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## Article

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## Article

# The Role of Family Ownership on Internationalization Strategies

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**Abstract:** The present study examines the impact of family ownership and control on the internationalization strategies of Portuguese manufacturing firms. The study contributes to the existing literature by providing evidence that different forms of international market presence are asymmetrically influenced by family control and by underscoring the importance of innovative strategies. The analysis includes a sample of 25,533 firms observed from 2018 to 2021. Econometric models address the role of ownership in alternative internationalization endeavors, demonstrating that these firms differ from their non-family counterparts. By comparing the export propensity, intensity, and reach of family businesses to non-family businesses, the research sheds light on the challenges faced by family-owned firms and the significance of structural characteristics such as technological regimes and regional competitive advantages. The findings emphasize the negative impact of family presence on internationalization while highlighting the importance of innovation and ecosystem support. Additionally, the study contributes to the empirical refinement of firm classification by proposing a more reliable segmentation method. It also presents alternative econometric methods to appraise internationalization strategies better. Future research directions are suggested, particularly regarding the use of additional information related to innovation and human capital, offering insights for enhancing the global engagement of family businesses in global markets. This research provides valuable empirical evidence and practical implications for policymakers and practitioners seeking to support the required actions to promote the growth and internationalization of family businesses in the context of the Portuguese manufacturing industry.



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**Keywords:** family business; internationalization; export intensity; export propensity; tobit; multinomial logit

## 1. Introduction

Family businesses (hereafter FB) are critical in the European entrepreneurial fabric, representing around 60% of all enterprises, constituting over 40 to 50% of the total employment (European Family Businesses 2016). Additionally, they are key contributors to local economies worldwide (Manogna and Mishra 2021). Therefore, it is essential to understand the process by which these companies approach the international market and their advantages and hindrances. Given the prevalence of family firms in the Portuguese panorama, it is paramount to understand and study the impact of these enterprises, to fully understand the entrepreneurial dynamics.

Due to the worldwide interconnectedness of markets, adopting internationalization as a fundamental business strategy has become imperative for companies, resulting in a significant upsurge in the number of firms extending their presence to global markets (Varas-Fuente et al. 2022). However, FBs possess distinctive traits that can influence their international strategies compared to non-family businesses (hereafter NFB) (Andreu et al.

2020). The impact of FBs on internationalization is still not consensual, with a growing body of research still trying to find a general agreement (Almodóvar et al. 2016; Andreu et al. 2020; Baronchelli et al. 2016; Benito-Hernandez et al. 2014; Calabrò et al. 2013; Cerrato and Piva 2012; Costa 2022; Evert et al. 2018; Fernández and Nieto 2005, 2006; Graves and Shan 2014; Graves and Thomas 2004; Lu et al. 2015; Manogna and Mishra 2021; Piva et al. 2013; Singh and Kota 2017; Varas-Fuente et al. 2022; Zahra 2003).

Besides the impact of FBs on internationalization, this study also attempts to see the effect of human capital and innovation on Portuguese firms, given the essential roles these factors have in the success of internationalization. It is argued that innovation is highly influenced by the level of knowledge and experience possessed by human resources, with the large firms taking the upper hand given the high availability of resources (Almodóvar et al. 2016). Since most FBs are smaller in size (Graves and Thomas 2004), this is one factor that influences the internationalization, innovation, and human capital investments in these businesses. However, FBs managers possess a keen awareness of their strengths in terms of internationalization, and actively strive to leverage them to their advantage (Kontinen and Ojala 2010).

With this study, we aim to provide theoretical and practical contributions on the impact of family ownership in shaping the internationalization process as well as to identify its other determinants in this process. The study addresses internationalization from three alternative perspectives: internationalization, relevance of international markets, and geographical scope of business. This analysis aims to confirm if the determinants do hold in each of the perspectives as well as the importance of family ownership in each of them. The findings will provide important information on internationalization strategies, including their challenges and opportunities, which will be useful in formulating effective policy packages.

The remainder of the paper is structured as follows. Section 2 addresses theoretical perspectives about FBs' internationalization and the influence of innovation and human capital in this process from existing literature. In Section 3 a descriptive analysis is carried out of the data and variables used in this empirical study. Section 4 discusses the methodology in use. Section 5 reports and discusses the empirical results highlighting the main contributions and limitations of this study, as well as future lines of research.

