Macedo and Lehmann, 2010; Major et al., 2011; Novas et al., 2008;

Ribau et al., 2016, Cadez and Guilding, 2008; Jantunen et al., 2005; Kuivalainen et al., 2007; Aulakh et al., 2000; Hoque and James, 2000; Zou et al., 1998).
Similarly, to previous studies, a set of items was used for each question, measured using a *Likert-type* scale with five points so as to "provide a sufficiently wide response scale to ensure greater accuracy in respondents' answers" (Novas, 2009:283).
Following the recommendations of several authors (Barañano, 2004; Van der Stede, Young, and Chen, 2005; Hill and Hill, 2008), some care was taken in designing the questionnaire. Thus, the questions were organized into several sections to establish a common thread between them, and a pre-test was performed to avoid problems in the respondents' interpretation of the questions. Before its practical application, a pre-test was conducted in three FBs selected for convenience. The questionnaire was applied in person at the companies' headquarters, and the key informant in all three cases was the CEO since all companies claimed to be the person responsible for the IP.
After the pre-test phase, and given the positive feedback received, only minor changes were made. Changes at the language level, making it simpler from the terminology and syntax point of view, in order to dispel doubts and eliminate the non-understanding of concepts by the respondents. And, in some questions, in addition to the concept of management accounting, the concept of "cost accounting" was introduced, as it is a more usual practical name for the respondents.

In terms of structure, the questions were organized into six sections. Section (I) General questions aimed at obtaining information about the company (activity, number of employees...), demographic variables and several aspects were taken into account such as the respondent's role in the company; the year the company started its activity; the location; economic activity; number of employees; turnover in the last available year; generational level of the company; and whether the FB respondent is included in an economic group and the characteristics of the economic group.

Then comes section (II) entitled *Characterization/Identification of the Internationalization Model*. This section was built in order to identify and characterize the IM adopted by the company. To determine the characteristics of the IM, it was necessary to find out the year when the family business started exporting and/or started its IP; the number of countries to which the company currently exports; and the proportion of exports in the sales volume in the first three years of activity. Based on the answer to these questions, it was possible to identify the IM and the stage of model development the company was at (Table 10.1).

In section (III) of the questionnaire, designated as *Characterization of Management Accounting and Control System*, the characterization and configuration of the MACS is studied.

In terms of style of use information, the scale of Naranjo-Gil and Hartmann (2006) was used, which presents a configuration with two dimensions Diagnostic (five items) and Interactive (six items) as per Table 10.6.

Table 10.6. MACS Style of use
Source: Adapted from Naranjo-Gil and Hartmann (2006)

Style of use: Diagnostic	Style of use: Interactive
- Establish medium/long term goals and objectives - Detect and monitor significant deviations - Achieve established plans and objectives - Align performance measures with strategic objectives - Properly evaluate and control subordinates	- Identify key strategic areas - Implementing new ideas and ways of doing tasks - Negotiate medium/long term goals and objectives - Discuss hypotheses and action plans - Permanent coordination with subordinates - Learning tool

Regarding the nature of information, we used a two-dimensional scale validated by Bouwens and Abernethy (2000) with the dimensions Aggregation (five items) and Integration (five items) as per Table 10.7.

Table 10.7 Nature of the MACS information
Source: Adapted from Bouwens and Abernethy (2000)

Information Aggregation	Information Integration
- Disaggregated information - Sectoral information relating to specific areas - Information prepared to enable scenario building - Information processed to highlight how different functions are specifically affected by the occurrence of certain events - Information in appropriate formats for the construction of indicators, decision models, etc.	- Costs and other measures concerning the various departments - Definition of precise objectives for the activities performed by the different areas of the organizational structure - Studies on the effect of certain events over specific periods of time - Information on the effect of decisions by a functional unit on the performance of other functional units - Information on the effect of decisions taken in a particular functional unit on the unit itself and the influence of these decisions on other decisions

For the type of decision supported by MACS, the scale validated by Novas et al. (2017) was used, which includes the dimensions Resource Management (Type A- six items) and Performance Evaluation (Type B - six items), as per Table 10.8.

Table 10.8. Decisions supported by the MACS
Source: Adapted from Novas et al., (2017)

Resource Management (Type A)	Performance Evaluation (Type B)
- Importance of the management accounting/cost accounting system formally implemented in your company to support type A decisions	- Importance of the management accounting/cost accounting system formally implemented in your company to support type B decisions
- Importance of financial information (information in monetary terms relating to past, present and future economic events) to support type A decisions	- Importance of financial information (information in monetary terms relating to past, present and future economic events) to support type B decisions
- Importance of information relating to, for example, absenteeism rates, productivity levels, market share, etc. to support type A decisions	- Importance of information relating to, for example, absenteeism rates, productivity levels, market share, etc., to support Type B decisions
- Importance of information concerning, e.g., consumer satisfaction, product/service quality, training/technical competence of employees etc. to support type A decisions	- Importance of information relating to, for example, consumer satisfaction, product/service quality, training/technical competence of employees, etc.), to support type B decisions
- Importance of the formal information system (global information system created and legitimized by the organization) to support type A decisions	- Importance of the formal information system (global information system created and legitimized by the organization) to support type B decisions
- Importance of the information system relating to, e.g., personal records, informal contacts, etc. to support Type A decisions	- Importance of the information system relating to, for example, personnel records, informal contacts, etc. to support Type B decisions

In section (IV) entitled *Impact of the IP on the MACS, the* changes caused by the development of the IP on the various dimensions of the MACS were studied.

And finally, section (V) Performance Evaluation allowed us to evaluate the IP Performance in each of the analyzed companies.

Additionally, (Section VI) and in order to analyze the possible impacts of the increased risk and uncertainty caused by the *COVID-19* pandemic on the development of IP, we have adapted some questions from a study entitled *Global COVID-19 FinTech Market Rapid Assessment Report* that is currently underway.

The procedures used to collect the data were as follows: the first step was to use a database of 6.437 FB. In a first phase, companies with international activities were filtered. Then, in a second phase, the FB with the highest turnover were assessed, with Small-Medium Enterprises (SMEs) and large companies being privileged. This filtering resulted in 218 companies. We tried to validate and filter the characteristics of each of these 218 companies, ensuring the family nature and internationalization, which was also validated using the einforma platform (https://www.einforma.pt/).
The questionnaire survey was applied during October and November 2020, and data were collected by telephone contact, in order to obtain the answers immediately, and not run the risk of the questionnaire not being answered.

Of the 218 pre-selected international family business, 27 refused to answer, and 64 asked to schedule the questionnaire (which made it impossible to obtain data at the time). Thus, 127 valid responses were obtained, which met the requirements: a family business with a defined internationalization process.

In terms of data treatment and to characterize the sample under study, descriptive statistics (means and standard deviations) of the variables included in the study were determined, as well as the absolute and relative frequencies in the categorical variables.
To validate the hypotheses, we used the chi-square adjustment test (H1), the *t-test* for two independent samples (H2:1; H2:3; H3:1; H3:3; H4:1; H4:3), the t-test for two paired samples (H2:2; H2:4; $H2:5_a$; $H2:5_b$; $H2:6_a$; $H2:6_b$; H3:2; H3:4; H3:5; H3:6; H4:2; H4:4; H4:5; H4:6; H5; $H8_a$ and $H8_b$), the Analysis of Covariance (ANCOVA) (H6) and the t-test for one sample (H7). The Chi-square test of independence was also used to analyze the association of IM with the demographic characteristics of the companies.
All statistical calculations based on the collected data were performed with *IBM SPSS* statistical analysis software version 27.0 (*IBM Corporation, New York, USA*).

10.4.Study Results and Discussion

10.4.1. Characterization of the sample

The responses to the questionnaires applied to the 127 exporting family business were provided by the External Markets Officers (44.9%), CEO (29.1%) or Accountants (26.0%) of these businesses (Table 10.9).
As for family business, 63.0% have been in business between 21 and 50 years and 26.9% between 51 and 100 years, respectively. The most recent company had been in business for 10 years, and the one with the longest history had been in business for 178 years.
The companies in the sample are primarily located in the North region (39.7%) and the Centre region (36.5%). The majority (58.1%) work in the Manufacturing Industry, 22.6% are Trade companies, and 12.1% are Agriculture and Forestry companies. 44.1% have less than 50 workers, and only 6.5% have 250 or more workers.
Most companies have a turnover between 500.000 Euros and 1.000.000 Euros (42.9%). The 2nd generational level of FB was the predominant one (70.1%), and only 2.4% belong to an economic group.

The internationalization process or the beginning of exports started between 1975 and 1990 (38.6%) and between 1991 and 2000 (31.5%), more than half of the companies export to three, four or five countries (54.3%). For the majority (50.5%), the proportion of exports in the sales volume in the first three years of activity was between 10% and 25%, and for 26.7% of the companies, it was more than 80%.

Regarding IM, 51 companies (40.2%) adopted the UM (21 companies in the 1st and 2nd stages, and 30 in the 3rd and 4th stages). In 46 companies (38.2%), the model defined was I-M (18 companies in the 1st stage and 28 in the 2nd and 3rd stages). Finally, 16.0% of the FB used the model based on Network Theory (NTIM), and 14 companies adopted the *Born Global* model (BGIM).

With regard to this evidence, and based on the Chi-Square adjustment test (χ^2 (3)=35.80; p < 0.001), it is found that the IM most adopted by FBs is the U-Model, thus corroborating the literature (Graves and Thomas, 2004, 2008; Claver et al., 2007; Casillas and Acedo, 2005; Mitter *et al.,* 2014; Marletta and Vescovi, 2019), a conclusion that allows us to validate H1.

In summary, the overall characterization of the 127 exporting family business surveyed in this research is presented in Table 10.9.

Table 10.9. Sample Characterization
Source: *IBM SPSS version 27.0*

		N	%
Position you hold in the company	CEO	37	29,1%
	Accountant	33	26,0%
	External Markets Manager	57	44,9%
Company Uptime	Up to 10 years	1	0,8%
	11 to 20 years old	4	3,4%
	21 to 50 years old	75	63,0%
	51 to 100 years old	32	26,9%
	More than 100 years	7	5,9%
Time of activity (years), Mean ± SD [Min - Max]		52,4 ± 28,8 [10 - 178]	
Region of location	Alentejo	4	3,2%
	Algarve	2	1,6%
	Center	46	36,5%
	Lisbon and Tagus Valley	23	18,3%
	North	50	39,7%
	Autonomous Region of Madeira	1	0,8%
Economic Activity	Agriculture and Forestry	15	12,1%
	Fishing	1	0,8%
	Extractive Industry	5	4,0%
	Manufacturing Industry	72	58,1%
	Trade	28	22,6%
	Services	3	2,4%
No. of persons employed by the company	<50	56	44,1%
	50-99	47	37,0%

	100-249	16	12,6%
	250-499	7	5,5%
	> 500	1	0,8%
Turnover last year available (thousand €)	<300.000	1	0,8%
	300.000-500.000	37	29,4%
	500.000-1.000.000	54	42,9%
	1.000.000-1.500.000	27	21,4%
	>1.500.000	7	5,6%
Company Generational level	1	20	15,7%
	2	89	70,1%
	3	15	11,8%
	4	3	2,4%
Company belongs to an economic group	No	124	97,6%
	Yes	3	2,4%
Year in which it started exporting and/or began its internationalization process	Until 1974	24	18,9%
	From 1975 to 1990	49	38,6%
	From 1991 to 2000	40	31,5%
	From 2001 to 2010	13	10,2%
	After 2010	1	0,8%
How many countries it currently exports to	1 - 2	40	31,5%
	3 - 5	69	54,3%
	6 -10	17	13,4%
	> 10	1	0,8%
Proportion of exports in sales volume, in the first three years of activity	Less than 10% of sales	4	4,0%
	From 10% to 25% of sales	51	50,5%
	26% to 50% of sales	16	15,8%
	51% to 80% of sales	3	3,0%
	More than 80% of sales	27	26,7%
Internationalization model	UM	51	40,2%
	I-M	46	36,2%
	NTIM	16	12,6%
	BGIM	14	11,0%

Note: SD - Standard Deviation; Min - Minimum; Max - Maximum

10.4.2. Relationship between MACS and IM

Data were collected to ascertain whether the style of use of MACSs varies with the IM, these data are summarized in table 10.10.

We find that both in the use of MACS information for diagnostic purposes ($p = 0.903$) and in the use of MACS information in interactive way ($p = 0.940$), there are no statistically significant differences between firms in the 1st and 2nd stages of the UM and the 3rd and 4th stages of the UM. That is, H2:1 is not confirmed. This situation may be due to the small number of firms that are in each of the IP stages.

However, after the analysis of these results, we can verify that FB adopting the UM use, on average, significantly more ($p < 0.001$) MACS information for diagnostic purposes (Mean=3.69; Standard Deviation (SD)=0.24) than interactive (Mean=2.97; SD=0.18) (H2:2), evidence also supported in the literature for non-family business (Roque et al.,

2021). Recall that FB management is very traditional, and the top manager is very independent in the use of MACS (Frezatti et al., 2017; Zellweger et al., 2011; Chua et al., 1999).

As for companies adopting I-M, similarly to what happened for companies adopting UM, the results obtained do not allow us to prove H2:3. This situation may be due to the reduced number of observations in each phase of the IP. However, also in this case, we find that companies that adopt the I-M use, on average, more information from the MACS in a diagnostic way (Mean= 3.65; SD = 0.26) than in an interactive way (Mean = 3.06; SD=0.25), these differences being statistically significant ($p<0.001$). H2:4 is thus confirmed, and this result corroborates the literature (Gomez-Conde et al., 2013_a).

The literature argues that companies that adopt the BGIM use significantly more information interactive than in a diagnostic manner because this model is adopted by companies that are usually highly technologically oriented and that are created with the immediate objective of going international (Bell, 1975; Knight and Cavusgil, 1996; Roque et al., 2020_b). These arguments led to the formulation of hypothesis $H2:5_{a,}$ which is not confirmed in this study.

In this study, the collected evidence shows that companies that adopt BGIM use, on average, significantly more information from MACS in a diagnostic way (Mean=3.77) than in an interactive way (Mean = 2.98) which allows for the verification of $H2:5_b$.

Some literature (Simons, 1990; Vaivio, 2004) suggests that, in these companies, the use of information in a diagnostic manner is preferred in the embryonic phase of the company because the system does not stimulate debate or dialogue, and there is little intervention on the part of those in charge. However, this situation does not occur in the companies studied, since only 14 FB adopted the BGIM, which are small companies (under 50 employees), which are at the 2nd generational level, and all of which have been in business for over 21 years.

However, this result may be justified by the dominance of the family figure, where the management and leadership style may be conditioned to the traditional forms of management (Frezatti et al., 2017; Zellweger et al., 2011; Chua et al., 1999). Thus, our conclusion is to state that the use of the diagnostic type of management to the detriment of the interactive use may effectively be due to the peculiar characteristics of managers/entrepreneurs of FB, which devalue interaction, integration, and knowledge creation, thus adopting a more traditional management in which the objective is only the implementation of the strategy previously deliberated by themselves (Pešalj et al., 2018). Kontinen and Ojala (2010) argue in their work that the FB, given their

characteristics, use a less formal and less structured way of collecting information and conducting analyses when compared to non-family business. In the FBs, the concern lies in obtaining a large amount of information, evidence that also contributes to justify a greater use of the diagnostic type.

As in FB that adopted BGIM, those that adopted NTIM use on average more information from MACS for diagnostic purposes (Mean=3.70; SD=0.28) than interactive (Mean=3.04; SD=0.22), being this difference statistically significant ($p<0.001$), which allows proving $H2{:}6_{b.}$ There is thus clearly a difference between FB and Non-Family Business since the literature has defined that ownership by (non-family) shareholders is perceived as a positive indicator for NTIM adoption, where information flows and is shared in an interactive way (Simons 1991, 1995; Bachmann, 1999). However, FB do not form and establish networks as easily as non-family enterprises (Kontinen and Ojala, 2010). The adoption of NTIM in FBs is limited. The network development is hindered by the specific characteristics of FB, which condition interactivity and restrict synergies that can be established among the network players (Kontinen and Ojala, 2010), evidence that may justify the fact that $H2{:}6_{a,}$ in the sample under study is not validated.

Table 10.10. Style of use of information provided by MACS according to the internationalization model
Source: *IBM SPSS* version 27.0

IM	MACS Style of use	IM Steps	N	Mean	SD	p
UM	Interactive	1st and 2nd Stage	21	2,97	0,16	0,940
		3rd and 4th Stage	30	2,97	0,20	
	Diagnostic	1st and 2nd Stage	21	3,70	0,22	0,903
		3rd and 4th Stage	30	3,69	0,27	
	Interactive		51	2,97	0,18	0,000*
	Diagnostic		51	3,69	0,24	
I-M	Interactive	1st Phase	18	3,12	0,23	0,171
		2nd and 3rd Phase	28	3,02	0,25	
	Diagnostic	1st Phase	18	3,70	0,24	0,281
		2nd and 3rd Phase	28	3,61	0,27	
	Interactive		46	3,06	0,25	0,000*
	Diagnostic		46	3,65	0,26	
BGIM	Interactive		14	2,98	0,21	0,000*
	Diagnostic		14	3,77	0,23	
NTIM	Interactive		16	3,04	0,22	0,000*
	Diagnostic		16	3,70	0,28	

Note: * $p < 0.05$; SD - Standard Deviation

Next, Table 10.11 presents the results regarding the nature of the information (aggregated vs integrated) that comes from the MACS and each IM privilege (H3).

The literature states that, in general, companies favor the aggregation of information in the early stages of the UM (1st and 2nd stage), because the structure is simpler and more centralized, and naturally, the information is processed in large volume (Bouwens and Abernethy, 2000). However, in the more advanced stages of the model development (3rd and 4th stage), the information tends to be more integrated due to the complexity of the stages and also to the growing need to coordinate the different organizational units (Chia, 1995).

The results of this study show that, on average, there is a greater use of aggregated information and integrated information in the more advanced stages of IM development, but the differences are not statistically significant. Thus, H3:1 cannot be validated.

It is also found that in these companies that adopted the UM, the MACS provide more integrated information (Mean=3.20) than aggregated information (Mean=2.90), and the difference is statistically significant ($p<0.001$). This result does not allow us to validate H3:2 for the sample in question.

The specific characteristics of the FB may explain our result. As we know, managers' mastery of the information generated by the MACS may contribute to a greater need to integrate knowledge than just obtaining it in a simple way and without great detail, thus leading to a greater integration of information for their self-knowledge.

As for the nature of the information (Table 10.11.) that is made available by the MACS, it can be seen in the companies that adopted the I-M, that in the 1st phase of model development, more aggregated and more integrated information is made available than in the other phases, but the difference is not statistically significant, thus not allowing to prove H3:3.

Similarly, to what was mentioned for UM, companies that adopted I-M use integrated information from MACS (Mean=3.34) significantly higher than aggregated information (Mean = 2.90), not allowing validation of H3:4.

Even so, the results on the nature of the information in the MACS of these FBs show that more integrated information is made available than aggregated information, which leads us to conclude that the reasons that justify this non-compliance, in relation to what is referenced in the literature for non-family companies, are the more traditional, conservative and dominant characteristics of the top management of FBs.

In the MACS of companies adopting BGIM significantly more ($p<0.01$) integrated information is made available on average (Mean=3.23; SD=0.27) than aggregated

information (Mean=2.80; SD= 0.34). However, these results do not allow us to validate H3:5.

Literature has shown that companies (disregarding whether they are FB or non-FB) that adopt BGIM favors aggregated information, at least at the beginning of the process, since a large volume of information is needed in order to take a more macro approach to the process. Later on, a more integrated provision of information may be recorded, becoming especially relevant as the interdependencies increase (Novas et al., 2017), since with the evolution of the IP, it is naturally necessary to control the different organizational units and/or relationships, thus the integrated information is privileged in this process. However, and as the IP develops, the time variable contributes again to the information aggregation increment (Dib et al., 2010). Thus, one would expect that the FBs rely on MACS that provide information in a more aggregated than integrated manner, or even that the information varies between aggregation and integration. However, the result shows that the information is more integrated than aggregated, meaning that the FBs need detailed information that enables them to support decision making with greater security since the need for control and dominance, as already mentioned, characterizes this type of company.