## 2. Literature Review

### 2.1. Family Businesses

Given the plethora of literature and the widespread proposals regarding the conceptualization of FBs, grounding the definition was (Handler 1989) and is still (Miller et al. 2007; Ramalho et al. 2018) challenging; despite the popularity of several proposals, presently, no universal definition is found in the literature. Table 1 proposes alternative definitions found relevant in the field.

**Table 1.** Family business definitions across different studies.

Author/s	Family Business Definition	Sample Size	Data Sources	Countries	Period
Anderson and Reeb (2003)	Family-owned business if the family still holds equity or board seats.	403	S&P 500	USA	1992–1999
Arosa et al. (2010)	Family business if the main shareholder is a person or a family with a minimum of 20% of firm equity and there is a family relationship between this shareholder and the directors based on the resemblance of their surnames.	586	SABI Database	Spain	2006

Table 1. Cont.

Author/s	Family Business Definition	Sample Size	Data Sources	Countries	Period
<a href="#">Astrachan and Kolenko (1994)</a>	Family business if the family owns more than 50% of the ownership in private firms or more than 10% of the stock of public companies.	614	Structured telephone surveys	USA	1993
<a href="#">Chu (2009)</a>	A firm in which the family owns more than 5% of shares and has at least one family member on the board of directors.	341	Taiwan Stock Exchange	Taiwan	2002–2006
<a href="#">Davis (1983)</a>	Family business if one or more family units influence the policies and guidance.	N/d	N/D	N/D	N/D
<a href="#">Donckels and Fröhlich (1991)</a>	When family members own at least 60% of the equity of the business.	1132	Interview	Austria, Belgium, West Germany, Finland, France, United Kingdom, Netherlands, Switzerland	1985
<a href="#">Fernández and Nieto (2005)</a>	When the family has at least one manager among its members.	10,579	Survey of Business Strategies (SBS);	Spain	1991–1999
<a href="#">Handler (1989)</a>	Family firm if major operating decisions and plans for leadership succession are affected by family members working in management or on the board.	N/D	N/D	N/D	N/D
<a href="#">Litz (1995)</a>	If its ownership and management are concentrated within a single-family unit and if its members try to maintain and/or strengthen intra-family ties.	N/D	N/D	N/D	N/D
<a href="#">Miller et al. (2007)</a>	Family firm: A business where more than one family member is simultaneously an insider (officer or director) or major shareholder (5% or more of the company's stock). Lone founder firm: An enterprise in which an individual is one of the company's founders with no other family members involved and is also an insider (officer or director) or is a prominent owner (5% or more of the firm's equity).	896 100	Fortune 1000 Compustat Database	USA	1996–2000 2000
<a href="#">Ramalho et al. (2018)</a>	(1) are present on the SABI database in the shareholder category of "one or more known individuals or families". (2) the respective individual or family controls more than 50% of the capital. (3) the individual or at least one family member is in management or on the board of directors.	9229	SABI Database	Portugal	2006–2012

Table 1. Cont.

Author/s	Family Business Definition	Sample Size	Data Sources	Countries	Period
Schulze et al. (2003)	The family manages and owns the firm.	883	Arthur Andersen Center for Family Business Survey	USA	1995
Shanker and Astrachan (1996)	<ul style="list-style-type: none"> <li>- The most comprehensive definition requires that the family have some effective control over strategic direction and that the business is at least intended to remain in the family.</li> <li>- The intermediate definition would include all the broadest group criteria and require the founder or descendant to run the company.</li> <li>- The tightest family business definition would require that the business have multiple generations involved, direct family involvement in daily operations, and more than one family member having significant management obligation.</li> </ul>	N/d	N/D	USA	1991–1994

Source: Own elaboration.

The lack of consensus in the literature about a definition of an FB affects the results of the analyses of the empirical studies (Miller et al. 2007). The chosen criteria directly impact the sample, and results have been proven by Villalonga and Amit (2006), where different definitions resulted in other valuations for the enterprise. The present research has refined the definition implanted by Ramalho et al. (2018) by performing a cross-surname reference inspired by Arosa et al. (2010) to ensure the named individuals are from the same family. Consequently, we define an FB as a firm whose family owns most of the capital (>50%), and at least one family member holds a position on the board of directors or in a management role. In Table 2, we can see the proportion of FBs in the different samples, following the criteria the authors proposed.