Finally, with regard to the nature of the information and for the FBs that adopted the NTIM, we find that the information provided by the MACS is more integrated (Mean=3,30) than aggregated (Mean=2,70), with this difference being statistically significant. However, as this result goes in the opposite direction to that established in the formulated hypothesis, it does not allow us to validate H3:6. Thus, in the FBs that implement the NTIM, similarly to what happens in the companies that adopted the BGIM, the integration of information is privileged, considering that the aggregation of information only assumes greater prominence at the beginning of network cooperation. Thus, for the FB, it is essential to integrate all the information that allows the development of NTIM considering that for this type of companies there is some conditioning in the relationships established between the players (Kontinen and Ojala, 2010), a variable that contributes to the need to obtain information with greater detail and with greater applicability.

As Chenhall (2003) argues, systems based on information integration are systems that allow understanding the cause-effect relationships between the operational structure and strategy. These systems seek to integrate the operational side to the strategic side, an integration that the MACSs generally do not provide.

Table 10.11. Nature of information provided by the MACS according to the internationalization model
Source: *IBM SPSS version* 27.0

IM	MACS Nature of the information	IM Steps	N	Mean	SD	p
UM	Aggregate	1st and 2nd Stage	21	2,86	0,37	0,458
		3rd and 4th Stage	30	2,93	0,35	
	Integrated	1st and 2nd Stage	21	3,20	0,28	0,927
		3rd and 4th Stage	30	3,21	0,23	
	Aggregated		51	2,90	0,36	0,000*
	Integrated		51	3,20	0,25	
I-M	Aggregated	1st Phase	18	2,98	0,30	0,147
		2nd and 3rd Phase	28	2,84	0,30	
	Integrated	1st Phase	18	3,39	0,29	0,387
		2nd and 3rd Phase	28	3,31	0,28	
	Aggregated		46	2,90	0,31	0,000*
	Integrated		46	3,34	0,28	
BGIM	Aggregated		14	2,80	0,34	0,005*
	Integrated		14	3,23	0,27	
NTIM	Aggregated		16	2,70	0,27	0,000*
	Integrated		16	3,30	0,31	

Note: * p < 0.05; SD - Standard Deviation

Regarding the results on the impact of IM on the importance attributed by MACS in supporting the decision-making of the FB (H4), the type of decision provided by MACS was analyzed considering two specific decision contexts: resource management vs performance evaluation.

As shown (Table 10.12), there are no statistically significant differences in the type of decision supported by the MACS information between firms that are in the 1st and 2nd stage of the UM as in the 3rd and 4th stage of the UM, both in terms of the use of information for decision related to resource management (p=0.834) and for performance evaluation (p=0.912). These results do not allow for the verification of H4:1.

Similarly, in companies that adopted the UM, no statistically significant differences were observed (p=0.789) between the use of information for decision making related to resource management and the use of information for performance evaluation. These results do not allow to prove H4:2.

In the companies that adopted the I-M, there are also no statistically significant differences in the type of decision supported by the MACS information between the companies that are in the 1st phase and those that are in the 2nd and 3rd phases with regard to the use of information for decision related to resource management

(p=0.462) as for performance evaluation (p=0.399). These results do not allow for the verification of H4:3.

In companies that adopted I-M, there are also no statistically significant differences between the use of information for decisions related to resource management and the use of information for performance evaluation decisions. These results do not allow, therefore, to prove H4:4.

In relation to companies that adopt the BGIM, no statistically significant differences (p=0.907) are also observed between the use of information for decisions related to resource management and the use of information for performance evaluation. Therefore, these results do not allow H4:5 to be confirmed.

Finally, for FB that have implemented internationalization based on NTIM, no statistically significant differences are observed (p=0.690) between the use of information for decisions related to resource management and performance evaluation. These results, therefore, do not allow H4:6 to be confirmed.

Table 10.12. Type of decision supported by the MACS according to the internationalization model
Source: *IBM SPSS version* 27.0

IM	Support for decision contexts	IM Steps	N	Mean	SD	p
UM	Resources Management	1st and 2nd Stage	21	3,79	0,20	0,834
		3rd and 4th Stage	30	3,81	0,20	
	Performance Evaluation	1st and 2nd Stage	21	3,82	0,23	0,912
		3rd and 4th Stage	30	3,81	0,18	
	Resources Management		51	3,80	0,20	0,789
	Performance Evaluation		51	3,81	0,20	
I-M	Resources Management	1st Phase	18	3,84	0,18	0,462
		2nd and 3rd Phase	28	3,80	0,21	
	Performance Evaluation	1st Phase	18	3,81	0,18	0,399
		2nd and 3rd Phase	28	3,77	0,14	
	Resources Management		46	3,82	0,20	0,537
	Performance Evaluation		46	3,79	0,16	
BGIM	Resources Management		14	3,85	0,22	0,907
	Performance Evaluation		14	3,83	0,24	
NTIM	Resources Management		16	3,76	0,26	0,690
	Performance Evaluation		16	3,80	0,20	

Note: * p < 0.05; SD - Standard Deviation

Considering the peculiar characteristics of FB where the family figure reigns, it is known that the use of the MACS is less formal and less structured (Kontinen and Ojala, 2010), which may somehow justify these results. Family Firm decision-making is strongly influenced by informal rules based on managers' previous experience, which deals with the desire to retain control in the family. Accordingly, decision making may

be affected by social control elements of governance due to the overlap of the family and business spheres (Mustakallio et al., 2002).
Thus, the results obtained may be justified by the fact that the decision-making process is conditioned to a more traditional (Pešalj et al., 2018) and informal management, and there is no significant difference in the importance assigned to the various types of decisions.

10.4.3. Impact of the Internationalization Process on the configuration of Management Accounting and Control Systems

Table 10.13 presents the results regarding the configuration and change in the design of the MACS according to the IM (H5). There is a statistically significant change ($p<0.05$) in the use, nature, and type of decision supported by MACS in all IMs, except for companies that adopted BGIM, where there are no statistically significant differences after the IP ($p=0.207$) with regard to the aggregate nature of MACS.
The results thus allow validating H5:1, H5:2, and H5:4, showing that the UM, the I-M and the NTIM influence the style of information use, the nature of information and the type of decision supported by the MACS. In other words, for 3 of the 4 internationalization models, it is proven that the internationalization strategy influences the use and configuration of the MACS.
As already mentioned, with regard to the influence of the BGIM on the MACS, there are only no statistically significant differences in relation to the aggregation of information. However, this does not mean that there are no signs, as analysis of the averages shows that there is an increase in aggregated information (Mean=3.04) after the IP compared to the period before the IP (Mean=2.80). This result may be conditioned by the limited number of companies that adopt the BGIM since only 14 companies in our sample follow this internationalization strategy. Even so, the result is in line with the literature, which argues that companies have a predisposition to use more aggregated information over time (Dib et al., 2010), thus justifying the results of the averages before and after the IP. With regard to the influence of this model (BGIM) regarding the integrated nature of the information, the style of use and the type of decision supported by the MACS, the difference is statistically significant.

The results also show that, regardless of the IM, the FBs under study use the MACS less, on average, in terms of interactive and diagnostic use after internationalization. This decrease in the use of information may be related to the fact that the IP generates a readaptation and adjustment of the MACS to the reality of internationalization, which

may take some time, and maybe conditioned to the traditional forms of management (Frezatti et al., 2017; Zellweger et al., 2011; Chua et al., 1999) of this type of company.

With regard to the nature of the information, the results show that, on average, there is an increase in the aggregated information and a decrease in the integrated information made available by the MACS in all IMs after the IP. Considering that the IP requires the organization to adapt and that, given the specific characteristics of the FBs, they usually are at a disadvantage in terms of accessibility to resources and capabilities (Fernández and Nieto, 2005; Graves and Thomas, 2004), the MACS information may be simpler because the system will initially be fundamentally prepared to report a large volume of information (Bouwens and Abernethy, 2000).

Finally, it is also interesting to note that, on average, there is a decrease in the use of information from the MACS to support decisions on resource management and performance evaluation. This result may also be related to the fact that FBs do not have as many resources and capacities (Fernández and Nieto, 2005; Graves and Thomas, 2004), which may initially condition their development in the international context (Fernández and Nieto, 2005).

Table 10.13. MACS configuration according to the internationalization model before and after internationalization

Source*: IBM SPSS version* 27.0

		N	Before internationalization		After internationalization		p [1]
			Mean	SD	Mean	SD	
Interactive Use	UM	51	2,97	0,18	2,70	0,31	0,000*
	I-M	46	3,06	0,25	2,76	0,33	0,000*
	NTIM	16	3,04	0,22	2,80	0,31	0,005*
	BGIM	14	2,98	0,21	2,74	0,31	0,045*
Diagnostic Use	UM	51	3,69	0,24	2,97	0,53	0,000*
	I-M	46	3,65	0,26	2,90	0,52	0,000*
	NTIM	16	3,70	0,28	2,85	0,55	0,000*
	BGIM	14	3,77	0,23	2,96	0,34	0,000*
Aggregated Nature	UM	51	2,90	0,36	3,11	0,42	0,005*
	I-M	46	2,90	0,31	3,10	0,43	0,013*
	NTIM	16	2,70	0,27	3,20	0,55	0,007*
	BGIM	14	2,80	0,34	3,04	0,54	0,207
Integrated Nature	UM	51	3,20	0,25	2,80	0,46	0,000*
	I-M	46	3,34	0,28	2,75	0,48	0,000*
	NTIM	16	3,30	0,31	2,80	0,47	0,008*
	BGIM	14	3,23	0,27	2,87	0,30	0,004*
Type of decision: Resources Management	UM	51	3,80	0,20	3,39	0,33	0,000*
	I-M	46	3,82	0,20	3,46	0,23	0,000*
	NTIM	16	3,76	0,26	3,35	0,38	0,009*

	BGIM	14	3,85	0,22	3,39	0,23	0,000*
Type of Decision: Performance Evaluation	UM	51	3,81	0,20	3,50	0,22	0,000*
	I-M	46	3,79	0,16	3,48	0,27	0,000*
	NTIM	16	3,80	0,20	3,51	0,35	0,007*
	BGIM	14	3,83	0,24	3,38	0,27	0,000*

Note: * p < 0.05; SD - Standard Deviation; [1]- t test for two paired samples

10.4.4. Performance evaluation

To evaluate the impact of the adjustment between the IM and the MACS on the IP's Performance, an ANCOVA was used (since the intention is to evaluate the simultaneous impact of two independent variables, quantitative and qualitative, on a dependent qualitative variable), and the results are presented in Table 10.14. The IM, the MACS configuration and the changes in MACS configuration explain 20.1% of the variability of the IP's Performance. The results show that it is the changes in the configuration/design of the MACS relative to the supply of information to support the decision of Performance Evaluation that have a statistically significant impact (p<0.05) on IP Performance.

Table 10.14. ANCOVA; Dependent Variable: Performance in the Internationalization Process; Independent Variables: Internationalization Model, MACS Configuration and Changes in the MACS Configuration
Source*: IBM SPSS version* 27.0

Source of variation	SS Type III	df	MS	F	p
Corrected model	0,73	16	0,05	1,71	0,055
Intercept	0,50	1	0,50	18,56	0,000
Internationalization model	0,13	3	0,04	1,60	0,193
MACS changes	0,00	1	0,00	0,04	0,846
Interactive Use	0,06	1	0,06	2,09	0,151
Interactive Use Changes	0,01	1	0,01	0,31	0,580
Diagnostic Use	0,05	1	0,05	1,96	0,165
Diagnostic Use Changes	0,01	1	0,01	0,19	0,663
Aggregated Information	0,05	1	0,05	1,88	0,173
Changes in Aggregated information	0,03	1	0,03	1,22	0,273
Integrated Information	0,00	1	0,00	0,05	0,817
Changes in Integrated Information	0,02	1	0,02	0,92	0,340
Management Resources Decisions	0,06	1	0,06	2,40	0,124
Changes in Management Resources Decisions	0,01	1	0,01	0,28	0,601
Performance Evaluation Decisions	0,03	1	0,03	1,15	0,285
Changes in Performance Evaluation Decisions	0,11	1	0,11	4,18	0,043*
Standard	2,92	109	0,03		
Total	1568,22	126			
Total corrected	3,65	125			

Note: R^2 = 20.1%; * p < 0.05; SD - Standard Deviation; SS - Sum of Squares; df - Degrees of Freedom; MS - Mean of Squares; F - Test F

This evidence is consistent with the literature since the MACS provides information that is essential to monitor and control organizational objectives (Dimitratos et al., 2003; Naranjo-Gil and Hartmann, 2006) and the performance of the managers of the organizational units that manage them (Silvi, 2012; Roque et al., $2019_{b,}$ 2018_{a}).
Despite the lower use of the MACS, found in the literature it should be recalled that they positively influence organizational performance (Duréndez et al., 2016). Thus, if the MACS is adjusted to the IM and adequately modified to meet their information needs, mainly to support performance decisions, this performance will be reflected in the IP allowing it to develop without constraints.

10.4.5. Results COVID-19

To test H7 and assess whether the *COVID-19* pandemic had a significant impact on the internationalization performance of FBs, the one-sample t-test was used. A 5-level scale was used, with the value 3 being used as the test value for the mean (No impact) and the values 1 and 5 (1-Very negative impact; 5-Very positive impact) (Table 10.15). A statistically significant, very negative impact ($p<0.001$) is found in the various components of internationalization performance, which allows H7 to be validated.

Table 10.15. Impact of COVID-19 on FB IP performance.
One-sample t-test
Source: *IBM SPSS version* 27

	N	Mean	SD	P
Total volume of transactions	127	1,50	0,50	0,000*
Number of new international customers	127	1,63	0,48	0,000*
Retention or renewal of existing customers	127	1,64	0,48	0,000*
Contractual disputes with customers or partners	127	1,66	0,48	0,000*
Delays in payments	127	1,63	0,48	0,000*
Significant variations in market performance	127	1,58	0,50	0,000*

* $p < 0.05$; SD - Standard Deviation

In order to validate hypotheses $H8_{a}$ and $H8_{b}$, i.e., whether in the face of the uncertainty generated by the COVID-19 pandemic, internationalized firms today, regardless of IM, use more information from the MACS in a diagnostic mode and an interactive mode, compared to the pre-COVID-19 era, the t-test for two paired samples was used for this purpose.

In this test, the comparisons of the scores at the level of the MACS Information Use style (interactive or diagnostic) identified in the companies, in the Pre COVID-19 era, and Post COVID-19, were carried out (Table 10.16.).

It is found that companies today use, on average, significantly ($p<0.001$) more MACS information in an interactive way (3.63) compared to the information use (3.01) identified in the Pre COVID-19 era.

Regarding the diagnostic information use style, no statistically significant differences are observed in the Post COVID-19 era ($p=0.151$). That is, $H8_a$ was not confirmed.

As for the interactive style of use, compared to the pre-COVID-19 era, and regardless of the IM adopted, companies currently use the MACS more in order to obtain more information in the interactive mode, a fact that allows proving $H8_b$.

Table 10.16. Style of use of information provided by MACS
(t-Test for two paired samples)
Source: *IBM SPSS version* 27.0

	N	Mean	Std. Deviation	p
Post Covid Style of Use of Information: Interactive	127	3,63	0,23	0,000*
Pre-Covid Style of Use of Information: Interactive	127	3,01	0,22	
Post Covid Style of Use of Information: Diagnostic	127	3,64	0,21	0,151
Pre-Covid Style of Use of Information: Diagnostic	127	3,69	0,25	

10.4.6. Other Evidence

Finally, we sought to analyze whether there was any association between the various demographic characteristics of FB and IM, and the results are shown in Table 10.18. There are statistically significant differences between the internationalization models concerning the number of people working for the company ($p=0.001$) and turnover in the last available year ($p=0.018$). With regard to the number of employees, all companies that adopt BGIM have less than 50 employees, with these proportions being 41.2%, 32.6% and 37.5% in companies that adopt UM, I-M or NTIM, respectively. As regards turnover and considering the range up to 500 thousand euro in the last year, the companies with a significantly higher proportion were those that adopted the NTIM (62.5%). However, for a turnover of more than one million euros, the companies with a higher proportion were those that adopted the UM (34.0%).

Also, with regard to turnover, the companies that adopted staged IM (UM and I-M) have, on average, higher turnover than those using the other models (NTIM and BGIM).

Table 10.17. Demographic characteristics of FB according to the internationalization model
Source: *IBM SPSS* version 27.0

		UM		I-M		NTIM		BGIM		p
		N	%	N	%	N	%	N	%	
Region	Center	11	21,6%	23	50,0%	7	43,8%	5	35,7%	0,115
	Lisbon and Tagus Valley	12	23,5%	4	8,7%	4	25,0%	3	21,4%	
	North	26	51,0%	15	32,6%	4	25,0%	6	42,9%	
	Other regions	2	3,9%	4	8,7%	1	6,3%	0	0,0%	
Economic Activity	Agriculture and Forestry	6	12,2%	3	6,7%	3	18,8%	3	21,4%	0,649
	Trade	14	28,6%	10	22,2%	3	18,8%	1	7,1%	
	Manufacturing Industry	27	55,1%	27	60,0%	9	56,3%	9	64,3%	
	Other	2	4,1%	5	11,1%	1	6,3%	1	7,1%	
Company Uptime	Up to 20 years	0	0,0%	3	7,1%	2	13,3%	0	0,0%	0,074
	21 to 50 years old	34	69,4%	24	57,1%	11	73,3%	6	46,2%	
	More than 50 years	15	30,6%	15	35,7%	2	13,3%	7	53,8%	
No. of persons employed by the company	<50	21	41,2%	15	32,6%	6	37,5%	14	100,0%	0,001*
	50-99	18	35,3%	20	43,5%	9	56,3%	0	0,0%	
	> 100	12	23,5%	11	23,9%	1	6,3%	0	0,0%	
Turnover available last year (thousands €)	<500.000	13	26,0%	9	19,6%	10	62,5%	6	42,9%	0,018*
	500.000-1.000.000	20	40,0%	24	52,2%	6	37,5%	4	28,6%	
	>1.000.000	17	34,0%	13	28,3%	0	0,0%	4	28,6%	
Company Generational level	1	5	9,8%	9	19,6%	3	18,8%	3	21,4%	0,694
	2	37	72,5%	30	65,2%	12	75,0%	10	71,4%	
	3	9	17,6%	7	15,2%	1	6,3%	1	7,1%	
Company belongs to an economic group	No	49	96,1%	45	97,8%	16	100,0%	14	100,0%	0,736
	Yes	2	3,9%	1	2,2%	0	0,0%	0	0,0%	
Year in which it started exporting and/or began its internationalization process	Until 1990	11	21,6%	9	19,6%	0	0,0%	4	28,6%	0,297
	From 1975 to 1990	22	43,1%	14	30,4%	10	62,5%	3	21,4%	
	From 1991 to 2000	13	25,5%	17	37,0%	4	25,0%	6	42,9%	
	After 2000	5	9,8%	6	13,0%	2	12,5%	1	7,1%	
How many countries it currently exports to	1 - 2	14	27,5%	12	26,1%	7	43,8%	7	50,0%	0,105
	3 - 5	25	49,0%	29	63,0%	9	56,3%	6	42,9%	
	> 5	12	23,5%	5	10,9%	0	0,0%	1	7,1%	

* $p < 0,05$

Still and despite this evidence, it would be pertinent in the future to extend our study to a more significant number of companies to collect a larger number of observations.

10.5. Conclusions

With this study, we sought to analyze how the MACS adjusts to the IM in order to promote a good performance of the FB. To this end, six research questions were formulated:

RQ1 - Which is the IM most adopted by Portuguese FB?
RQ2 - What is the impact of IM on the style of use of MACSs in FBs?
RQ3 - What impact does the IM have on the nature of the information made available by the MACS on FBs?
RQ4 - What impact does the IM have on the importance of MACSs in supporting FB decision-making?
RQ5 - What is the influence of the internationalization strategy on the configuration of FB's MACSs?
RQ6 -What is the impact of the adjustment between MACS and IM on FB performance?