Table 2. Family business sample in various studies.

Author/s	Countries	Percentage of FF on the Whole Sample
Anderson and Reeb (2003)	USA	35%
Arosa et al. (2010)	Spain	63%
Astrachan and Kolenko (1994)	USA	100% <sup>1</sup>
Chu (2009)	Taiwan	54.30%
Donckels and Fröhlich (1991)	Austria, Belgium, West Germany, Finland, France, United Kingdom, Netherlands, Switzerland	66%
Fernández and Nieto (2005)	Spain	56%
Miller et al. (2007)	USA	47% (family firms: 29% lone founder 18%)
Ramalho et al. (2018)	Portugal	52%
Schulze et al. (2003)	USA	100% <sup>1</sup>
		20.3 million- Comprehensive definition
Shanker and Astrachan (1996)	USA	12.2 million- Intermediate definition
		4.1 million- Tightest definition

Source: Own elaboration. <sup>1</sup> The sample related only to FBs.

As evidenced by [Shanker and Astrachan \(1996\)](#), imposing of additional requisites makes the proportion of FBs fall. When comparing the United States to Europe, we can observe that the old continent registers the highest rate of FBs. For instance, studies conducted by [Donckels and Fröhlich \(1991\)](#) across eight countries found an average FB rate of 66%. Similarly, Spain showed a rate of 56%, according to [Fernández and Nieto \(2005\)](#), and 63%, as reported by [Arosa et al. \(2010\)](#). Portugal recorded a rate of 52%, according to [Ramalho et al. \(2018\)](#). In contrast, the United States, as studied by [Anderson and Reeb \(2003\)](#), exhibited a rate of 35% of FBs, while [Miller et al. \(2007\)](#) reported 47%. However, it is important to consider that different definitions of FBs were used, so the findings may be conflicted. [Ramalho et al. \(2018\)](#) warned that the specificities of every study on FBs may only be valid under certain conditions for several reasons (i.e., FB definition, economic context, and size criteria).