To answer these research questions, a quantitative study was developed, and we analyzed the results obtained in order to answer each of these questions.

According to the results obtained in our study, we found that Portuguese FBs use an incremental internationalization model such as the UM, a result that allows us to validate H1 and answer RQ1. In other words, it is confirmed that the IM most used by Portuguese FBs is the UM.

In order to answer RQ2, the relationship between IM and one of the three dimensions of the MACS was evaluated, which characterizes the style of use of the information provided by the MACS. The results show that as far as the style of use of the information provided by the MACS is concerned, the companies that adopt the U-Model stepwise model and the I-Model stepwise model use the MACS more for diagnostic purposes than interactive (H2:2 and H2:4).
With regard to BGIM and NTIM, the results also do not allow us to validate our hypotheses. We believe that these results are based on the peculiar characteristics of FB that condition the structure of the MACS (Kontinen and Ojala, 2010) and that contribute to a lower use of the system compared to non-family business (Duréndez et al., 2016).

In order to answer RQ3, the impact of IM on the nature of the information made available by the MACS in the FB was assessed.
The literature has advocated a more aggregated than integrated use of information, and our results do not show statistically significant differences in this sense for FB. However, only the FB that adopt NTIM allowed the validation of our hypothesis H3:6, i.e., these companies use more integrated than aggregated information, similarly to the

non-family business, resulting from this the specificity of NTIM that "requires" a greater integration of knowledge in order to evolve in network.

Concerning RQ4, the impact of IM on the importance of MACS in supporting the decision making of FBs was assessed both for the use of information for decision making related to resource management and the use of information for performance evaluation.
With regard to the results, no statistically significant evidence was found for the IMs under study. Although the relationship could not be proven with the defined sample, we cannot generalize this conclusion. We only know from the literature review that in this type of companies (FB), given their characteristics in which the family figure reigns, the use of the MACS is less formal and less structured (Kontinen and Ojala, 2010), which may somehow justify these results since the decision-making process may be conditioned to a more traditional management (Pešalj et al., 2018), where decisions are simply deliberated by the top management.

In order to answer RQ5 and evaluate the influence of the internationalization strategy on the configuration of the MACS of the FB (H5:1 / H5:2/ H5:3/ H5:4), it was found that the UM, the I-M and the NTIM influence the style of information use, the nature of information and the type of decision that is supported by the MACS. However, results show that regarding the influence of BGIM on MACS, there are only statistically significant differences with regard to the aggregate nature of information.

Regarding the evaluation of the adjustment between IM and the configuration of the MACS and the influence on the performance of the organization (H6), and in order to answer RQ6, it was concluded that the changes in the design of the MACS related to the information provided to support Performance Evaluation decisions have a statistically significant impact on the IP performance of the FB. In other words, it was found that the greater the information provided by MACS to support Performance Evaluation decision, the higher is the Performance in the IP of the FB.

Finally, considering the current epidemiological scenario, we found a very negative and statistically significant impact on the various components of internationalization performance (H7). Even so, and regardless of the IM adopted, it is evident that, in pandemic periods, there is a greater use of the MACS to obtain information in an interactive $H8_b$.

We believe that our study may offer insights and research areas outside the Family Firm domain. This study contributes in its genesis to a better understanding of the relationship between IMs and MACS, highlighting the existence of several roles (passive and active) of MACS in Internationalization (Naranjo-Gil, 2016; Coller et al., 2018).
At the same time, this study evidences contributions to Resource Based Theory, Agency Theory, *Stewardship Theory*, Contingency Theory and Agency Theory, in the context analyzed, i.e., in studying the impact of the adjustment between IM and MACS on the performance of the Family Business.

Corroborating with the literature of MACS in FB (Songini et al., 2018), also the results of our study call for the need for further research to consolidate some of our findings regarding the relationship between IM and MACS.
Thus, as a future line of research, we suggest replicating the study to a larger number of FB, since the results did not allow us to validate some of the hypotheses formulated, a restriction that may be based on the small sample of 127 companies. Finally, it would also be interesting to apply this study in non-family business in order to analyze the adjustment of the MACS to the adopted IM and obtain results that allow us to compare these companies with FB.

11. Final Conclusions

This thesis analyses the impact of the fit between MACS and the internationalization process and its impact on performance.

The final conclusions seek to summarize the main conclusions presented in previous chapters and show how the global results contribute towards an improvement in the knowledge of this subject matter (Appendix 3).

This research allowed us to conclude in general terms that the internationalization process is mainly a strategic decision that can occur in many ways and is influenced by several factors. The company's behavior is influenced by the IP (Greenwood et al., 2008), where knowledge is gradually being sustained, and it allows to evaluate the transition to the subsequent phases.

Several models allow the companies' internationalization. Each model has its own defining characteristics, which translate into specific consequences for the company, both in the operations' control level and at the commitment of resources and even at the risks dissemination level (Hill et al., 1990). The IP implies several changes in the company's internal organization, mainly in company's MACS.

In this research, it was possible to operationalize the MACS concept, and it was found that we can resort to three categories and six different dimensions. This conceptual framework allows characterizing the style of use of the existing MACS: the system may be diagnostic and/or interactive. In turn, the nature of the information may vary between the aggregate and/or integrated form. And all the information provided by MACS may be useful for resource management, as well as for performance evaluation decisions.

This research supports these conclusions through four in depth case studies, a multiple case study, and a research survey with family business. The main conclusions obtained are presented below.

In the first case study carried out at the company Dinefer, S.A., it was concluded that the adoption of the U-Model (incremental model) (Johanson and Vahlne 1977; Johanson and Wiedersheim-Paul, 1975) implied an adjustment in the MACS. The results suggest that the IP develops in phases, demanding as it evolves new information from the MACS, thus forcing it progressively to adapt (Roque et al., 2020a).

There are, therefore, changes in the design of the MACS, particularly in the characteristics of the information provided (passive role of the system) and in the way MACS information is used (active role of the system) during the IP. During the IP, a dynamism between dimensions stands out, and the information provided by MACS may vary in style of use, nature of the information provided, and type of decision supported.

MACS information can be used in a diagnostic or interactive manner. The U-Model uses the information that derives from MACS in a diagnostic style, fundamentally in the first and second phases of the process and is supported by an interactive use of MACS information in the fourth phase.
The information can be aggregated, especially in the 4th phase, because it's necessary to aggregate a large amount of information in this stage. The information can be integrated into all phases of the U-Model, but this information is less important in the 1st and 2nd phases.
Regarding decisions, the MACS support all types of decisions, especially on the 4th phase in what concerns subsidiaries.

The same conclusion about the dynamism, i.e. the interaction between the various dimensions, was sustained in the second case study, carried out at Procifisc, Lda. However, in this case, as the company adopts the I-Model a 3 phases model (Bilkey and Tesar, 1977; Leonidou and Katsikeas, 1996) was used and some specificities in the use of information along the model development are registered.
The information is used for diagnostic purposes, this result is based on the fact that the system, at an early stage, does not have as many information reporting abilities because the need is simply little stimulated by the process. In the following phases, there is a complementarity between the various MACS dimensions (diagnostic and interactive).
In phase 1 of the I-Model, the MACS was based on an aggregated way and with the purpose of assisting the decision-making process, essentially to support the resources allocation decisions. This result is based on the fact that the system, at an early stage, does not have as many information reporting abilities because the need is little stimulated by the process. The support to performance evaluation decisions are only considered downstream, after phase 2 of the IM.
Through the third case study carried out at Critical Software, S.A. and given the characteristics of the IM detected: BGIM (Knight and Cavusgil, 1996; Bell, 1995; Gabrielsson and Kirpalani, 2004), it was possible to conclude that in this process, the style of information provided by MACS is mainly interactive.
Regarding the information's nature, the results suggest that the information can be aggregated and/or integrated to support resource allocation and performance evaluation decisions.
MACS facilitates the internationalization strategy's implementation and development, (1) since it collects useful and crucial information for the IP. And, cumulatively, the adopted model implies changes in the MACS (2), namely in adopting and adapting accounting and control tools that allow supporting the IP.

In the fourth case study carried out in the company Stemlab, Lda two Internationalization Models were identified: the NTIM (Axelsson and Easton, 1992; Sharma, 1993; Bachmann, 1999) and the BGIM (Knight and Cavusgil, 1996; Bell, 1995; Gabrielsson and Kirpalani, 2004). In this study, it was possible to assess in both adopted models, the style of use of information provided by MACS is mainly interactive. Regarding its nature, the information may be aggregated and/or integrated, and the information output allows to support decisions at the resource management level, as well as performance assessment.

After the 4 case studies, a comparative multiple case study was carried out to identify similarities and differences between the cases studied. In this study and with regard to the IM, it was possible to verify that the most traditional IM (UM, and I-M) (Johanson and Wiedersheim-Paul, 1975; Bilkey and Tesar, 1977; Leonidou and Katsikeas 1996) use the MACS fully, registering a dynamism in the categories and respective dimensions of information use and nature of information (Novas et al., 2017). Concerning the type of decision, they use information to evaluate performance in more evolved phases/stages as the level of commitment to the market increases, although they simultaneously need information to support decisions for the management of resources in all phases/stages.
In the same comparative study, it was possible to verify that as far as the adoption of the NTIM is concerned, companies resort to a MACS that allows an interactive use of information, devaluing the diagnostic use. Regarding the nature of information category, the NTIM simultaneously records a dynamism between aggregated information and integrated information, to the extent that macro and micro segmented information is required to meet their needs and those of the network. About the type of decision category, the NTIM uses information and values it, either to evaluate performance in the network or to control and manage the resources required to meet needs.
In the case of the company in which the adoption of the BGIM was detected, it is possible to conclude that the style of use of the MACS information is more interactive than diagnostic, although the latter is also important in an embryonic phase, thus allowing the strategy and corresponding objectives to be outlined in advance. The focus of this IM is on an interactive MACS that promotes the flow and interaction of information. The nature of the information presents characteristics of aggregation and integration, to the extent that there is a need to group, or aggregate, a large volume of information in order to support the expansion, and at the same time understand this information at a more specific level, more integrated, necessary for the coordination of the different units. All the information that the system makes available, and similarly to what happened with the NTIM, the BGIM uses MACS information, either to evaluate performance or to control and manage the resources required.

After validating these conclusions, we tried to somehow formulate some hypotheses in order to generalize some of the conclusions obtained by conducting a survey research study with Portuguese Family Business.

Through this study, it was possible to verify that the incremental internationalization U-Model is the most used by Portuguese FB.

The results do not show differences between the phases/stages of the internationalization process in terms of the style of using information from the MACS in a diagnostic or interactive way for the Models by stages (U-Model and I-Model). However, the companies that adopt this type of model (U-Model and I-Model) have a more diagnostic than interactive style of use.

With regard to BGIM and NTIM, it would be expected that companies adopting these models would make greater interactive use of information rather than for diagnostic purposes, but the results do not point in that direction. We believe that these results are based on the peculiar characteristics of FB, which are usually at a disadvantage in terms of access to resources and capabilities (Fernández and Nieto, 2005; Graves and Thomas, 2004), which may condition their development in the international context (Fernández and Nieto, 2005) and which, in turn, will condition the structure of their MACS.

With regard to the nature of the information, the literature has advocated a more aggregated use of information than an integrated one, both for the Models by phase/stage (U-Model / I-Model) and for the BGIM, and the research carried out does not show this to be the case for FB. Only FBs that adopt the NTIM use more integrated than aggregated information, as do non-family business. These results fits the specificity of this NTIM that "requires" a greater integration of knowledge in order to evolve in a network.

Surprisingly, in the results about the importance of the MACS information in supporting decision making, no statistically significant evidence was found for the IMs under study, thus contrasting with the results of the case studies conducted. This result may be related to one of the limitations of this study, which is the small sample of companies studied.

This study on FB showed that the internationalization strategy and, more specifically, the IMs influence the configuration of the MACS. The evidence shows that the IMs influence the use and configuration of the MACS. Only in the case of BGIM is it not possible to confirm the influence of the model on the aggregation dimension of the MACS information.

However, this research highlights that the adjustment between the IM and the MACS have a statistically significant and positive impact on organizational performance, corroborating what is advocated by Duréndez et al. (2016), despite the insufficient use of the MACS, it positively influences organizational performance.

Finally, an assessment of the epidemiological scenario showed that it has a very negative and statistically significant impact on the various components of internationalization performance. To compensate for this increase in uncertainty and risk, companies began to make greater interactive use of the MACS in order to obtain more up-to-date and timely information in the post-Covid 19 period than in the pre-Covid 19 period.

In terms of contributions, this research allowed building and testing in practice a theoretical framework that allowed us to operationalize two concepts (MACS and IP) and study the relationship between them. So, we believe that this study contributed to the current understanding of the relationship between IMs and MACS, and simultaneously offers important insights for practitioners as it might constitute a tool to assist companies in adjusting their MACS to IM development.
The results of this research mainly contribute to the increased knowledge on the MACS (Gomez-Conde and Lopez-Valeiras, 2018; Velez et al., 2008; 2014; Araujo et al., 2011, 2010, Florez et al., 2012) and cumulatively to the accounting literature on the Levers of Control framework (Kruis et al., 2016; Asiaei et al., 2018), to the framework of Simons (1995) and Novas et al. (2017), and of Mitter and Hiebl (2017), to the extent that it is established throughout six different empirical studies a better understanding of the relationship between the MACS and the Internationalization strategy.

Also noteworthy is the scientific contribution to the Resource-Based View (RBV) Theory (Barney, 1991; Mitter and Hiebl, 2017) which argues that resources (assets, capabilities, information, knowledge and processes) are a source of competitive advantage and, in this sense, it is possible to understand the importance of the MACS; as well as to the Dynamic Capabilities Theory (Eisenhardt and Martin, 2000), considering that MACS are used according to the IM, in a differentiated and dynamic way depending on the information needs.

With an innovative nature, this thesis increases the knowledge about the relationship between the MACS and the IMs (U-Model, I-Model, Theory of Networks and Born Global), thus proposing a dynamic qualitative "inside-out" approach (Chenhall, 2005b) in the case studies developed. Throughout the research, several roles (passive and active) of the MACS were highlighted, thus also contributing to the research in this area (Naranjo-Gil, 2016; Coller et al., 2018). So, this thesis can contribute to the development of further studies, namely encouraging additional research on the topic.

However, and aware that there is still much research to be done on this topic, and especially because the results are not very conclusive (Songini et al., 2018), it is suggested to extend this study to a more significant number of family business.

In addition, we believe that our quantitative study may offer insights outside the family firm domain so, as a future line of research, it is suggested to replicate the study in non-family business to analyse the adjustment of the MACS to the IM adopted. This way, the results obtained could be reinforced and even generalized, and this study's main limitation could be overcome.

References

Abernethy, M. A., and Brownell, P. (1999). The role of budgets in organizations facing strategic change: An exploratory study. *Accounting, Organizations and Society*, 24(3), 189-204.

Abernethy, M. A., and Chua, W. F. (1996). A Field Study of Control System "Redesign": The Impact of Institutional Processes on Strategic Choice. *Contemporary Accounting Research*, 13, 569–606.

Abernethy, M., and Guthrie C. H. (1994). An Empirical Assessment of the "Fit" Between Strategy and Management Information Systems Design. *Accounting and Finance*, 34 (2), 49-66.

Adler, P., and Chen, C. (2011). Combining creativity and control: Understanding individual motivation in large-scale collaborative creativity. *Accounting, Organizations and Society*, 36(2), 63–85.

Agbejule, A. (2006). *How task uncertainty and diagnostic use of MAS determine the relationship between interactive use of MAS and organizational performance*. Presented in the AAA 2007 Management Accounting Section (MAS) Meeting, July, available in Social Science Research Network: http://papers.ssrn.com.

Ahlstrom, D., and Ding, Z. (2014). Entrepreneurship in China: an overview. *International Small Business Journal*, 32 (6), 610-618.

Ahrens, T., and Chapman C. S. (2004). Accounting for Flexibility and Efficiency: A Field Study of Management Control Systems in a Restaurant Chain. *Contemporary Accounting Research,* 21, (2), 271-301.

Ahrens, T., and Chapman, C. S. (2006). Doing qualitative field research in management accounting: Positioning data to contribute to theory. *Accounting, Organizations and Society*, 31(8), 819-841.

Alpay, G., Bodur, M., Yılmaz, C., Çetinkaya, S., and Arıkan, L. (2008). Performance implications of institutionalization process in family-owned businesses: evidence from an emerging economy. *Journal of World Business*, 43(4),435-448.

Alvesson, M., and Kärreman, D. (2004). Interfaces of control. Technocratic and socio-ideological control in a global management consultancy firm. *Accounting, Organizations and Society*, 29, 423–444.

Andersen, O. (1993). On the internationalization process of firms: A critical analysis. *Journal of International Business Studies, 24* (2), 209 – 228.

Anderson, E., and Gatignon H. (1986). Modes of foreign entry: a transaction cost analysis and propositions. *Journal of International Business Studies*, 17(3), 1-26.

Anderson, S. W., and Widener, S. K. (2007). *Doing qualitative field research in management accounting*. In C. S. Champman, A. G. Hopwood, & M. D. Shields (Eds.) Handbook of Management Accounting Research (Vol 1.) (pp. 319-341). Elsevier.

Andersson, S.-(2000). Internationalization of the Firm from an Entrepreneurial Perspective. *International Studies of Management and Organization*, 30 (1), 63–92.

Andersson, S., and Sundermeier J. (2019). Firms' use of organizational, personal, and intermediary networks to gain access to resources for internationalization. *Thunderbird Int. Bus. Rev.*, 61, 609–621.

Andersson, S., and Wictor, I.-(2003). Innovate Internationalization in New firms: Born Globals – the Swedish-Case. *Journal of International Entrepreneurship*, 1 (3), 249-276.

Anthony, R. (1965). *Planning and Control Systems: a Framework for Analysis, Division of Research*. Harvard University Graduate Business School of Business Administration, Boston (1990). El control de gestión. Marco, entorno y proceso, Ed Deusto, Bilbao.

Anthony, R., and Govindarajan, V. (2007). *Management Control Systems*. Chicago, Mc-Graw-Hill: IRWIN.

Araujo, P., Flórez, R., Sánchez, J.M., and Vélez, M. (2010). Género y dirección frontera en relaciones interorganizativas: Estudio exploratorio de su influencia sobre los sistemas de control para la gestión

de los canales de exportación independientes. Revista de Contabilidad – Spanish Accounting Review, 13(1), 17-52.

Araujo, P., Sánchez, J.M., Vélez, M., and Álvarez-Dardet, C. (2011). Sistemas de control para la gestión de los canales de exportación independientes: Un análisis exploratorio sobre su diseño y uso. *Spanish Accounting Review*, 14(2), 115-146.

Archer, S., and Otley, D. (1991). Strategy, structure, planning and control systems and performance evaluation. Rumenco Ltd. *Management Accounting Research*, 2(4), 263-303.

Arregle, JL., Chirico, F., Kano, L., Kundu S.K., Majocchi, A., and Schulze W.S. (2021). Family firm internationalization: Past research and an agenda for the future. *Journal of International Business Studies*, 52, 1159–1198.

Arosa, B., Iturralde, T., and Maseda, A. (2010). Ownership structure and firm performance in non-listed firms: Evidence from Spain. *Journal of Family Business Strategy*,1(2),88-96.

Asiaei, K., Jusoh, R., and Bontis, N. (2018). Intellectual capital and performance measurement systems in Iran. *Journal of Intellectual Capital*, 19(2), 294-320.

Astrachan, J., Klein, S., and Smyrnios, K. (2002). The F-PEC Scale of family influence: a proposal for solving the definition problem. *Family Business Review*,15(1),15-45.

Aulakh, P., Kotabe, M. and Teegen, H. (2000). Export strategies and performance of firms from emerging economies: evidence from Brazil, Chile and Mexico. *Academy of Management Journal,*43(3),242–361.