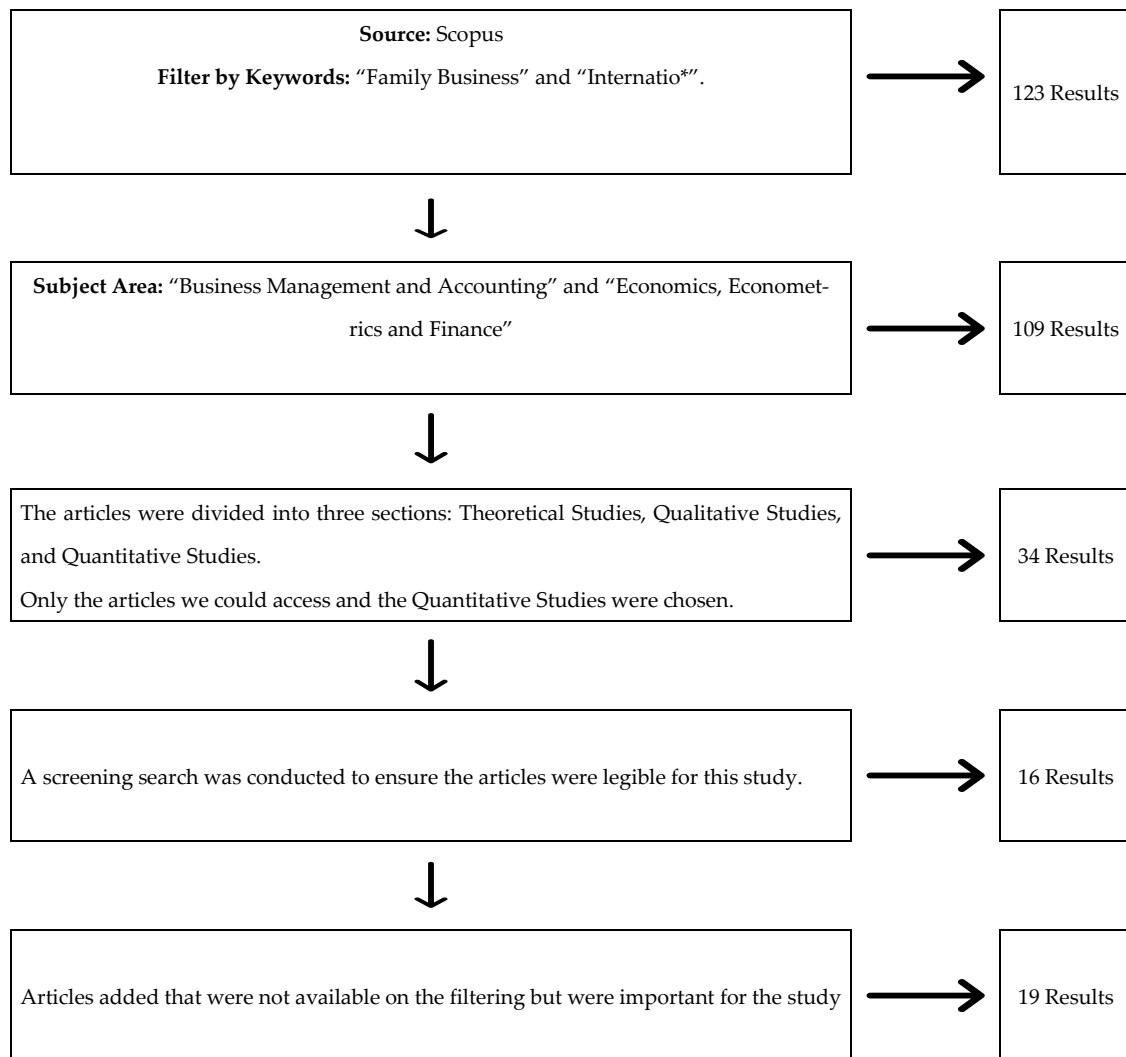
The interplay between family and business is a defining characteristic and critical aspect that sets FBs apart from other enterprises ([Davis 1983](#)). This characteristic is considered a valuable resource and capability of FBs ([Chu 2009](#)). However, this role of owner and manager with a high concentration of ownership can sometimes lead to situations where the private benefits may overlap with the firm's interests ([Arosa et al. 2010](#)). In these firms, it is also discussed that the high level of altruism present in the firm by the family owner and employees encourages loyalty and commitment to the enterprise ([Schulze et al. 2003](#)). This concern for their employees is translated into paying wages above the stipulation, and increasing care for their well-being ([Donckels and Fröhlich 1991](#)). As turnover in management in these companies is low, a relationship is created with the different economic partners, which in turn increases the likelihood of developing lasting economic ties ([Anderson and Reeb 2003](#)). These businesses do not follow the same standards and priorities as their non-family counterparts since they are motivated by and committed to preserving their SEW (Socio-Emotional Wealth) ([Gómez-Mejía et al. 2007](#)), focusing on the non-economic dimensions that impact the management of these firms (e.g., family influence, firm succession, emotional attachment) ([Gómez-Mejía et al. 2007](#)). FBs may pursue unexpected financial decisions to preserve their socio-emotional endowment, contrary to non-family counterparts who prioritize financial objectives and disregard other dimensions of the organization ([Gomez-Mejia et al. 2011](#)). Firm survival is thus an essential concern of families, indicating that their vision is always long-term oriented ([Anderson and Reeb 2003](#)), focusing on the legacy for future generations ([Davis 1983](#)). Due to their lust for survival, FBs are highly risk averse, which affects their control and influence over the firm ([Berrone et al. 2012](#)). Notwithstanding, measuring the vectors included in the socio-emotional wealth appears complex since family firms are highly heterogeneous, and effects may arise combined with structural characteristics rather than ownership. As such, dimensions arising from the ecosystem, such as local culture, appear to be of central relevance ([Gómez-Mejía and Herrero 2022](#)).

## 2.2. Family Business Internationalization

The literature on FBs, as mentioned before, is extensive, with around 2558 documents available through a keyword search in the Scopus Database. A Prisma flow diagram was created, as can be seen in Figure 1.