Auld G.W., Diker A., Bock M.A., Boushey C.J., Bruhn C.M., Cluskey M., Edlefsen M., Goldberg D.L., Misner S. L., Olson B. H., Reicks M., Wang C., and Zaghloul S. (2007). Development of a Decision Tree to Determine Appropriateness of NVivo in Analyzing Qualitative Data Sets. *Journal of Nutrition Education and Behavior*, 39(1), 37-47.

Axelsson, B., and Easton, G. (Editores) (1992). *Industrial Networks: A New View of Reality*. Londres: Routledge.

Bachmann, R. (1999). *Trust, power and control in trans-organizational relations*. Working Paper 129/1999, ESRC Centre for Business Research, University of Cambridge, Cambridge.

Baines, A., and Langfield-Smith Kim (2003). Antecedents to management accounting change: a structural equation approach. *Accounting, Organizations and Society*, 28(7/8),675-699.

Ballvé, A. (2006). Creando conocimiento en las organizaciones con el Cuadro de Mando Integral y el Tablero de Control. *Revista Contabilidad y Dirección*, 3 (1), 13-38.

Baños Monroy, V., Ramírez Solís, E., and Rodríguez-Aceves, L. (2015). Familiness and its Relationship with Performance in Mexican Family Firms. *Academy of Strategic Management Journal,* 14(2),1.

Barañano, A. M. (2004). *Métodos e técnicas de investigação em gestão*. Lisboa: Edições Sílabo.

Barbosa, R., Azevedo, A., and Boaventura, J. (2016). *Redes de Negócios: Um estudo sobre os pilares teóricos e níveis de análise nas publicações internacionais*. In: Conference: XIX SIMPOI Simpósio de Administração da Produção Logística e Operações Internacionais, At São Paulo.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.

Barros, R. S., and Ferreira, A. (2021). Management control systems and innovation: A levers of control analysis in an innovative company. *Journal of Accounting and Organizational Change*. N/A

Barth, E., Gulbrandsen, T., and Schønea, P. (2005). Family ownership and productivity: The role of owner-management. *Journal of Corporate Finance*,11(1/2),107-127.

Bartlett C. A., and Ghoshal, S. (1991). *Managing across borders: The transnational solution*. Harvard Business School Press.

Bedford D. S., Malmi T., and Sandelin, M. (2016). Management control effectiveness and strategy: An empirical analysis of packages and systems. *Accounting, Organizations and Society*, 51, 12-28.

Bedford, D. S., and Sandelin, M. (2015). Investigating management control configurations using qualitative comparative analysis: an overview and guidelines for application. *Journal Management Control*, 26, 5-26.

Bedford, D.S., and Malmi, T. (2015). Configurations of control: An exploratory analysis. *Management Accounting Research, 27*, 2–26.

Bell, J. (1995). The Internationalization of Small Computer Software Firms: A Further Challenge to "Stage" Theories. *European Journal of Marketing*, 29 (8), 60-75.

Bell, J., Mcnaughton, R., Young, S., and Crick, D. (2003). Towards an integrative model of small firm internationalisation. *Journal of International Entrepreneurship*, 1(4), 339-362.

Belso-Martínez J.A. (2006). Why are some Spanish manufacturing firms internationalizing rapidly? The role of business and institutional international networks. *Entrepreneurship and Regional Development*, 18(3), 207-226.

Benito, G., and Welch, L. (1997). De-internationalization. *Management International Review*, 37 (2), 7–25.

Berland, N., Ponssard J., and Saulpic O. (2006). Recurrent Attempts to Renovate Management Control Revisited through a Simon's Perspective, Cahier N.º 2005-02, École Polytechnique – Centre National de la Recherche Scientifique.

Berrone, P., Cruz, C., and Gómez-Mejía, L. (2012). Socioemotional wealth in family firms: Theoretical dimensions, assessment approaches, and agenda for future research. *Family Business Review*, 25(3),258-279.

Biernacki, P., and Waldorf, D. (1981). Snowball sampling-problems and techniques of chain referral sampling. *Sociological Methods and Research*, 10 (2), 141-163.

Bilkey, W., and Tesar, G. (1977). The export behavior of smaller sized Wisconsin manufacturing firms. *Journal of International Business Studies*, 8(1),93-98.

Bisbe, J., and Malagueño, R. (2012). Using strategic performance measurement systems for strategy formulation: Does it work in dynamic environments*? Management Accounting Research*, 23(4), 296-311.

Bisbe, J., and Malagueño, R. (2015). How control systems influence product innovation processes: Examining the role of entrepreneurial orientation. *Accounting and Business Research*, 45(3),356-386.

Bisbe, J., and Otley D. (2004). The effects of the interactive use of management control systems on product innovation. *Accounting, Organizations & Society,* 29 (8), 709-737.

Bonaccorsi, A., (1992). On the Relationship between Firm Size and Export Intensity. *Journal of International Business Studies*, 23(4), 605-36.

Borch, O., and Arthur, M. (1995). Strategic network among small firms: implications for strategy research methodology. *Journal of Management Studies*, 32 (4), 419-441.

Bouwens, J., and Abernethy, M. (2000). The consequences of customization on management accounting system design. *Accounting, Organizations & Society*, 25(3), 221-241.

Braunerhjelm, P., and Halldin T. (2019). Born Globals – presence, performance and prospects. *International Business Review*, 28(1), 60-73.

Breton-Miller, I. Le, Miller, D., and Lester, R. (2011). Stewardship or agency? A social embeddedness reconciliation of conduct and performance in public family businesses. *Organization Science*,22(3),704-721.

Brouthers, K. D. (2013). Institutional, cultural and transaction cost influences on entry mode choice and performance. *Journal of International Business Studies*, 44(1), 1-13.

Brück, C., Ludwig, J. and Schwering, A. (2018). The use of value-based management in family firms. *Journal of Management Control*, 28(4), 383-416.

Burns T., and Stalker G. (1961). The management of innovation. *London, Tavistock*.

Burns, J., Ezzamel, M., and Scapens, R. W. (2003). *The challenge of management accounting change: Behavioural and cultural aspects of change management*. Elsevier.

Burns, J., Quinn, M., Warren, L., and Oliveira, J. (2013). Management Accounting. McGraw-Hill Education, Maidenhead.

Cadez, S., and Guilding, C. (2008). An exploratory investigation of an integrated contingency model of strategic management accounting. *Accounting, Organizations & Society*, 33(7-8), 836-863.

Calof, J., and Beamish, P. (1995). Adapting to foreign markets: Explaining internationalization. *International Business Review*, 4(2), 115-131.

Câmara, F., and Simões, V. (2007). Market Linking and market learning: social networks in SMEs internationalization. *3rd Iberian International Business Conference*. Aveiro. Portugal.

Cardinal, L.B., Kreutzer, and M., Miller, C.C. (2017). An aspirational view of organizational control research: Re–invigorating empirical work to better meet the challenges of 21st century organizations. *Academy of Management Annals*, 11 (2), 559–592.

Carenzo, P., Broccardo, L., Truant E., and Vola, P. (2011). Influence of Internationalization on Management Accounting Tools: evidences from Italian Firms. *Economia Aziendale Online*, 2(1),157-173.

Carlson, S. (1975). How foreign is foreign trade: a problem in international business research. *Uppsala: Uppsala University Press.*

Carrera N. (2017). What Do We Know about Accounting in Family Firms? *Journal of Ecolutionary Studies in Business*, 2, (2), 97-159.

Casillas, J., and Acedo, F. (2007). Evolution of the intellectual structure of family business literature: A bibliometric study of FBR. *Family Business Review*,20(2),141-162.

Casillas, J.C., Acedo, F.J., and Moreno, A.M. (2007). *International Entrepreneurship in Family Businesses*, Edward Elgar Publishing, Cheltenham, UK.

Cavusgil, S. (1984). Differences among exporting firms based on their degree of internationalization. *Journal of Business Research*, 12 (99), 195-208.

Cavusgil, S. T. (1980). On the internationalization process of firms. *European Research*, 8 (6), 273-281.

Chandler, A. (1962). *Strategy and structure: chapters in the history of the industrial enterprise*. Cambridge: M.I.T. Press

Chandra, Y., and Wilkinson, I. F. (2017). Firm internationalization from a network-centric complex-systems perspective. *Journal of World Business*, 52(5), 691–701.

Chapman, C. S. (1997). Reflections on a contingent view of accounting. *Accounting, Organizations and Society*, 22(2), 189-205.

Chapman, C. S. (1998). Accountants in organisational networks. *Accounting, Organizations and Society*, 23(8), 737-766.

Chell, E. (2004). *Critical incident technique*. In C. Cassel & G. Symon (Eds.), Essential guide to qualitative methods in organizational research. London: Sage Publications Ltd.

Chenhall, R. (2003). Management control systems design within its organizational context: findings from contingency-based research and directions for the future. *Accounting, Organizations and Society*, 28(1), 127–168.

Chenhall, R. (2007). *Theorizing contingencies in management control systems research*. In C. S. Chapman, A. G. Hopwood, & M. D. Shields (Vol. Eds.), Handbook of management accounting research. Vol. 1. Handbook of management accounting research (pp.163–205). Oxford: Elsevier.

Chenhall, R. H. (2005a). Integrative strategic performance measurement systems, strategic alignment of manufacturing, learning and strategic outcomes: An exploratory study. *Accounting, Organizations and Society*, 30(5), 395-422.

Chenhall, R. H. (2005b). *Content and process approaches to studying strategy and management control systems*. In C. Chapman (Ed.), Controlling Strategy: Management, Accounting, and Performance Measurement (pp. 10-36). Oxford University Press.

Chenhall, R. H. (2008). Accounting for the horizontal organization: A review essay», *Accounting, Organizations and Society*, 33 (4/5), 517-550.

Chenhall, R.H., and Euske, K.J. (2007). The role of management control systems in planned organizational change: An analysis of two organizations. *Accounting, Organizations, and Society,* 32(7/8), 601-637.

Chenhall, R.H., and Langfield-Smith, K. (1998). Factors influencing the role of management accounting in the development of performance measures within organizational change programs. *Management Accounting Research*, 9, 361-386.

Chenhall, R.H., and Morris, D. (1986). The impact of structure, environment, and interdependence on the perceived usefulness of management accounting systems. *The Accounting Review* 61(1), 16–35.

Chetty, S., and Campbell-Hunt, C. (2003). Paths to Internationalisation Among Small to Medium-sized Firms: A Global Versus Regional Approach. *European Journal of Marketing*, 37 (5/6), 796-820.

Chetty, S., and Campbell-Hunt, C. (2004). A strategic approach to internationalization: A traditional versus a "born-global" approach. *Journal of International Marketing*, 12, 57-81.

Chia, Y. (1995). Decentralization, Management Accounting System (MAS) Information Characteristics and Their Interaction Effects on Managerial Performance: A Singapore Study. *Journal of Business Finance & Accounting*, 22 (6), 811-830.

Child, J., and Hsieh, L. (2014). Decision mode, information and network attachment in the internationalization of SMEs: A configurational and contingency analysis. *Journal of World Business*, 49 (4), 598–610.

Childa J., Karmowskab J., and Shenkar O. (2022). The role of context in SME internationalization – A review. *Journal of World Business*, 57, 101267.

Chirico, F., Schulze W. S, Arregle J-L, Kano L., Kundu S.K., and Majocchi A. (2021). Family Firm Internationalization: Past Research and an Agenda for the Future. *Journal of International Business Studies*, 2021.

Chirico, F., Sirmon, D., Sciascia, S., and Mazzola, P. (2011). Resource orchestration in family firms: Investigating how entrepreneurial orientation, generational involvement, and participative strategy affect performance. *Strategic Entrepreneurship Journal*,5(4),307-326.

Chong, V. K., and Chong K. M. (1997). Strategic Choices, Environmental Uncertainty and SBU Performance: A Note on the Intervening Role of Management Accounting Systems. *Accounting and Business Research*, 27 (4), 268-276.

Chong, V.K. (1996). Management accounting systems, task uncertainty an managerial performance: a research note. *Accounting, Organizations and Society*, 21(5), 415-421.

Chrisman, J., Chua, J., and Sharma, P. (2005). Trends and Directions in the Development of a Strategic Management Theory of the Family Firm. *Entrepreneurship: Theory and Practice* 29(5),555–576.

Chrisman, J., Chua, J., and Zahra, S. (2003). Creating wealth in family firms through managing resources: Comments and extensions. *Entrepreneurship Theory and Practice*, *27*(4),359-365.

Chua, J., Chrisman, J., and Chang, E (2004). Are family firms born or made? An exploratory investigation. *Family Business Review*,17(1),37-54.

Chua, J., Chrisman, J., and Sharma, P. (1999). Defining the family business by behavior. *Entrepreneurship: Theory and Practice*,23(4),19-39.

Ciravegna, L., Majano, S. B., and Zhan G. (2014). The Inception of Internationalization of Small and Medium Enterprises: The Role of Activeness and Networks. *Journal of Business Research* 67 (6), 1081–1089.

Clark, T., Pugh, D. and Mallory G. (1997). The Process of Internationalization in the Operating Firm. *International Business Review*, 6 (6), 605-623.

Claver E., Rienda L. and Quer D. (2007). The internationalization process in family firms: choice of market entry strategies. *Journal General Management*, 3(1),1-16.

Coase, R. (1937). The Nature of the Firm. *Economica*, 4 (November), 386-405. Reprint in Williamson and Winter 1991.

Coller, G., Frigotto, M. L. and Costa, E. (2018). Management control system and strategy: The transforming role of implementation. *Journal of Applied Accounting Research*, 19(1), 141-160.

Cools, M., Stouthuysen, K., and Van-den-Abbeele, A. (2017). Management control for stimulating different types of creativity: The role of budgets. *Journal of Management Accounting Research*, 29(3), 1-21.

Coviello N. E. (2006). The Network Dynamics of International New Ventures. *Journal of International Business Studies*, 37 (5), 713-731.

Coviello, N., and Munro H. (1997). Network Relationships and the Internationalisation Process of Small Software Firms. *International Business Review*, 6(4), 361-386.

Craig, J., and Dibrell, C. (2006). The Natural environment, innovation, and firm performance: a comparative study. *Family Business Review*,19,275-288.

Crespo N. F., Corado V. S., and Fontes M. (2020). Competitive strategies and international new ventures' performance: Exploring the moderating effects of internationalization duration and preparation. *Business Research Quarterly*, 23(2) 120–140.

Crespo N.F., Rodrigues R, Samagaio A., and Silva G.M. (2019). The adoption of management control systems by start-ups: Internal factors and context as determinants. *Journal of Business Research*, 101, August, 875-884.

Crick, D. (1995). An investigation into the targeting of UK export assistance. *European Journal of Marketing*, 29(8),76-94.

Crick, D., and Jones, M. (2000). Small High-Technology Firms and International High-Technology Markets. *Journal of International Marketing*,-8 (2), 63-85.

Cuervo-Cazurra, A. (2011). Selecting the country in which to start internationalization: The non-sequential internationalization model. *Journal of World Business* 46, 426–437.

Cumming, D., Filatotchev, I., Knill, A., Reeb, D. M., and Senbet, L. (2017). Law, finance, and the international mobility of corporate governance. *Journal of International Business Studies*, 48, 123-147.

Cunha, M., and Verhallen, T.M. (1998). Organizational innovation: An overview of topics, models and research directions. *Comportamento Organizacional e Gestão*, 4(2), 5-33.

Cyert, R. M., and March, J. G. (1963). A behavioral theory of the firm. *Englewood Cliffs, NJ: Prentice-Hall.*

Czinkota, M. (1982). *Export Management*, Praeger Publishers, New York.

Dabic, M., González-Loureiro, M., and Harvey, M. (2015). Evolving research on expatriates: What is 'known' after four decades (1970-2012). *The International Journal of Human Resource Management,* 26(3), 316-337.

Dana, L, and Dumez, H. (2015). Qualitative research revisited: epistemology of a comprehensive approach. *International Journal of Entrepreneurship and Small Business,* 26 (2), 154-170.

Davila A., Foster G., and Jia N. (2015). The Valuation of Management Control Systems in Start-Up Companies: International Field-Based Evidence, European Accounting Review, 24(2), 207-239.

Davila, A., and Foster, G. (2007). Management control Systems in Early-Stage Startup Companies. *The Accounting Review*, 82(4),907-937.

Dawson, A., and Mussolino, D. (2014). Exploring what makes family firms different: Discrete or overlapping constructs in the literature?. *Journal of Family Business Strategy*, 5(2),169-183.

Debellis, F., Rondi, E., Plakoyiannaki, E., and de Massis, A. (2021). Riding the waves of family firm internationalization: A systematic literature review, integrative framework, and research agenda. *Journal of World Business*, 56(1), 101144.

Dent, J. F. (1987). *Tensions in the design of formal control systems: A Weld study in a computer company*. In W. J. Bruns & R. S. Kaplan (Eds.), Accounting and management: Field study perspectives (pp. 119-145). Harvard Business School Press.

Dent, J. F. (1990). Strategy, organization and control: Some possibilities for accounting research. *Accounting, Organizations and Society*, 15(1-2), 3-25.

Dib, L. A., Rocha, A., and Silva, J. (2010). The internationalization process of Brazilian software firms and the born global phenomenon: examining firm, network, and entrepreneur variables. *Journal of International Entrepreneurship,* 8, 233-253.

DiMaggio, P.J., and Powell, W.W. (1983). The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American sociological review* 48 (2), 147-160.

Dimitratos, P., Jonson, J., Slow, J., and Young S. (2003). Micromultinationals: new types of firms for the global competitive landscape. *European Management Journal*,21 (2), 164-174.

Dinefer, Engineering and Industrial Systems (2017, April 20). Who we are. http://www.dinefer.pt/whoweare.html

Donaldson, L. (2001). *The contingency theory of organizations*. Sage Publications, Inc.

Donckels, R., and Fröhlich, E. (1991). Are family businesses really different? European experiences from Stratos. *Family Business Review*,4(2),149-160.

Dunning, J., and Lundan, S. (2008). *Multinational enterprises and the global economy*. Edward Elgar Publishing.

Duréndez A., Ruíz-Palomo D., García-Pérez-de-Lema D., and Diéguez-Soto J., (2016). Management control systems and performance in small and medium family firms. *European Journal of Family Business*, 6 (1), 10-20.

Duréndez, A., Madrid-Guijarro, A., and García-Pérez-de-Lema, D. (2011). Innovative culture, management control systems and performance in small and medium-sized Spanish family firms. *Innovar*,21(40),137-153.

Dzikowski, P. (2018). A bibliometric analysis of born global firms. J*ournal Business Research*,-85,-281-294.

Eisenhardt, K. (1989). Building theories from case study research. *Academy of Management Review,* 14 (4), 532-550.

Eisenhardt, K., and Graebner, M. (2007). Theory building from cases: opportunities and challenges. *Academy of Management Journal*, 50 (1), 25-32.

Eisenhardt, K., and Martin, J. (2000). Dynamic capabilities: what are they? *Strategic Management Journal*, 21 (10/11), 1105-1121.

Emmanuel, C., Otley, D., and Merchant, K. (1990). Accounting for management control, 2nd ed. London, Chapman & Hall.

Eternad, H. (2004). Internationalisation of small and medium-sized enterprises: a grounded theoretical framework and an overview. *Canadian Journal of Administrative Sciences*, 21(1), 1–21.

Fernández, Z., and Nieto, M. (2005). Internationalization Strategy of Small and Medium-Sized Family Businesses: Some Influential Factors. *Family Business Review*, 18 (1), 77-89.

Ferreira, A. M. S. C. (2017). How managers use the balanced scorecard to support strategy implementation and formulation processes. *Tékhne*, 15(1), 2-15.

Fink, M., Harms, R., and Kraus, S. (2008). Cooperative internationalization of SMEs: Self-commitment as a success factor for international entrepreneurship. *European Management Journal*, 26(6), 429-440.

Fisher, C. (1996). The impact of perceived environmental uncertainty and individual differences on management information requirements: a research note. *Accounting, Organizations and Society*, 21(4), 361-369.

Fisher, J. (1998). Contingency theory, management control systems and firm outcomes: past results and future directions. *Behavioral Research in Accounting*,10(1),47-64.