First, a combination of the keywords "Family Business" and "Internatio\*" was used. Given the fact that studies of FBs are extended to several areas of study, and that internationalization is the primary focus, the junction of these keywords was necessary. Additionally, as our study focuses on empirical research, any articles whose approach is solely theoretical were excluded. At last, some studies were excluded, given the fact that they focus on different aspects of internationalization, as well as the use of different proxies that would be unsuitable. In a more globalized economy, internationalization is seen as an opportunity for enterprises to grow and prosper ([Calabrò et al. 2013](#)). Although this process might be more difficult for FBs due to the specific characteristics of this kind of firm, the literature is still divided as to whether the impact of family ownership positively

or negatively affects the different stages of internationalization of the firm (Andreu et al. 2020; Benito-Hernandez et al. 2014; Calabrò et al. 2013; Cerrato and Piva 2012; Costa 2022; Evert et al. 2018; Fernández and Nieto 2005, 2006; Manogna and Mishra 2021; Varas-Fuente et al. 2022; Zahra 2003). At present, all enterprises, independent of their size, country, or industry, must be prepared for growing competition due to increasing internationalization (Cerrato and Piva 2012).



**Figure 1.** Prisma flow diagram.

There is a general agreement that FBs tend to be, on average, of smaller dimensions compared to non-family firms (Benito-Hernandez et al. 2014). For this reason, several studies focus on small and medium enterprises (hereafter SMEs) owned by families. Because of this characteristic, most family firms lack essential financial resources, strong networks, and limited managerial resources to expand their businesses internationally (Fernández and Nieto 2005, 2006; Graves and Shan 2014). Engaging in international operations brings unique challenges beyond domestic operations, involving diverse cultural norms, ethical principles, customer-supplier dynamics, and communication barriers. Managing the complexities requires strategic attention and adaptability in the global market (Cerrato and Piva 2012). These strategic decisions to operate in foreign markets entail potential advantages and disadvantages (Varas-Fuente et al. 2022). In FBs, the lines between ownership and management are typically blurred, with managers often investing a significant portion of their wealth in the company and taking on the risks of unsuccessful investments; they may



be reluctant to engage in internationalization due to the inherent risk (Cerrato and Piva 2012). Risk aversion rises as family ownership increases; this is a generalized problem, namely in the case of equity concentration (Calabrò et al. 2013). Effects on personal wealth cause CEOs to engage in more conservative strategies. High equity concentration is a frequent argument used to justify the low likelihood of FBs operating abroad and also being able to expand their businesses to more distant countries (Baronchelli et al. 2016; Evert et al. 2018). Various authors have pointed out risk aversion as one of the major barriers to FBs' internationalization (Benito-Hernandez et al. 2014; Calabrò et al. 2013; Evert et al. 2018; Graves and Thomas 2004). This idea also comes from the general belief that family firms are very conservative and not very open to changes or taking risks (Singh and Kota 2017). To overcome international barriers and reduce the perceived risk, Fernández and Nieto (2005) pointed out that FBs with external shareholders are more likely to export and intensify their international activity. New shareholders provide essential resources for accessing international markets, including finance, technology, human resources, and networks. Their contributions are crucial for companies to successfully expand globally. Notwithstanding, FBs are reluctant to relinquish part of the family control on the firm in exchange for exogenous resources (Baronchelli et al. 2016; Benito-Hernandez et al. 2014). Establishing collaborative alliances or specific agreements is a common practice, allowing companies to benefit from cooperation without relinquishing control (Fernández and Nieto 2005). The commitment to the long term of these firms (Cerrato and Piva 2012) enhances the attractiveness of this collaborative strategy. The absence of strong relationships is a contributing factor that makes it challenging for FBs to venture into international markets (Graves and Thomas 2004). Benito-Hernandez et al. (2014) show that one key hindering factor in exporting, which leads to lower export levels for FBs compared to NFBs, is the financial requirement needed to undertake such a venture. This puts FBs at a crossroads as their growth objectives through internationalization may clash with their own personal interests and needs, mainly when it entails putting their wealth and livelihood at risk due to the need for additional financial resources. However, Zahra (2003) has proven otherwise that FBs are willing to take risks if it increases the family's wealth, even at the expense of short-term payoffs. The author argues that the altruism embedded in their strategy encourages owner-managers to put the firm's objectives as their main priority. Therefore, internationalization is seen as a strategy to make the company more prosperous for future generations, feeding the legacy objective. Graves and Shan (2014) prove that the altruism, sacrifice, and acceptance of additional constraints in FBs are one of the underlying reasons for raising their profit margins compared to their counterparts. Consequently, it is expected that the influence of family on ownership makes FBs less prone to internationalization than NFBs.