Flanagan, J. C. (1954). The critical incident technique. *Psychological bulletin*, 51 (4), 327-358.

Florez, R., Ramon, J. M., Velez, M., Alvarez-Dardet, C., Araujo, P., and Sanchez, J. M. (2012). *The role of management control systems on inter-organisational efficiency: An analysis of export performance.* In A. Davila, M. J. Epstein, and J.-F. Manzoni (Ed.) Performance Measurement and Management Control: Global Issues (pp. 195-222). Emerald Group Publishing Limited.

Francisco, L., and Alves, M. (2012). *Accounting Information and Performance Measurement in a Nonprofit Organization*. In A. Davila, M.J. Epstein, J. Manzoni (ed.) Performance Measurement and Management Control: Global Issues (Studies in Managerial and Financial Accounting, 25, Emerald Group Publishing Limited, 465 – 487.

Franco-Santos, M., Lucianetti, L., and Bourne, M. (2012). Contemporary performance measurement systems: A review of their consequences and a framework for research. *Management Accounting Research,* 23(2), 79-119.

Frank, H., Kessler, A., Rusch, T., Suess-Reyes, J., and Weismeier-Sammer, D. (2017). Capturing the Familiness of Family Businesses: Development of the Family Influence Familiness Scale (FIFS). *Entrepreneurship: Theory & Practice*, 41(5),709-742.

Freeman, S., and Cavusgil, S. T. (2007). Toward a typology of commitment states among managers of born global firms: A study of accelerated internationalization. *Journal of International Marketing,* 15, 1–40.

Freeman, S., Edwards, R., and Schroder, B. (2006). How Smaller Born-Global Firms Use Networks and Alliances to Overcome Constraints to Rapid Internationalization. *Journal of International Marketing,* 14(3), 33–63.

Freire, A. (1997). Estratégia – Sucesso em Portugal. *Editorial Verbo,* Lisboa.

Frezatti, F., Aguiar, A. B., Guerreiro, R., and Gouvea, M. A. (2011). Does management accounting play role in planning process? *Journal of Business Research*, 64(3), 242-249.

Frezatti, F., Bido, D., Mucci, D., and Beck, F. (2017). Estágios do ciclo de vida e perfil de empresas familiares brasileiras. *RAE-Revista de Administração de Empresas*,57(6),601-619.

Frigotto, L. M., Coller, G., and Collin P. (2013). The Strategy and Management Control Systems relationship as emerging dynamic process. *Journal of Management & Governance*, 17 (3), 631–656.

Gabrielsson, M., and Kirpalani, V. (2004). Born globals: how to reach new business space rapidly. *International Business Review*,-13 (5), 555-571.

Gaffney, N., Cooper, D., Kedia, B., and Clampitet, J. (2014). Institutional transitions, global mindset, and EMNE internationalization. *European Management Journal*, 32(3), 383–391.

García-Álvarez de Perea, J., Ramírez-García, C., and Del Cubo-Molina, A. (2019). Internationalization Business Models and Patterns of SMEs and MNEs: A Qualitative Multi-Case Study in the Agrifood Sector. *Sustainability*, 11, 2755.

García-Álvarez, J., Ramírez-García, C., and del-Cubo-Molina, A. (2019). Internationalization business models and patterns of SMEs and MNEs: A qualitative multi-case study in the agrifood sector. *Sustainability,* 11(10), 2755.

Gassmann, O. and Keupp, M. (2017). The competitive advantage of early and rapidly internationalizing SMEs in the biotechnology industry: A knowledge-based view. *Journal of World Business*,-42,-350-366.

Gerdin, J. (2005). Management accounting system design in manufacturing departments: an empirical investigation using a multiple contingencies approach. *Accounting, Organizations and Society*, 30 (2), 99-126.

Gerdin, J. (2020). Management control as a system: Integrating and extending theorizing on MC complementarity and institutional logics. *Management Accounting Research*, 49**,** 100716.

Gimbert, X., Bisbe, J., and Mendoza, X. (2010). The role of performance measurement systems in strategy formulation processes. *Long Range Planning,* 43(4), 477-497.

Ginsberg, A., and Venkatraman, N. (1985). Contingency Perspectives of Organizational Strategy: A Critical Review of the Empirical Research. *The Academy of Management Review* 10, 421–434.

Giovannini, R. (2010). Corporate governance, family ownership and performance. *Journal of Management & Governance,* 14(2),145-166.

Gleason, K., and Wiggenhorn, J. (2007). Born globals, the choice of globalization strategy, and the market's perception of performance. *Journal of World Business*, 42(3), 322-335.

Gomes, J., and Salas, J. (2001). *Controle de Gestão: Uma Abordagem Contextual e Organizacional* (3rd ed.). São Paulo: Atlas.

Gomez-Conde, J., and Lopez-Valeiras, E. (2018). The dual role of management accounting and control systems in exports: drivers and payoffs. *Spanish Journal of Finance and Accounting*. 47 (3), 307-328.

Gómez-Conde, J., López-Valeiras, E., Ripoll-Feliu, V., and González Sánchez, B.(2013_a). The mediator and moderator effects of internationalization on the relationship between management control systems and commitment to innovation. *Spanish Accounting Review*, 16,53-65.

Gómez-Conde, J., López-Valeiras, E., Ripoll-Feliu, V., and González-Sánchez, M. B. (2013_b). Management control systems and ISO certification as resources to enhance internationalization and their effect on organizational performance. *Agribusiness*, 29(3), 392–405.

Gomez-Conde, J., Lunkes, R. J., and Rosa, F. (2019). Environmental innovation practices and operational performance. The joint effects of management accounting and control systems and environmental training. *Accounting, Auditing & Accountability Journal*, 32(5), 1325-1357.

Gomez-Conde, J., Malagueño, R., Lopez-Valeiras, E., Rosa, F., and Lunkes, R. (2020). *The Effect of Management Control Systems,* in Managing the Unknown: Does the Market Appreciate the Breadth of Vision? (September 24, 2020).

Gómez-Mejía, L. R., Cruz, C., Berrone, P., and Castro, J. De. (2011). The bind that ties: Socioemotional wealth preservation in family firms. *The Academy of Management Annals*, 5(1),653-707.

Gonçalves T., and Gaio C. (2021) The role of management accounting systems in global value strategies. *Journal of Business Research*, 124, 603-609.

González, G., Combo, C., and Trujilo, M. (2012). Family firms and financial performance: The cost of growing. *Emerging Markets Review*,13,626-649.

Grabner I., and Moers, F. (2013). Management control as a system or a package? Conceptual and empirical issues. *Accounting, Organizations and Society*, 38(6-7), 407-419.

Grant, R. M. (1991). The resource-based theory of competitive advantage: Implications for strategy formulation. *California Management Review*, 33(3), 114–135.

Graves, C., and Thomas, J. (2004). Internationalisation of the family business: a longitudinal perspective. *International Journal of Globalisation and Small Business*, 1(1),7-27.

Graves, C., and Thomas, J. (2006). Internationalization of Australian family businesses: A managerial capabilities perspective. *Family Business Review*, 19(3),207-224.

Graves, C., and Thomas, J. (2008). Determinants of the internationalization pathways of family firms: An examination of family influence. *Family Business Review*, 21(2), 151- 167.

Green, S., and Welsh, M. (1998). Cybernetics and Dependence: Reframing the Control Concept. *Academy of Management Review*, 13(2),287-301.

Greenwood, R. Oliver, C. Suddaby, R., and Sahlin-Andersson, K. (2008). Handbook of organization institutionalism. London, England: Sage Publications.

Gulati R., Nohria N., and Zaheer A., (2000). Strategic networks. *Strategic Management Journal*, 21, 203–215.

Hadjikhani, A., and Johanson, J. (2002). Editorial: Special issue on the internationalization of the firm. *International Business Review*, 11(3), 253-255.

Hadley, R. D., and Wilson, H. I. M. (2003) The network model of internationalization and experiential knowledge. *International Business Review,* 12, 697–717.

Hakansson, H., and Johanson J. (1992). *A Model of Industrial Networks: a new view of reality*. In B Axelsson B. e Easton G. (eds), Industrial networks: a new view of reality, *London, Routledge*, 28-34.

Haldma T., and Lääts, K. (2002). Contingencies influencing the management accounting practices of Estonian manufacturing companies. *Management Accounting Research*, 13 (1), 379-400.

Hallén, L., Johanson J., and Seyed-Mohamed N. (1991). Interfirm Adaptations in Business Relationships, *Journal of Marketing*, 55(2), 29-37.

Hammad, S., Jusoh, R., and Ghozali, I. (2013). Decentralization perceived environmental uncertainty, managerial performance and management accounting system information in Egyptian Hospitals. *International Journal of Accounting & Information Management*,21 (4), 314-330.

Hartmann, F. G. H., and Vaassen E. H. J. (2003). *The Changing Role of Management Accounting and Control Systems*. In BHIMANI, Alnoor (ed.), Management Accounting in the Digital Economy, Oxford University Press, Oxford, 112-132.

Hay, A. (2014). I don't know what I am doing!. Surfacing struggles of managerial identity work. *Management Learning,* 45 (5), 509-524.

Helsen, Z., Lybaert N., Steijvers T., Orens R., and Dekker J., (2017). Management Control Systems in Family Firms: a Review of the Literature and Directions for the Future. *Journal of Economic Surveys*, 31 (2), 410–435.

Hennart, J. F. (1982). A theory of the multinational enterprise. *The University of Michigan Press, Cambridge, Mass.* 201

Hennart, J-F., and Park, Y-R. (1993). Greenfield vs. acquisition: the strategy of Japanese investors in the United States. *Management Science*, 39 (9), 1054-1070.

Henri, J. (2006*).* Management control systems and strategy: a resource-based perspective. *Accounting, Organizations and Society,* 31 (6), 529–558.

Hertz, S. (1996). The dynamics of international strategic alliances. *International Studies of Management & Organizations*, 26(2), 104-130.

Hettlage, R., and Steinlin, M. (2006). *The critical incident technique in knowledge management-related contexts*. Ingenious Peoples Knowledge.

Hiebl M., Quinn M., Craig J., and Moores K., (2018). Management control in family firms: a guest editorial. *Journal Management Control*, 28, 377–381.

Hiebl, M.R.W., Duller, C., Feldbauer-Durstmüller B., and Ulrich P. (2015). Family Influence and Management Accounting Usage – Findings from Germany and Austria. *Schmalenbach Business Review*, 67(3),368-404.

Hilal, A., and Hemais, C. (2003). The internationalization process from the Nordic School perspective: empirical evidence in Brazilian companies. *Journal of Contemporary Management,* 7 (1), 109 -124.

Hill, C. W. L., Hwang, P., and Kim, W. C. (1990). An eclectic theory of the choice of international entry mode. *Strategic Management Journal*, 11(2), 117-128.

Hill, M. M. and Hill, A. (2008). *Investigação por questionário*. (2.ª edição). Lisboa: Edições Sílabo.

Hopper T., and Powell A. (1985). Making Sense of Research Into the Organizational and Social Aspects of Management Accounting: a Review of its Underlying Assumptions. *Journal of Management Studies*, 22 (5), 429-465.

Hoque, Z., and James, W. (2000). Linking Balanced Scorecard Measures to Size and Market Factors: Impact on Organizational Performance. *Journal of Management Accounting Research,*12, 1-17.

Hoskisson, R. E., Eden, L., Lau, C. M., and Wright, M. (2000). Strategy in Emerging Economies. *The Academy of Management Journal*, 43(3), 249-267.

Hsu, C., and Pereira, A. (2008). Internationalization and performance: The moderating effects of organizational learning. *Omega: The International Journal of Management Science*, 36(2), 188–205.

Inamdar, S. (2012). *Alignment of Strategy with Structure Using Management Control Systems*. San Jose State University, San Jose, California.

Ismail, T. (2013). Formatting strategy and management control system: Evidence from Indonesia. International. *Journal of Business and Social Science*, 4(1), 196-205.

Ittner, C. D., and Larcker D. F. (1995). Total Quality Management and the Choice of Information and Reward Systems. *Journal of Accounting Research*, 33 - Supplement, 1-34.

Ivanova Y., Dentchev N.A., and Todorov K. (2015). Family Business Internationalization in the New Millennium: Achievements and Avenues for Future Research? *International Review of Entrepreneurship,* Article #1520,13(4),299-332.

Janesick, V. J. (1994). *The dance of qualitative research design: Metaphor, methodolatry, and meaning*. In N. K. Denzin, and Y. S. Lincoln (Eds.), Handbook of qualitative research (p. 209–219). Sage Publications, Inc.

Jantunen, A., Puumalainen, K., Saarenketo, S., and Kyläheiko, K. (2005). Entrepreneurial orientation, dynamic capabilities and international performance. *Journal of International Entrepreneurship,*3(3),223–243.

Jensen, M., and Meckling, W. (1976). Theory of the Firm: Managerial Behavior, Agency costs and ownership structure. *Journal of Financial Economics*. 3(4),305-360.

Jermias, J., and Gani, L. (2004). Integrating business strategy, organizational configurations and management accounting systems with business unit effectiveness: A fitness landscape approach. *Management Accounting Research*, 15(2), 179-200.

Johanson, J., and Mattsson, L.G. (1988). Internationalisation in industrial systems – a network approach. *Hood, N. e Vahlne, J.E (Editores), Strategies in global competition*, 287-314, New York: Croom Helm.

Johanson, J., and Vahlne, J. (1977). The internationalization process of the firm: A model of knowledge development and increasing foreign market commitments. *Journal of International Business Studies*, 8(1), 23-32.

Johanson, J., and Vahlne, J. (1990). The Mechanism of Internationalization. *International Marketing Review*, 7 (4), 11-24.

Johanson, J., and Vahlne, J. (2003). Business relationship learning and commitment in the internationalisation process. *Journal of International Entrepreneurship*, 1 (1), 83- 101.

Johanson, J., and Vahlne, J. (2009). The Uppsala internationalization process model revisited: From liability of foreignness to liability of outsidership. *Journal of International Business Studies*, 40, 1411-1431.

Johanson, J., and Wiedersheim-Paul, F. (1975). The internationalization of the firm. Four Swedish cases. *Journal of Management Studies*, 12(3), 305-322.

Johnson, H.T., and Kaplan, R.S. (1987). The rise and fall of management accounting. *Management Accounting*, 68(7), 22-30.

Jones, M., and Coviello, N. (2005). Internationalisation: Conceptualising an entrepreneurial process of behaviour in time. *Journal of International Business Studies,*36 (3), 284-303.

Kafouros M., Cavusgil S.T., Devinney M.T., Ganotakis P., and Fainshmidt S. (2021). Cycles of de-internationalization and re-internationalization: Towards an integrative framework, *Journal of World Business*, 101257.

Kafouros, M., Buckley, P., Sharp, J., and Wang, C. (2008). The role of internationalization in explaining innovation performance. *Technovation*, 28(1-2), 63-74.

Kampouri, K., Plakoyiannaki, E., and Leppäaho, T. (2017). Family business internationalisation and networks: emerging pathways. *Journal of Business and Industrial Marketing,* 32(3),357-370.

Kaufmann, F. (1994). Internationalisation via Co-operation – strategies for SME. *International Small Business Journal*, 13 (2), 27–33.

Ketokivi, M., and Choi, T. (2014). Renaissance of case research as a scientific method", *Journal of Operations Management,* 32 (5), 232-240.

Klein, S. (2000). Family businesses in Germany: Significance and structure. *Family Business Review,*13(3),157-182.

Knight, G. (1997). *Emerging Paradigm for International Marketing: The Born Global Firm*. PhD Thesis, Michigan State University.

Knight, G., and Cavusgil, S. (2004). Innovation, organizational capabilities, and the born-global firm. *Journal of International Business Studies*, 35(2), 124–141.

Knight, G., and Cavusgil, S. T. (1996). The born global firm: A challenge to traditional internationalization theory. *Advances in International Marketing*, 8(1), 11-26. JAI Press.

Knight, G., and Liesch, P. (2016). Internationalization: From incremental to born global. *Journal of World Business*, 51(1), 93–102.

Kogut, B., and Singh, H. (1988). The effect of national culture on the choice of entry mode. *Journal of International Business Studies*, 19, 411–432.

Kontinen, T., and Ojala, A. (2010). The internationalization of family businesses: A review of extant research. *Journal of Family Business Strategy*, 1 (2), 97-107.

Kraus, S., Ambos, T. C., Eggers F., and Cesinger, B. (2015). Distance and perceptions of risk in internationalization decisions. *Journal of Business Research*, 68(7), 1501-1505.

Kronen, J. (1995). *IT-Enabled Cooperations: a resource-based approach*. ECIS, Institute for Information Management, University of St. Gallen.

Kruis, A. M., Speklé, R. F., and Widener, S. K. (2016). The Levers of Control Framework: An exploratory analysis of balance. *Management Accounting Research*, 32, 27–44.

Krumwiede, K., and Charles, S. (2014). The use of activity-based costing with competitive strategies: Impact on firm performance. *Advances in Management Accounting*, 23, 113-148.

Kuivalainen, O., Saarenketo, S., and Puumalainen, K. (2012). Start-up patterns of internationalisation: a framework and its application in the context of knowledge-intensive SMEs. *European Management Journal*, 30(4), 72–385.

Kuivalainen, O., Sundqvist, S., and Servais, P. (2007). Firms' degree of born-globalness, international entrepreneurial orientation and export performance. *Journal of World Business* 42(3),253-267.

Kuivalainen, O., Sundqvist, S., Saarenketo, S., and McNaughton, R. (2012). Internationalisation patterns of small and mediumsized enterprises. *International Marketing Review*, *29*(5), 448–465.

Kundu, S., and Katz, J. (2003). Born-international SMEs: Bi-level impacts of resources and intentions. *Small Business Economics*, 20, 25–47.

La Porta, R., Lopez-de-Silanes, F., and Shleifer, A. (1999). Corporate ownership around the world. *Journal of Finance*,54(2),471-517.

Langfield-Smith K. (2007). *A review of quantitative research in management control system and strategy*. In: Chapman Christopher S, et al, editor. Handbook of management accounting research. v. 1. Oxford: Elsevier, 753–783.

Langfield-Smith, K. (1997). Management control systems and strategy: A critical review. *Accounting, Organizations and Society*, 22(2), 207-232.

Lavia Lopez, O., and Hiebl, M. (2015). Management accounting in small and medium-sized enterprises: current knowledge and avenues for further research. *Journal of Management Accounting Research,* 27 (1), 81-119.

Lee, J. (2006). Family firm performance: Further evidence. *Family Business Review*,19(2),103-114.

Leonidou L., and Katsikeas C. (1996). The export development process: An integrative review of empirical models. *Journal of International Business Studies*, 27 (3), 517–551.

Leppäaho T., Chetty S., and Dimitratos P. (2018). Network embeddedness in the internationalization of biotechnology entrepreneurs. *Entrepreneurship & Regional Development*, 30(5-6), 562-584.

Li, J. (1995). Foreign entry and survival: Effects of strategic choices on performance in international markets. *Strategic Management Journal*, 16, 333–352.

Liesch, P., Weerawardena, J., Sullivan Mort, G., Knight, G., and Kastelle, T. (2007). Introduction. *Journal of World Business*,-42 (3), 232–235.

Lin S. (2010). *Internationalization of the SME: Towards an integrative approach of resources and competences*. 1er Colloque Franco-Tchèque: "Trends in International Business", 117-135.

Lin, S. (2012). Internationalization of SMEs: Towards an integrative approach of resources and competences. IAE Université Jean Moulin Lyon, published in "*1er Colloque Franco-Tchèque: "Trends in International Business"*, Lyon. France.

Lin, Ya-Hui, Chen, C-J., and Lin, B-W. (2017). The influence of strategic control and operational control on new venture performance. *Management Decision*,-55(5), 1042-1064.

Lindow, C. M., Stubner S., and Wulf T.(2010), Strategic Fit within Family Firms: The Role of Family Influence and the Effect on Performance. *Journal of Family Business Strategy* 1,167-178.

Lopez-Valeiras, E., Gomez-Conde, J., and Naranjo-Gil, D. (2015). Sustainable innovation, management accounting and control systems, and international performance. *Sustainability*, 7(3), 3479-3492.

Lowe E.A., (1971). On the idea of a management control system; Integrating accounting and management control. *Journal of Management Studies*, 8(1), 1–12.

Lu, J.W., and Beamish, P.W. (2005). International diversification and firm performance: the S-curve hypothesis. *Academy of Management Journal*, 47(4), 598-609.

Lukka, K., and Granlund M. (2003). *Management and Control in a New Economy Firm*. In BHIMANI, Alnoor (ed.), Management Accounting in the Digital Economy, Oxford University Press, Oxford, 239-259.

Luther R., and Longden S. (2001). Management accounting in companies adapting to structural change and volatility in transition economies: a South African study. *Management Accounting Research*, 12 (1), 299-320.

Macedo, M., and Lehmann. A. (2010). *Strategies for Internationalization of companies in the Northern Region of Portugal.* Master's Dissertation in Economics and International Management, Faculty of Economics, University of Porto.

Macintosh, N., and Quattrone, P. (2010). *Management accounting and control systems: An organizational and sociological approach* (2nd ed.). Wiley.

Madsen, T., and Servais, P. (1997). The internationalization of born globals: an evolutionary process?. *International Business Review*,-6 (6), 561-583.

Mahoney, J. T., and Pandian, J. R. (1992). The resource-based view within the conversation of strategic management. *Strategic Management Journal*, 13, 363–380.

Major, M., Pinto, J., and Vicente, C. (2011). Study of Change in Management Control Practices in Portugal. *Portuguese Journal of Accounting and Management*. Scientific Journal of the Order of Chartered Accountants,10 (1),9-42.

Malmi, T., and Brown, D. (2008). Management control systems as a package: opportunities, challenges and research directions. *Management Accounting Research*, 19(14), 287–300.

Marletta D., and Vescovi, T. (2019). *Internationalization of Family Business: The Prosecco Family Firms Case.* SINERGIE proceedings,2019.

Mas-Verdú, F., Ribeiro-Soriano, D., and Roig-Tierno, N. (2015). Firm survival: The role of incubators and business characteristics. *Journal of Business Research*, 68(4), 793–796.

Mazmanian, M., and Beckman, C.M. (2018). "Making" your numbers: engendering organizational control through a ritual of quantification. *Organization Science*, 29 (3), 357–379.

McAuley, A. (1999). Entrepreneurial Instant Exporters in the Scottish Arts and Crafts Sector. *Journal of International Marketing*,-7 (4), 67-82.

McAuley, A. (2010). Looking back, going forward: reflecting on research into the SME internationalisation process. *Journal of Research in Marketing Entrepreneurship*, *12*(1), 21–41.

McConaughy, D., Matthews, C., and Fialko, A. (2001). Founding family controlled firms: Performance, risk, and value. *Journal of Small Business Management*, 39(1),31-50.

Melén, S., and Nordman, E. (2009). The internationalization modes of Born Globals: A longitudinal study. *European Management Journal*, 27, 243-254.

Meneses, R., Coutinho, R., and Pinho, J. (2014). The impact of succession on family business internationalisation: The successors' perspective. *Journal of Family Business Management*, 4(1),24-45.

Merchant K. A., and Van Der Stede W. A. (2007). *Management Control Systems: Performance Measurement, Evaluation and Incentives*. Pearson Education.

Merchant, K. A., and Otley, D. (2020). Beyond the systems versus package debate. *Accounting, Organizations & Society*, 86 (2), 101185.

Merchant, K. A., and Otley, D. T. (2006*). A review of the literature on control and accountability. Handbooks of Management Accounting Research*, Elsevier, 2, 785-802,

Merino, F., Monreal-Pérez, J., and Sánchez-Marín, G. (2015). Family SMEs' Internationalization: Disentangling the Influence of Familiness on Spanish Firms' Export Activity. *Journal of Small Business Management*,53(4),1164.

Meyer, R. (1996). *The internationalization process of the firm revisited: Explaining patterns of geographic sales expansion.* Eramus University.

Miles, M., Huberman, A., and Saldana, J. (2014). *Qualitative Data Analysis.* Third Edition. Arizona State University, SAGE Publications, Inc, USA.

Miles, R. E., and Snow, C. C. (1978). *Organizational strategy, structure and process*. McGraw-Hill.

Miller, D., and Breton-Miller, I. Le. (2006). Family governance and firm performance: Agency, stewardship, and capabilities. *Family Business Review,* 19(1),73-87.

Miller, D., and Breton-Miller, I. Le. (2014). Deconstructing socioemotional wealth. *Entrepreneurship Theory and Practice*,38(4),713-720.

Miller, D., Le Breton-Miller, I., Lester, R., and Cannella Jr., A. (2007). Are family firms really superior performers? *Journal of Corporate Finance*,13(5),829-858.

Mintzberg, H., and Waters, J. A. (1985). Of strategies, deliberate and emergent. *Strategic Management Journal*, 6(3), 257-272.

Mitter C., Christine Duller C., Feldbauer-Durstmuller B., and Kraus S.(2014). Internationalization of family firms: the effect of ownership and governance. *Review of Managerial Science*, 8(1),1–28

Mitter, C., and Hiebl, M. (2017). The role of management accounting in international entrepreneurship. *Journal of Accounting & Organizational Change*, 13 (3), 381-409.

Moen, O. (2002). The born globals: A new generation of small European exporters. *International Marketing Review,* 19 (2), 156-175.

Moen, O., and Servais, P. (2002). Born global or gradual global? Examining the export behavior of small and medium-sized enterprises. *Journal of International Marketing*, 10(3), 49-72.

Moores, K., and Yuen S. (2001). Management accounting systems and organizational configuration: a life-cycle perspective. *Accounting, Organizations & Society*, 26 (4), 351-389.

Morschett D., Schramm-Klein H., and Zentes, J. (2009). *Motives for internationalisation*. In Strategic International Management, 71-91.

Mortelmans D. (2019) *Analyzing Qualitative Data Using NVivo*. In: Van den Bulck H., Puppis M., Donders K., Van Audenhove L. (eds) The Palgrave Handbook of Methods for Media Policy Research. Palgrave Macmillan, Cham.

Murteira, J. (1997). Modelos de fronteira bilateral: uma aplicação ao mercado de trabalho em Portugal. *Actas da 5ª Conferência Cemapre, ISEG, Universidade Técnica de Lisboa.*

Mustakallio, M., Autio, E., and Zahra, S. A. (2002). Relational and contractual governance in family firms: Effects on strategic decision making. *Family Business Review*, 15(3), 205-222.

Naor, M., Bernardes, E., Druehl, C., and Shiftan, Y. (2015). Overcoming barriers to adoption of environmentally-friendly innovations through design and strategy: learning from the failure of an electric vehicle infrastructure firm. *International Journal of Operations & Production Management*, 35 (1), 26-59.

Naranjo-Gil, D. (2016). Role of management control systems in crafting realized strategies. *Journal of Business Economics and Management*, 17(6), 865 -881.

Naranjo-Gil, D., and Alvarez Dardet C. (2006). El uso del sistema contable de gestión en la implantación de la estrategia: Análisis del ajuste contingente. *Revista Española de Financiación y Contabilidad,* 35 (128), 157-179.

Naranjo-Gil, D., and Hartmann F. (2007). Management accounting systems, top management team heterogeneity and strategic change. *Accounting, Organizations and Society*, 32, (7/8), 735-756.

Naranjo-Gil, D., and Hartmann, F. (2006). How Top Management Teams Use Management Accounting Systems to Implement Strategy. *Journal of Management Accounting Research*, 18 (1), 21-53.

Novas, J. C., Alves, M. C., and Sousa, A. (2017). The role of management accounting systems in the development of intellectual capital. *Journal of Intellectual Capital*, 18(2), 286-315.

Novas, J. C., Sousa, A., and Alves, M. C. (2012). *On the relations between management accounting systems and intellectual capital. Evidence for Portuguese companies*. CEFAGE-UE working paper series. http://www.cefage.uevora.pt/en/producao_cientifica/working_papers_serie_cefage/on_the_relatio

ns_between_management_accounting_systems_and_intellectual_capital_evidence_for_portuguese_companies

Novas, J., Alves, M., and Sousa, A. (2008). *A contabilidade de gestão e o capital intelectual elementos integradores e contributos para uma gestão estratégica das organizações*. Tese para a obtenção do grau de Doutor em Gestão. Universidade de Évora.

Osma, B., Gomez-Conde, J., and Heras, E. (2018). Debt pressure and interactive use of control systems: Effects on cost of debt. *Management Accounting Research*, 40, 27-46.

Otley D. (1980). The contingency theory of management accounting: achievement and progress. *Accounting Organizations and Society*, 5 (4), 413-428.

Otley, D. (2001). Accounting performance measurement: a review of its purposes and practices. *International Journal of Business Performance Management*, 3 (2/3/4), 245-260.

Otley, D. (2016). The contingency theory of management accounting and control: 1980-2014. *Management accounting Research*, 31, 45-62.

Otley, D., and Berry, A. (1980). Control, organisation and accounting. *Accounting, Organizations and Society*, 5 (1),231-244.

Ouchi, W. (1979). A Conceptual Framework for the Design of Organizational Control Mechanisms. *Management Science*, 25(9),833-848.

Oviatt, B., and McDougall, P. (1994). Toward a theory of international new ventures. *Journal of International Business Studies*, 25(1), 45-64.

Oviatt, B., and McDougall, P. (1997). Challenges for internationalization process theory: The case of international new ventures. *Management International Review*, 37, 85-99.

Oviatt, B.M. and McDougall, P.P. (2005) Defining International Entrepreneurship and Modeling the Speed of Internationalization. *Entrepreneurship: Theory & Practice*, 9, 537-553.

Oyadomari, J. (2008). *Uso do sistema de controle gerencial e desempenho: um estudo em empresas brasileiras sob a ótica da VBR*. Tese Doutorado, Programa de Pós-Graduação em Ciências Contábeis, Universidade de São Paulo

Oyson, M. J., and Whittaker, D. H. (2010). *Creativity and prospection: Creating and exploiting opportunities for international entrepreneurship*. International Conference on Entrepreneurship, Innovation and Regional Development. University of Novi Sad, Novi Sad, Serbia.

Pangarkar, N. (2008). Internationalization and performance of small- and medium-sized enterprises. *Journal of World Business*, 43(4), 475–485.

Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Sage Publications, Inc.

Patton. M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Pedersen, T. (2000). The internationalisation process of Danish firms. Gradual learning or discrete rational choices? *Journal of Transnational Management Development*, 5(2), 75-89.

Pellinen, J., Teittinen, H., and Järvenpää, M. (2016). Performance measurement system in the situation of simultaneous vertical and horizontal integration. International Journal of Operations and Production *Management*, 36 (10), 1182-1200.

Peng, M.W. (2001). The resource-based view and international business. *Journal of Management*, 27(6), 803-829.

Penrose, E. (1959). The theory of the growth of the firm. White Plains, NY: M.E. Sharpe, 272.

Perényi, Á., and Losoncz, M. (2018). A Systematic Review of International Entrepreneurship Special Issue Articles. *Sustainability*,10, 3476.

Persinger, E., Civi, E., and Vostina, S. (2007). The Born Global Entrepreneur In Emerging Economies. *International Business & Economics Research Journal*, 6 (13), 73-82.

Pešalj, B., Pavlov, A., and Micheli, P. (2018). The use of management control and performance measurement systems in SMEs: A levers of control perspective. *International Journal of Operations & Production Management*, 38 (11), 2169-2191,

Pinzón, P., Vázquez, J., Elorza, M., and Espejo, C. (2011). Sistemas de Control para la Gestión de los Canales de Exportación Independientes: un Análisis Exploratorio sobre su Diseño y Uso. *Spanish Accounting Review,* 14 (2), 115-146.

Pogrebnyakov, N., and Maitland, C. F. (2011). Institutional distance and the internationalization process: The case of mobile operators. *Journal of International Management*, Elsevier, 17(1), 68-82.

Prange C., and Verdier S., (2011). Dynamic capabilities, internationalization processes and performance. *Journal of World Busines,* 46, 126–133.

Puck J., and Filatotchev, I. (2018). Finance and the multinational company: Building bridges between finance and global strategy research. *Global Strategy Journal*, 10(4), 655-675.

Puig N., and Fernández Pérez P. (2009). A silent revolution: the internationalization of large Spanish family firms. *Business History*, 51(3),462-483.

Pukall, T. J., and Calabrò, A. (2014). The internationalization of family firms: A critical review and integrative model. *Family Business Review*, *27*(2), 105-125.

Quinn M., Hiebl M., Moores K., and Craig J. (2018). Future research on management accounting and control in family firms: suggestions linked to architecture, governance, entrepreneurship and stewardship. *Journal Management Control*,28, 529–546.

Ramírez García, C., Vélez-Elorzab M., and Álvarez-Dardet-Espejoa M. (2013). ¿Cómo controlan los franquiciadores españoles a sus franquiciados? *Spanish Accounting Review*, 16 (1), 1-10.

Ramon-Jeronimo, J.M., Florez-Lopez, R., and Araujo-Pinzon, P. (2019). Resource-Based View and SMEs Performance Exporting through Foreign Intermediaries: The Mediating Effect of Management Controls. *Sustainability,* 11, 3241.

Rantanen, N., and Jussila, I. (2011). F-CPO: A collective psychological ownership approach to capturing realized family influence on business. *Journal of Family Business Strategy*, 2 (3), 139-150.

Raposo, M., Paço, A., Alves, H., Ferreira, J., Leitão, J., Silva, M., Duarte, P., Pinheiro, P., Rodrigues, R., and Garrido, S. (2007). *Manual de apoio à dinamização de empresas de base tecnológica*. Universidade da Beira Interior.

Rasmussen, E., and Madsen, T. (2002). *The Born global concept*. Proceedings of the 28th EIBA Annual Conference. Athens, Greece: European International Business Academy.

Ratajczak-Mrozek M. (2017*). The Network Theory of Companies' Internationalization—the Importance of Relationships for International Expansion*. In: Network Embeddedness. Palgrave Studies of Internationalization in Emerging Markets. Palgrave Macmillan, Cham.

Reck, J. (2001). The usefulness of financial and nonfinancial information in resource allocation decisions. *Journal of Accounting and Public Policy*, 20 (1), 45-71.

Reed, S. (1986). The Impact of Nonmonetary Performance Measures Upon Budgetary Decision Making in the Public Sector. *Journal of Accounting and Public Policy*, 5, (2), 111-140.

Reid S. (1981). The decision maker and export entry and expansion. *Journal of International Business Studies* 12(2), 101-112.

Reid, G.C., and Smith, J.A. (2000). The impact of contingencies on information system development. *Management Accounting Research*, 11 (4), 427–450.

Rennie, M. (1993). Global competitiveness: born global. *McKinsey Quarterly,* 4, 45-52.

Reuber, A. and Fischer, E. (1997). The Influence of the Management Team's International Experience on the International Behaviors of SMEs. *Journal of International Business Studies*, 28(4), 807-825.

Rialp, A., Rialp, J., and Knight, G. (2005a). The phenomenon of early internationalizing firms: what do we know after a decade (1993-2003) of scientific inquiry? *International Business Review*, 14 (2), 147-166.

Rialp, A., Rialp, J., Urbano, D., and Vaillant, Y. (2005b). The born global phenomenon: A comparative case study research. *Journal of International Entrepreneurship*, 3,133-171.

Rialp-Criado, A., Rialp-Criado, J., and Knight, G. (2002). The phenomenon of international new ventures, global start-ups, and born-globals: what do we know after a decade (1993-2002) of exhaustive scientific inquiry? Proceedings of the *EIBA Annual Conference*.

Ribau, C. (2016). *Internationalisation among SME's of Plastics Industry*. Tese de Doutoramento em Gestão. Universidade da Beira Interior.

Ribau C., Moreira A., and Raposo M. (2017). SMEs innovation capabilities and export performance: an entrepreneurial orientation view. *Journal of Business Economics and Management,* 18(5),920-934.

Ribau, C., Moreira, A., and Raposo M. (2018). SME internationalization research: Mapping the state of the art. *Canadian Journal of Administrative Sciences,* 35, 280-303.

Roberts, H. (2003). *Management Accounting and the Knowledge Production Process*. In BHIMANI, Alnoor (ed.), Management Accounting in the Digital Economy, Oxford University Press, Oxford, 260-283.

Roberts, J. (1990). Strategy and Accounting in a U.K. Conglomerate. *Accounting, Organizations and Society*, 15 (1/2), 107-125.

Rogers, E. (1962*). Diffusion of Innovations*. New York: Free Press of Glencoe.

Roque, A., Alves, M., and Raposo, M. (2017). Management Accounting and Control System in the Internationalization Process - a Case Study. *Regional HELIX'17 International Conference on Innovation, Entrepreneurship and Technology Transfer*, University of Beira Interior, Covilhã, Portugal, 21-23 de June, ISBN 978-989-8196-69-9.

Roque, A., Alves, M., and Raposo, M. (2018a). Control Systems and Strategy: A Literature Review. *Journal of Management and Marketing Review*, 3(4),213-222.

Roque, A., Alves, M., and Raposo, M. (2018b). The Management Control in the Internationalization Process – A case study in the services sector. *In 25th EBES - Eurasian Business and Economics Society Conferenc*e, 3 (82), 1353-1372, Berlin, German.

Roque, A., Alves M., and Raposo M. (2019a). Internationalization Strategies Revisited: Main Models and Approaches. *IBIMA Business Review* (2019), Article ID 681383.

Roque, A., Alves M., and Raposo M. (2019b). The Use of Management Accounting and Control Systems in the Internationalization Strategy: A Process Approach. *IBIMA Business Review*, (2019), Article ID 437064.

Roque, A., Alves M., and Raposo, M. (2020a). Management control system design in innovation-related internationalization strategies (I-Model). *Revista Eletrônica de Estratégia & Negócios* – REEN, 13 (3), 219-236.

Roque, A., Alves, M., and Raposo, M. (2020b). Control de Gestión en las Empresas Born-Global: un estudio de caso. *Estudios Gerenciales*, 36 (154), 3-14.

Roque, A., Alves, M., and Raposo, M. (2021). Management accounting and control system in the Uppsala internationalization process model. A case study. *INNOVAR Journal*, 80, 2-37.

Roseira, C., and Brito C. (2007). *Network Knowledge and Interaction*. In Supplier Networks, 23rd IMP-Conference, Manchester, UK.

Rugman, A. (1981). Inside the Multinationals. *The Economics Internal Markets*. Croom Helm.

Ruzzier, M., Hisrich, R. D., and Antoncic, B. (2006). SME internationalization research: past, present, and future. *Journal of Small Business and Enterprise Development,* 13 (4), 476-497.

Ryan, B., Scapens, R., and Theobald, M. (2002). *Research Method & Methodology in Finance & Accounting*, Thomson 2nd ed., London.

Sageder, M., Duller, C., Feldbauer-Durstmüller, B., and Schnetzer, M. (2020). Effects of internationalization on management accounting - A content analysis of job advertisements. Betriebswirtschaftliche Forschung und Praxis, 72 (6), 675 – 698.

Samagaio, A., Crespo N. F., and Rodrigues, R. (2017). Management control systems in high-tech start-ups: An empirical investigation. *Journal of Business Research*, 89, 351-360.

Samson, D., Langfield- Smith, K., and McBride, P. (1991). The Alignment of Management Accounting with Manufacturing Priorities: A Strategic Perspective. *The Australian Accounting Review,* 1(1), 29-40.

Santos, J. P. (1997). *Multinacionais e mundialização*. Economia e Perspectiva, Vol. 1, No. 2.

Sapienza, H., Autio, E., George, G., and Zahra, S. (2006). A capability perspective on the effects of early internationalization on firm survival and growth. *Academy of Management Review*, 31 (1), 914–933.

Saraiva, H. I. B., and Alves, M. C. G. (2015). The use of the balanced scorecard in Portugal: Evolution and effects on management changes in Portuguese large companies. *Tékhne*, 13(2), 82-94.

Saulpic, O., and Zarlowski, P. (2014). *Management control research and the management of uncertainty: Rethinking knowledge in management*. In D. Otley, & K. Soin (Eds.), Management control and uncertainty, (pp. 207-223). Palgrave Macmillan.

Sbarba A., and Marelli A., (2018). Family-controlled businesses and management control: the framing of "shareholder-oriented" practices, Journal Management Control,28, 417–456.

Schotter, A. P., Buchel, O., and Vashchilko, T. (2018). Interactive visualization for research contextualization in international business. *Journal of World Business, 53*(3), 356–372.

Schulze, W., Lubatkin, M., and Dino, R. (2003). Toward a theory of agency and altruism in family firms. *Journal of Business Venturing*, 18(4),473-490.

Seifriz, M., Gondim, S., and Pereira, M. (2014). Internationalization and Networks in Small and Medium-Sized Enterprises: the role of ethnic ties. R*evista Brasileira de Gestão de Negócios*, 16(50), 5-24.

Senftlechner, D., and Hiebl, M. (2015). Management accounting and management control in family businesses: Past accomplishments and future opportunities. *Journal of Accounting & Organizational Change*, 11(4),573-606.

Shanker, M., and Astrachan, J. (1996). Myths and realities: Family businesses' contribution to the US economy: A framework for assessing family business statistics. *Family Business Review,* 9(2),107-123.

Sharma D., and Blomstermo A. (2013). The internationalization process of Born Globals: a network view. *International Business Review* 12, 739–753.

Sharma, D. (1993). Introduction: industrial networks in marketing. *In Cavusgil, S. e Sharma, D. (ed.), Advances in International Marketing, 6 (1-9), Greenwich: JAI Press.*

Sharma, D., and Johanson, J. (1987). Technical consultancy in internationalisation. *International Marketing Review*, 4, 20-29.

Shields, M. D. (2015). Established Management Accounting Knowledge. *Journal of Management Accounting Research*, 27(1), 123–132.

Silvi, R. (2012). Knowledge Management: A Strategic Cost Management Perspective. *Economia Aziendale Online*,1, 1-26.

Simões, A. C. C. (2011*). Internacionalização das empresas portuguesas: processos e destinos* (Master dissertation). Universidade Técnica de Lisboa.

Simões, V., and Dominguinhos, P. (2001). Portuguese born globals: an exploratory study. Presented in "27th conference of EIBA, Paris, 13/15.12.2001.

Simões, V. C. (1997). Estratégias de Internacionalização das Empresas Portuguesas. ICEP – Investimentos, Comércio e Turismo de Portugal (ed.), *Comércio e Investimento Internacional*, ICEP, Lisboa.

Simons, R. (1987). Accounting control systems and business strategy: An empirical analysis. *Accounting, Organizations and Society*, 12(4), 357-374.

Simons, R. (1990). The role of management control systems in creating competitive advantage: new perspectives. *Accounting, Organizations and Society*, 15 (1/2), 127-143.

Simons, R. (1991). Strategic Orientation and Top Management Attention to Control Systems. *Strategic Management Journal*, 12 (1), 49-62.

Simons, R. (1994). How New Top Managers Use Control Systems as Levers of Strategic Renewal. *Strategic Management Journal*, 15 (3), 169-189.

Simons, R. (1995). *Levers of control: how managers use innovative control systems to drive strategic renewal*. Boston: Harvard Business School Press.

Singh, D., Gaur, A., Schmid, F. (2010). Corporate diversification, TMT experience, and performance: evidence from German SMEs. *Management International Review*, 50(1), 35–57.

Singla, C., George R., and Veliyath, R. (2017). Ownership structure and internationalization of Indian firms. *Journal of Business Research*, 81, 130-143.

Sirmon, D., and Hitt, M. (2003). Managing resources: Linking unique resources, management, and wealth creation in family firms. *Entrepreneurship Theory and Practice*, 27(4),339-358.

Sirmon, D., Hitt, M., Ireland, R., and Gilbert, B. (2011). Resource orchestration to create competitive advantage: breadth, depth, and life cycle effects. *Journal of Management*, 37 (5), 1390-1412.

Sjoblom, L. (2003). *Management Accounting in the New Economy*. In Bhimani A. (ed.), Management Accounting in the Digital Economy. Oxford University Press, Oxford, 185-201.

Skaerbaek, P., and Tryggestad, K. (2010). The role of Accounting Devices in Performing Corporate Strategy. *Accounting, Organizations and Society*, 35, 108-124.

Smith, K.G., Carroll, S. J. and Ashford, S. J. (1995). Intra and inter organizational cooperation: toward a research agenda. *Academy of Management Journal*, 38(1), 7-23.

Smyrnios, K., Tanewski, G., and Romanom, C. (1998). Development of a measure of the characteristics of family business. *Family Business Review*, 11(1),49-60.

Songini L., Morelli C., and Vola P. (2018). *Managerial Control Systems in Family Business: State of the Art*. In Performance Measurement and Management Control: The Relevance of Performance Measurement and Management Control Research, 193-220.

Soobaroyen, T., and Poorundersing, B. (2008). The effectiveness of management accounting systems: Evidence from functional managers in a developing country. *Managerial Auditing Journal*,-23, 187-2019.

Strauss, A., and Corbin, J. (1998). *Basics of Qualitative Research: Procedures and Techniques for Developing Grounded Theory*, SAGE: Thousand Oaks, CA, USA.

Strauss, E. R., Nevries, P., and Weber, J. (2013). The development of MCS packages – Balancing constituents' demands. *Journal of Accounting & Organizational Change*, 9(2), 155-187.

Sykianakis, N., and Bellas, A. (2005). The foreign direct investment decision-making process: strategy, politics and uses of management accounting information. *Managerial Auditing Journal*, 20 (9), 954-969.

Teittinen H., Pellinen J., and Järvenpää M. (2013). ERP in action - Challenges and benefits for management control in SME context. *International Journal of Accounting Information Systems*, 14 (4), 278-296.

Tessier, S., and Otley, D. (2012). A conceptual development of Simons' Levers of Control framework. *Management Accounting Research,* 23(3), 171-185.

Thanh, M., and Chong, L. (2008). Born-global: The case of four Vietnamese SMEs. *Journal of International Entrepreneurship*,-6, 72-100.

Thorén, K., and Brown T. (2004). *Development of Management Control Systems in Fast-Growing Small Firms*. In NCSB 2004 Conference – 13th Nordic Conference on Small Business Research, available at http://web.bi.no/forskning/ncsb2004.nsf.

Tsamenyi, M., Sahadev, S., and Qian, Z. (2011). The relationship between business strategy, management control systems and performance: Evidence from China. *Advances in Accounting*, 27 (1), 193-203.

Tsao, C., Wang, M., Lu, C., Chen, S., and Wang, Y. (2018). Internationalization propensity in family-controlled public firms in emerging markets: The effects of family ownership, governance, and top management team heterogeneity. *Journal of Small Business Strategy,* 28(1),28-37.

Tucker, B., Thorne, H., and Gurd, B. (2009). Management control systems and strategy: What's been happening? *Journal of Accounting Literature*, 28, 123-163.

Tuomela, T. (2005). The interplay of different levers of control: A case study of introducing a new performance measurement system. *Management Accounting Research*, 16 (4), 293-320.

Vaivio, J. (1999). Exploring a 'non-financial' management accounting change. *Management Accounting Research*, 10 (4), 409-437.

Vaivio, J. (2004). Mobilizing local knowledge with "provocative" non-financial measures. *European Accounting Review*, 13 (1), 39-71.

Van der Stede, W. A., Young, S. M., and Chen, C. X. (2005). Assessing the quality of evidence in empirical management accounting research: The case of survey studies. *Accounting, Organizations and Society*, 30, 655-684.

Vélez, M. L., Sánchez, J. M., and Álvarez-Dardet, C. (2008). Management control systems as inter-organizational trust builders in evolving relationships: Evidence from a longitudinal case study. *Accounting, Organizations and Society*, 33(7-8), 968-994.

Vélez, M. L., Sánchez, J. S., Ramón, J. M., Flórez, R., Araújo, P., and Álvarez-Dardet, C. (2014). Interorganisational control systems' contribution to export capabilities development. *Spanish Journal of Finance and Accounting,* 43(3), 316-353.

Velez, M. L., Sánchez, J., Florez, R., and Álvarez-Dardet, C. (2015). How control system information characteristics affect exporter–intermediary relationship quality. *International Business Review*, 24, 812–824.

Vernon, R. (1966). International investment and international trade in the product cycle. *Quarterly Journal of Economic*, 83 (1), 190-207.

Wang, C.L., and Ahmed, P.K. (2003). Structure and structural dimensions for knowledge-based organizations. *Measuring Business Excellence,* 7(1), 51-62.

Washington M., and Patterson K. D.W. (2011). Hostile takeover or joint venture: Connections between institutional theory and sport management research. *Sport Management Review*, 14, 1–12.

Weerawardena J., Mort G. S., Liesch P. W., and Knight G. (2007). Conceptualizing accelerated internationalization in the born global firm: A dynamic capabilities perspective. *Journal of World Business*, 42, 294–306.

Welch, L. S., and Luostarinen, R. (1988). Internationalization: Evolution of a concept. *Journal of General Management*, 14(2), 34–55.

Welford, R., and Prescott, K. (1994). *European Business – An Issue-Based Approach*. 2nd Edition, Pitman Publishing, London.

Wickramasinghe, D., and Alawattage C. (2007). Management Accounting Change: approaches and perspectives. Routledge, New York.

Wiedersheim-Paul, F., Olson, H. C., and Welch, L. S. (1978*). Pre-export activity: The first step in internationalization*. *Journal* of International Business Studies, 9(1), 47-58.

Williamson, O.(1971). The vertical integration of production: market failure considerations. *American Economic Review*, 61 (May), 12-125.

Williamson, O. (1975). Market and Hierarchies: Analysis and Antitrust Implications. *New York*. Free Press.

Woodwart J. (1965). Industrial organization: theory and practice, Oxford, Oxford University Press.

Worztel, H., and Wortzel, L. (1997). *Strategic Management in a Global Economy*, 3 ed., John Wiley & Sons, N.Y..

Wright, L. (2020). Annals of history: Crossroads. A scholar of the plague thinks that pandemics wreak havoc—and open minds. *The New Yorker*, 20, 18-23.

Xie, X., Zeng, S., Tam, C., and Wan, T. (2009). Relationships between business factors and performance in internationalization - An empirical study in China. *Management Decision*, 47 (2), 308-328.

Yin, R. (1993). *Applications of case study research*. Beverly Hills, CA: Sage Publishing.

Yin, R. (2005). *Estudo de Caso: Planejamento e Métodos*. Porto Alegre: Bookman.

Yin, R. (2014). *Case study research: Design and methods* (5th ed.). Sage Publications.

Zahra, S. A. (2003). International expansion of US manufacturing family businesses: the effect of ownership and involvement. *Journal of Business Venturing*, 18(4),495-512.

Zahra, S. A. (2005). A Theory of International New Ventures: a decade of research. *Journal of International Business Studies,* 36(1), 20–28.

Zahra, S. A. (2021). International entrepreneurship in the post Covid world. *Journal of World Business,* 56 (1), 101143.

Zain, M., and Ng S. (2006). The Impacts of Network Relationships on SMEs' Internationalization Process. *Thunderbird International Business Review*, 48(2), 183-205.

Zellweger, T., Nason, R., and Nordqvist, M. (2011). From longevity of firms to transgenerational entrepreneurship of families: Introducing family entrepreneurial orientation. *Family Business Review*, *25*(2),136-155.

Zhou, L., Wu, W., and Luo, X. (2007). Internationalization and the performance of born globals SMEs: The mediating role of social networks. *Journal of International Business,* 38, 673-690.

Zou, S., Taylor, C., and Osland, G. (1998). The EXPERF scale: a cross-national generalized export performance measure. *Journal of International Marketing*, 6(3),37–57.

Appendix

Appendix 1 - Interview Guide

This interview guide aims ascertaining how the MACS should adjust to the IM for a successful internationalization strategy.

1.QUESTIONS ABOUT THE ORGANISATION
1.1. What is the respondent's role in the company?
1.2. Which is the SIC?
1.3. What is the Number of People employed?
1.4. What is the Turnover/Millions?
1.5. Does the company belong to an economic group?
1.6. Where is the Group's headquarters located?
1.7. How many subsidiaries does the group have?
1.8. Is it listed on the Stock Exchange?
1.9. How many countries does the organizations export to?

2. INTERNATIONALIZATION PROCESS (IP)
2.1. Were you responsible for the company's Internationalization Process or were you supported by other staff and/or the implementation company?
2.2. Which markets/countries do you operate in?
2.3. What was the reason for the internationalization process?
2.4. How do you rate the team's involvement in the internationalization process?
2.5. Which are the ways of entry and establishment used by the company?
2.6. Which were the main obstacles to internationalization?
2.7. Which are the most important criteria when choosing the first addressed foreign market?
2.8. What are the main motivations for the internationalization process?
2.9. Has turnover increased after the internationalization process?
2.10. In your opinion, is the cost-benefit relationship worthwhile?
2.11. Do you establish partnerships abroad? What is the profit of those partnerships?
2.12. Which are the potential markets for future investments?

3. ACCOUNTING AND MANAGEMENT CONTROL SYSTEM (MACS) IN THE ORGANISATION
3.1. Has your organizations MACS changed in the past decade? How?
3.2. How would you describe the degree of change in the MACS in your organization? List the Management Control techniques adopted by your organization during the last decade?
3.3. Indicate how and for what purposes the MACS implemented in your company provides information.
3.4. Characterize the MACS implemented in your company, regarding the nature of information provided.
3.5. In your opinion, how important is the MACS in terms of providing the information needed to the decision-making, regarding the distribution of financial and non-financial resources?
3.6. In your opinion, what is the importance of the MACS in terms of providing the information needed to the decision-making, regarding the monitoring and control of the execution of goals and objectives by the units or services under your supervision?

4. RELATIONSHIP BETWEEN THE IM AND THE MACS
4.1. Do you consider that the internationalization has an impact on the MACS?
4.2. In your opinion, how do you evaluate the relationship between the MACS and the IP?
4.3. Finally, if there were questions that have not been addressed and that you consider relevant to understanding: the nature of the changes that have occurred in the MACS, and the relationship between the MACS and the IP, please state them.

Thank you!

Appendix 2 - Questionnaire

QUESTIONNAIRE

Within the scope of a research regarding **Management Accounting and Control Systems in the Process of Internationalization of Portuguese Family Business**, carried out at the University of Beira Interior, we hereby request your cooperation in completing this questionnaire.

In the current context and acknowledging the importance of Family Businesses in the Portuguese economic fabric, this study aims to analyze how Management Accounting and Control Systems can help these companies to implement their Internationalization Strategy.

Your cooperation is essential for the success of this research, as this is the only way to know the reality of family businesses and improve research in this area. We also inform you that the confidentiality of the information will be ensured and that the data collected will be treated in an aggregated manner to not allow the identification of individual companies and/or respondents.

Therefore, completing this questionnaire is vital to achieve the proposed objectives, and we thank you in advance for your time.

Thanks a lot.

SECTION I: GENERAL ASPECTS

1.1. General information:

a. What is your current role in the company?
CEO ☐ Accountant ☐ Controller ☐ Head of External Markets ☐
Other option: _____

b. What is the Year the company started? _____

c. What is the company's Economic Activity Code (CAE)? _____

d. What is the number of people working for the company?

<50 ☐ 50-99 ☐ 100-249 ☐ 250-499 ☐ > 500 ☐

e. Turnover (thousand €/last available year). Year:_____

<300.000 ☐ 300.000-500.000 ☐ > 500.000-1.000.000 ☐

> 1.000.000-1.500.000 ☐ >1.500.000 ☐

f. What is the generational level of your company?
(level of family management considering several generations)

1st ☐ 2nd ☐ 3rd ☐ 4th ☐ > 5th ☐

g. Does your company belong to an economic group?

Yes ☐ No ☐

If you checked "yes" in the previous option,

Where is the headquarters of the group to which you belong located?
In Portugal ☐ Abroad ☐

If abroad, in which country? _____

How many companies constitute the group you belong to? _____

h. Does your company provide services/is present in international markets, export?
Yes ☐ No ☐ Will start soon ☐

Note: If you mark "YES" or "will start soon ...", you answer to the section about internationalization - SECTION II. If you sign "NO", finish the questionnaire.

SECTION II: CHARACTERISATION/IDENTIFICATION OF THE INTERNATIONALIZATION MODEL

2.1 Please indicate the year in which you started exporting and/or started your internationalization process?

2.2 Please indicate approximately how many countries your company currently exports to?
(if you do not know the exact number, please indicate an approximate number)

None ☐ 1 - 2 ☐ 3 - 5 ☐ 6 - 10 ☐ > 10 ☐

2.2 Please identify what fraction of the company's sales volume was accounted for by exports in the first three years of operation.

Less than 10% of sales ☐ From 10% to 25% of sales ☐ From 26% to 50% of sales ☐

From 51% to 80% of sales ☐ More than 80% of sales ☐ Don't know/don't remember ☐

2.3 Please characterize your internationalization process in relation to the following items.

(Consider the following scale: 1- Never used; 3- Used; 5- Used a lot)

Exports directly carried out by the company	1	2	3	4	5
Exports through distributor	1	2	3	4	5
Opening of a commercial subsidiary	1	2	3	4	5
Opening of industrial branch	1	2	3	4	5
Exports to nearby countries and then to more distant countries	1	2	3	4	5
Partnership-based exports	1	2	3	4	5
Joint Ventures (union of one or more companies sharing resources, for profit, without losing its legal personality)	1	2	3	4	5

2.4 If you have never used any of the modes mentioned in the previous question, please indicate whether you plan to use any of them.
(Consider the following scale: 1 - Not expected to use; 3- Expected to use; 5- Expected to use a lot)

Exports directly carried out by the company	1	2	3	4	5
Exports through distributor	1	2	3	4	5
Opening of a commercial subsidiary	1	2	3	4	5
Opening of industrial branch	1	2	3	4	5
Exports to nearby countries and then to more distant countries	1	2	3	4	5
Partnership-based exports	1	2	3	4	5
Joint Ventures (union of one or more companies sharing resources, for profit, without losing its legal personality)	1	2	3	4	5

SECTION III: CHARACTERIZATION OF THE MANAGEMENT ACCOUNTING AND CONTROL SYSTEM (MACS)

3.1 Please indicate how the management accounting/cost accounting system implemented in your company provides information for the following actions:

(Consider the following scale: 1 - Not available; 3 - Some available; 5- Plenty available)

a) Identify key strategic areas	1	2	3	4	5
b) Implementing new ideas and ways of doing tasks	1	2	3	4	5
c) Establish medium/long term goals and objectives	1	2	3	4	5
d) Negotiate medium/long term goals and objectives	1	2	3	4	5
e) Discuss alternatives and action plans	1	2	3	4	5
f) Detect and monitor significant deviations	1	2	3	4	5
g) Achieve established plans and objectives	1	2	3	4	5
h) Align performance measures with strategic objectives	1	2	3	4	5

i)	Permanent coordination with subordinates	1	2	3	4	5
j)	Properly evaluate and control subordinates	1	2	3	4	5
k)	As a learning tool	1	2	3	4	5

3.2 Please characterize the management accounting/cost accounting system implemented in your company regarding the nature of the information that is made available.
(Consider the following scale: 1 - Not available; 3 - Some available; 5- Plenty available)

a)	Costs and other measures concerning the various departments	1	2	3	4	5
b)	Disaggregated information (e.g. fixed and variable costs)	1	2	3	4	5
c)	Sectorial information relative to specific areas (e.g. sections of a department, cost center, etc.)	1	2	3	4	5
d)	Definition of precise objectives for the activities performed by the different areas of the organizational structure	1	2	3	4	5
e)	Studies on the effect of certain events in concrete time periods (e.g. reports, trends, comparisons)	1	2	3	4	5
f)	Information prepared to enable scenario building	1	2	3	4	5
g)	Information processed to highlight how different functions (e.g. production, marketing) are specifically affected by the occurrence of certain events	1	2	3	4	5
h)	Information on the effect of decisions by a functional unit on the performance of other functional units	1	2	3	4	5
i)	information on the effect of decisions taken in a particular functional unit on the unit itself, and their influence on other decisions	1	2	3	4	5
j)	Information in appropriate formats for the construction of indicators, decision models, etc.	1	2	3	4	5

3.3 Select the most appropriate option considering the following standard decisions:

TYPE A DECISION - Decisions related to the distribution of resources: financial and non-financial (e.g. material, human, time) of his/her area of responsibility in the different services and units he/she directs. The final objective of this type of decisions (type A decisions) is to make resources available for specific purposes;

TYPE B DECISION - Decisions related to monitoring and controlling the execution of goals and objectives by units or services under their supervision. The ultimate objective of this type of decision (type B decisions) is to evaluate the performance of the units or services within their area of responsibility [Performance evaluation].

(Consider the following scale: 1- Totally Irrelevant; 3- Relevant; 5- Extremely relevant)

a)	Indicate the importance of the management accounting/cost accounting system formally implemented in your company to support type A decisions	1	2	3	4	5
b)	Indicate the importance of the management accounting/cost accounting system formally implemented in your company to support type B decisions	1	2	3	4	5
c)	Indicate the importance of financial information (information in monetary terms relating to past, present and future economic events) to support type A decisions	1	2	3	4	5
d)	Indicate the importance of financial information (information in monetary terms relating to past,	1	2	3	4	5

	present and future economic events) to support type B decisions					
e)	Please indicate the importance of information regarding, for example, absenteeism rates, productivity levels, market share, etc. to support type A decisions	1	2	3	4	5
f)	Please indicate the importance of information regarding, for example, absenteeism rates, productivity levels, market share, etc.), to support type B decisions	1	2	3	4	5
g)	Please indicate the importance of information concerning, for example, customer satisfaction, product/service quality, training/technical competence of employees etc. to support type A decisions	1	2	3	4	5
h)	Please indicate the importance of information concerning, for example, customer satisfaction, product/service quality, training/technical competence of employees, etc.) to support type B decisions	1	2	3	4	5
i)	Indicate the importance of the formal information system (global information system created and legitimized by the organization) to support type A decisions	1	2	3	4	5
j)	Indicate the importance of the formal information system (global information system created and legitimized by the organization) to support type B decisions	1	2	3	4	5
k)	Indicate the importance of the information system concerning, for example, personnel records, informal contacts, etc. to support type A decisions	1	2	3	4	5
l)	Indicate the importance of the information system concerning, for example, personal records, informal contacts, etc. to support type B decisions	1	2	3	4	5

SECTION IV: IMPACT OF THE IP ON THE MACS

4.1 In your opinion, has your company's internationalization process led to changes at the level of Management Accounting and Control Systems?

Yes ☐ No ☐

Note: If "YES" is checked, please answer the following questions.
If you mark "NO", you move on to Section V.

4.1.1. please identify which were the main changes to the Management Accounting and Control System, which occurred in your company, and their relevance:
(Consider the following scale: 1- Totally Irrelevant; 3- Relevant; 5- Extremely relevant)

a)	Increased delegation of authority	1	2	3	4	5
b)	Centralization of activities	1	2	3	4	5
c)	Decentralization of activities	1	2	3	4	5
d)	MACS with financial targets	1	2	3	4	5
e)	MACS with financial and non-financial objectives	1	2	3	4	5
f)	Strengthening of strategic alignment between top management and operational managers	1	2	3	4	5
g)	More objective, synthetic and decision-oriented information	1	2	3	4	5
h)	More actions less bureaucracy	1	2	3	4	5
i)	Focus on the future	1	2	3	4	5
j)	Increased information	1	2	3	4	5

4.1.2 In your opinion, with the development of the internationalization process, the MACS has made more or less information available for the following situations:

Consider the following scale: 1 - Much less information; 3- The same information; 5- Much more information)

a)	Identify key strategic areas	1	2	3	4	5
b)	Implementing new ideas and ways of doing tasks	1	2	3	4	5
c)	Establish medium/long term goals and objectives	1	2	3	4	5
d)	Negotiate medium/long term goals and objectives	1	2	3	4	5
e)	Discuss alternatives and action plans	1	2	3	4	5
f)	Detect and monitor significant deviations	1	2	3	4	5
g)	Achieve established plans and objectives	1	2	3	4	5
h)	Align performance measures with strategic objectives	1	2	3	4	5
i)	Permanent coordination with subordinates	1	2	3	4	5
j)	Properly evaluate and control subordinates	1	2	3	4	5
k)	To constitute a learning tool	1	2	3	4	5
l)	Costs and other measures concerning the various departments	1	2	3	4	5
m)	Disaggregated information (e.g. fixed and variable costs)	1	2	3	4	5
n)	Sectorial information related to specific areas (e.g. sections of a department, cost center, etc.)	1	2	3	4	5
o)	Definition of precise objectives for the activities performed by the different areas of the organizational structure	1	2	3	4	5
p)	Studies on the effect of certain events in concrete time periods (e.g. reports, trends, comparisons)	1	2	3	4	5
q)	Information prepared to enable scenario building	1	2	3	4	5
r)	Information processed to highlight how different functions (e.g. production, marketing) are specifically affected by the occurrence of certain events	1	2	3	4	5
s)	Information on the effect of decisions by a functional unit on the performance of other functional units	1	2	3	4	5
t)	Information on the effect of decisions taken in a particular functional unit on the unit itself and the influence of these decisions on other decisions	1	2	3	4	5
u)	Information in appropriate formats for the construction of indicators, decision models, etc.	1	2	3	4	5

4.1.3 In your opinion, with the development of the internationalization process, has the role of the MACS in supporting decision making become more or less relevant? (consider two types of decision A and B)

TYPE A DECISION - Decisions related to the distribution of resources: financial and non-financial (e.g. material, human, time) of his/her area of responsibility in the different services and units he/she directs. The final objective of this type of decisions (type A decisions) is to make resources available for certain purposes;

TYPE B DECISION - Decisions related to monitoring and controlling the execution of goals and objectives by units or services under their supervision. The ultimate objective of this type of decision (type B decisions) is to evaluate the performance of the units or services within their area of responsibility [Performance evaluation].

(Consider the following scale: 1- Much less relevant; 3- As relevant; 5- Much more relevant)

a)	Indicate the importance of the management accounting/cost accounting system formally implemented in your company to support type A decisions	1	2	3	4	5
b)	Indicate the importance of the management accounting/cost accounting system formally implemented in your company to support type B decisions	1	2	3	4	5
c)	Indicate the importance of financial information (information in monetary terms relating to past, present and future economic events) to support type A decisions	1	2	3	4	5
d)	Indicate the importance of financial information (information in monetary terms relating to past, present and future economic events) to support type B decisions	1	2	3	4	5
e)	Please indicate the importance of information regarding, for example, absenteeism rates, productivity levels, market share, etc. to support type A decisions	1	2	3	4	5
f)	Please indicate the importance of information regarding, for example, absenteeism rates, productivity levels, market share, etc.), to support type B decisions	1	2	3	4	5
g)	Please indicate the importance of information concerning, for example, customer satisfaction, product/service quality, training/technical competence of employees etc. to support type A decisions	1	2	3	4	5
h)	Please indicate the importance of information concerning, for example, customer satisfaction, product/service quality, training/technical competence of employees, etc.) to support type B decisions	1	2	3	4	5
i)	Indicate the importance of the formal information system (global information system created and legitimized by the organization) to support type A decisions	1	2	3	4	5
j)	Indicate the importance of the formal information system (global information system created and legitimized by the organization) to support type B decisions	1	2	3	4	5
k)	Indicate the importance of the information system concerning, for example, personnel records, informal contacts, etc. to support type A decisions	1	2	3	4	5
l)	Indicate the importance of the information system concerning, for example, personal records, informal contacts, etc. to support type B decisions	1	2	3	4	5

SECTION V: PERFORMANCE EVALUATION

5. Please rank each dimension in relation to the company's Performance in the Internationalization Process.

(Consider the following scale: 1- Totally Irrelevant; 3- Relevant; 5- Extremely relevant)

a)	Export sales volume	1	2	3	4	5
b)	Participation in the international market	1	2	3	4	5
c)	Profitability/export margin	1	2	3	4	5
d)	Exports contributed to the growth of our company's sales	1	2	3	4	5
e)	The export enterprise has achieved rapid growth	1	2	3	4	5
f)	Export activities have strengthened our strategic position	1	2	3	4	5
g)	Total turnover	1	2	3	4	5
h)	Total profits	1	2	3	4	5
i)	Total productivity	1	2	3	4	5
j)	Increasing the skills of the company's staff	1	2	3	4	5
k)	Return on investment	1	2	3	4	5
l)	Usage capacity	1	2	3	4	5
m)	Customer satisfaction	1	2	3	4	5
n)	Quality of products/services	1	2	3	4	5
o)	New product development	1	2	3	4	5

ADDITIONAL QUESTIONS

i) In your opinion, please indicate the impact of COVID-19 on your company's international performance in the first half of 2020?

(Consider the following scale: 1 - Very negative impact; 3- No impact; 5- Very positive impact)

Total volume of transactions	1	2	3	4	5
Number of new international customers	1	2	3	4	5
Retention or renewal of existing customers	1	2	3	4	5
Contractual disputes with customers or partners	1	2	3	4	5
Delays in payments	1	2	3	4	5
Significant variations in market performance	1	2	3	4	5

ii) Please indicate what is in your opinion, the impact of COVID-19:

(Consider the following scale: 1 - Very negative impact; 3- No impact; 5- Very positive impact)

In the Internationalization Process	1	2	3	4	5
In the Internationalization Model	1	2	3	4	5
In the Management Accounting and Control System	1	2	3	4	5

If you consider that there are changes at the level of the internationalization model and/or the MACS, please indicate which ones.

_____

iii) In terms of risk management, what type of measures are you thinking of adopting?

(Consider the following scale: 1- We do not plan to adopt; 3- We plan to adopt; 5- We plan to adopt a lot)

Operate more in countries that share the same currency.	1	2	3	4	5
Operate further in countries with identical legal frameworks.	1	2	3	4	5
Internationalize to more distant countries, where there is less incidence of the epidemic and production structures are paralyzed for less time.	1	2	3	4	5
Search for countries where there are Institutional Modernization plans and economic and social integration projects with major incentives.	1	2	3	4	5
Adapt the MACS in order to obtain information that allows key strategic areas to be identified.	1	2	3	4	5
Adapt MACS in order to obtain information to plan payments and collections and project predictable information about exchange rates.	1	2	3	4	5
Adapt MACS in order to obtain information to formulate budgets and respond quickly to market changes.	1	2	3	4	5
Adapt the MACS in order to obtain information to implement new ideas and ways of carrying out tasks.	1	2	3	4	5
Adapt the MACS in order to obtain information that allows the establishment of medium/long term goals and objectives.	1	2	3	4	5
Adapting the MACS in order to obtain information that allows negotiating medium/long term goals and objectives.	1	2	3	4	5
Adapt the MACS in order to obtain information to discuss hypotheses and action plans.	1	2	3	4	5
Adapt the MACS in order to obtain information to detect and monitor significant deviations.	1	2	3	4	5
Adapt the MACS in order to obtain information that will enable the achievement of established plans and objectives.	1	2	3	4	5
Adapt the MACS in order to obtain information that allows the alignment of performance measures with strategic objectives.	1	2	3	4	5
Adapt MACS in order to obtain information that allows permanent coordination of subordinates.	1	2	3	4	5
Adapt the MACS in order to obtain information that allows the subordinates to be properly evaluated and controlled.	1	2	3	4	5
Adapt MACS in order to use it as a learning tool.	1	2	3	4	5

THANK YOU FOR YOUR PARTICIPATION!

Appendix 3 - Main Conclusions of the Studies

Objectives	Research Questions	Research Chapter	Conclusions
Identify the theoretical approaches of research on internationalization. Identify in the literature the IM adopted.	What are the main approaches to internationalization? How are internationalization models characterized?	Chapter 2	The internationalization process is mainly a strategic decision. It can occur in many ways and is influenced by several factors. There are several models that allow the companies' internationalization. Each model has its own defining characteristics, which translate into specific consequences for the company, both in the operations' control level and at the commitment of resources and even at the risks dissemination level (Hill et al., 1990, Roque et al., 2019a).
Review the different dimensions of MACS. Develops a theoretical framework to provide a comprehensive view of MACS.	What is the style of use of the MACS? What is the nature of the information made available by the MACS? What is the importance of MACS information in supporting decision making?	Chapter 3	Development of a theoretical/conceptual framework of the MACS highlighting mainly the way information is used around three categories, subdivided into 2 dimensions each: (1) the style of use: diagnostic or interactive; (2) the type of information provided: aggregation and integration, and (3) the type of decision supported: performance evaluation and resource management decisions.
Examines the role of management accounting and management control systems (MACS) in the successful implementation of the Uppsala Internationalization Model (U-Model) and the improvement of firms' performance.	How do MACS ease up the implementation of the internationalization strategy? How does the internationalization strategy imply changes in MACS, and, if this is the case, what changes?	Chapter 4	IP develops in phases, requiring new information from MACS. Consequently, the MACS follows this evolution by progressively adapting. During the IP, the MACS information can be used in a diagnostic or interactive manner. The information can be aggregated or integrated, and the decisions can be resource allocation or performance evaluation type. Therefore, it was possible to conclude that a MACS adjusted to the information needs of the company can facilitate the IP implementation. However, this process involves adjustments in the MACS.
Analyze the relationship between organizational structure, represented by the Management Accounting Control Systems (MACS) and strategy, and to understand how the MACS design fit the internationalization strategy (by I-Model) and to what extent this affects the MACS design.	How does the I-Models internationalization strategy imply (or not) changes in the MACS design? How does the company's MACS design facilitate (or not) the implementation of the *I-Models* internationalization strategy?	Chapter 5	MACS facilitates the internationalization strategy's implementation, which reveals that it contributes to the company's permanence and development in international markets. In phase 1 of the IM, the MACS was based on an aggregated way and with the purpose of assisting the decision-making process, essentially in the resources allocation management. The dimensions of interaction, integration and support to performance evaluation decisions are only considered downstream, after phase 2 of the IM.

Objectives	Research Questions	Research Chapter	Conclusions
Analyze the relationship between strategy (by I-Model) and organizational structure, namely how the use of Management Accounting and Control Systems (MACS) contributes to the successful implementation of the internationalization strategy and consecutively to the improvement of the company's performance.	How does the internationalization strategy imply (or not) changes in the MACS use? How does the company's MACS use facilitate (or not) the implementation of the internationalization strategy?	Chapter 6	The company adapts its MACS' use as the internationalization process evolves. The MACS use facilitates the internationalization strategy's implementation, which reveals that it contributes to the company's permanence and development in international markets. Considering that the I-Model is a model consisting of phases, it was verified in phase 1, the use of the MACS is more traditional, the information is used for diagnostic purposes and in the following phases, there is a complementarity between the various MACS dimensions (diagnostic and interactive).
Analyze the interrelationship between the structure and the internationalization strategy of Born Global (BG). Understand how and to what extent the internationalization process (IP) affects the Management Accounting and Control Systems' (MACS) and how it contributes to a successful IP implementation.	How did the company's MACS facilitate (or not) the Born Global Internationalization Model (BGIM) implementation? How has the BGIM implementation involved (or not) changes in the MACS, and if so, which?	Chapter 7	The IP develops and systematically requires new information from MACS. In turn, MACS follows this evolution, progressively adapting to the IP's needs. In this IP, the style of information usage is mostly an interactive style. Regarding the information's nature, the information can be aggregated and/or integrated to support resource allocation and performance evaluation decisions. In this company, MACS facilitates the internationalization strategy's implementation and development, and, cumulatively, the adopted model implies changes in the MACS.
Understand how MACS should be designed and used to ensure a successful IP, represented in this case by the NTIM and the BGIM	How should the MACS adjust to the BGIM and NTIM for a successful internationalization strategy?	Chapter 8	MACS is a complete system in which the information has a predominantly interactive use, either because of the establishment of partnerships (NTIM) or by the adoption of the BGIM. A diagnostic style of use of information provided by MACS would not adjust to the company's model, especially the NTIM. There are mechanisms for integrating information and knowledge (Agbejule, 2006) throughout the organizational structure, and thus in the relationship between the IP, namely its models, and the MACS, the information is mostly intended for an integrated use of knowledge. Regarding the type of information provided, it is assumed in both models in an aggregated way. However, the aggregation of information is mostly highlighted in the BGIM. The information is also used in an integrated way in both models. The company. relies on a MACS, which allows obtaining information to support both resource management and performance assessment decisions, in both models

Objectives	Research Questions	Research Chapter	Conclusions
Analyze the impact of the Internationalization Model (IM), adopted by firms, in the configuration of the Management Accounting and Control System (MACS), to the extent that this positively influences the internationalization capacity.	How does the internationalization strategy influence the MACS' configuration?	Chapter 9	The results show that there are differences in the use of MACS information according to the IM adopted by multinational companies, demonstrating that the IM influences the MACS configuration, a result that indicates a solid contribution to the Resource-Based View Theory (Chrisman et al., 2005; Sirmon and Hitt, 2003, Fernández and Nieto, 2005; Graves and Thomas, 2006; Merino et al., 2015, Mitter and Hiebl, 2017) and the Dynamic Capabilities Theory (Eisenhartt and Martin, 2000). For UM and I-M, there is a dynamism in MACS, especially in the categories of use of information and nature of information, and their respective dimensions. These IMs use the information to evaluate the performance in more evolved phases/stages as the level of commitment to the market increases. Given the nature of these IMs, which need information in order to support decisions also to assess the resources in all phases/stages, the support in a MACS, which allows to sustain the evolution of the different phases. With regard to NTIM, they use a MACS that allows the use of information fundamentally of the interactive type. The diagnostic type is devalued. Regarding the nature of the information, the NTIM simultaneously registers the need to obtain information between the aggregation and integration levels; and the NTIM uses the information to evaluate the network performance and simultaneously control and manage the necessary resources to satisfy the needs. BGIM requires a systematic adaptation of the MACS. The use of information derives much more from the interaction than from a diagnostic use. The nature of the information varies between the aggregation and integration dimensions, insofar as there is a need to group or aggregate a large volume of information in order to support the expansion and simultaneously to understand that information at a more specific, more integrated level, crucial to the coordination of the different units. All the information that the system provides has a double effect on the type of decision, whether in the performance evaluation or the resources management.

Objectives	Research Questions	Research Chapter	Conclusions
Identify the Internationalization model adopted. To understand which style of use of information from the MACS the specific IM favors. To understand the nature of the information provided by the MACS that the specific IM favors. To understand how the MACS are used to support the decision-making process in developing the specific IM. To understand whether IP/IM causes adjustments in the MACS. How change/configuration of the MACS occurs. To evaluate the performance of the IP through the IM adopted and the configuration of the MACS. Impact of COVID-19 on IP development and MACS configuration.	How is the internationalization strategy and model(s) of Portuguese FFs characterized? What is the style of use of the MACS in family business? What is the nature of the information provided by the MACS in family business? How important is the information from the MACS in supporting the decision making process? How does the internationalization strategy influence the configuration (change) of the MACS of the FBs? What is the impact of the adjustment of the MACS to the IM on the performance in the FBs? What is the impact of COVID-19 on the IP and the MACS configuration?	Chapter 10	The results show that the IM adopted influences the configuration of MACS of family business, as evidenced in the literature (Crespo et al., 2019; Gomez-Conde and Lopez-Valeiras, 2018; Gómez-Conde et al., 2013; Henri, 2006). However, the adjustment of the MACS regarding the obtaining of information to support the performance evaluation has a statistically significant impact on the performance of the PI. Finally, and considering the epidemiological period that the world is going through caused by COVID-19, a very negative and statistically significant impact was detected on the various components of internationalization performance, which may condition the development of the strategy. Even so, there is greater use of the MACS to obtain information in an interactive manner in the Post COVID-19 period compared to the Pre COVID-19 period.