**H1a:** *FBs are less prone to pursuing internationalization strategies.*

There is an intensive fragmentation concerning the impact of ownership on the degree of internationalization. However, while some studies argue that FB ownership and involvement positively affect internationalization (Calabrò et al. 2013; Singh and Kota 2017; Zahra 2003), other works prove the negative impact of ownership on internationalization (Benito-Hernandez et al. 2014; Fernández and Nieto 2005, 2006; Manogna and Mishra 2021; Varas-Fuente et al. 2022). When going international, family-owned SMEs outperformed their non-family counterparts, with the non-family firms exhibiting worse financial results (return on assets) (Graves and Shan 2014). One argument is that when an FB pursues international endeavors, the mindset of the managers and the need to be highly competitive in the global environment have already positively changed the firm's performance (Cerrato and Piva 2012). With the prospects that internationalization can bring to the enterprise, it encourages family members to be more involved in decision-making and to gain a deeper understanding of its challenges, although other studies argued that the limited resources available to family firms, the lack of network, and the fear of loss of



control negatively affect the international performance of these firms (Fernández and Nieto 2006). When a business lacks internal funds to support its internationalization efforts, the challenges related to decision-making become more pronounced, with external funding being one solution for such cases (Benito-Hernandez et al. 2014). Manogna and Mishra (2021) claimed that FBs need to enhance their transparency and strengthen their corporate governance structure, to attract outside investment. Similarly, in line with the previous variable (propensity to export), FBs would also experience a greater level of exports if they had the presence of outsider shareholders (Calabrò et al. 2013; Cerrato and Piva 2012; Fernández and Nieto 2005, 2006; Manogna and Mishra 2021). However, once again, these businesses are risk averse and conservative, given the fact that the wealth of the family is at risk (Benito-Hernandez et al. 2014; Fernández and Nieto 2006; Manogna and Mishra 2021). As a result, it is expected that FBs negatively affect the firm's internationalization degree.

**H1b:** *Being an FB will have a negative impact on export intensity.*

More and more firms are raising the diversity of the countries or regions where they conduct business operations to accelerate their growth (Lu et al. 2015). Family firms are no exception, but the degree of family involvement can differ from firm to firm, and its impact on internationalization will also differ (Evert et al. 2018). Baronchelli et al. (2016) showed that companies with less family involvement move faster toward foreign markets, but, on the other hand, FBs' negative impact in entering new markets is dissipated as they mature. Furthermore, Evert et al. (2018) identified that the probability of making the first move into the international market is lower when a family owns and manages a company. FBs are more cautious when pursuing internationalization and prioritize maximizing revenue over aggressively expanding their business internationally (Zahra 2003). This strategy aligns with the primary objective of these businesses, which is to ensure their survival and adapt to the dynamic and intricate external environment (Benito-Hernandez et al. 2014). Also, given the high risk aversion in family firms, these enterprises prefer investing in physically close countries (Baronchelli et al. 2016). In an analysis of a Spanish hotel chain, family firms favored expanding internationally in ways that did not involve high resource commitment like merchandising (Andreu et al. 2020). The same results were found for a case study of Portuguese FBs from the manufacturing industry that negatively impacted the extensions of the market in which they export. One of the reasons mentioned for FBs primarily exploring physically close countries is the significant managerial challenges that arise from the demand placed on managers to navigate through diverse institutional environments (Arregle et al. 2017). This poses a challenge due to the inclination towards family managers over external managers capable and qualified for these matters (Arregle et al. 2017). FBs perceive investments in geographically distant countries as highly risky and financially burdensome due to the presence of asymmetric information (Baronchelli et al. 2016). Due to their limited scale, which is often characteristic of FBs, they face significant challenges when managing their operation on a larger or broader scale (Lu et al. 2015). Therefore, the FBs will have a negative impact on the geographical scope.

**H1c:** *Being an FB will have a negative impact on presence in multiple markets.*

### 2.3. Influence of R&D and Technological Regimes in Internationalization

In order to gain a competitive advantage, an organization must recognize the vital role of innovation and continually question, challenge, and enhance itself to stay one step ahead of its competitors (Singh and Kota 2017). The level of innovation within a firm is directly impacted by the unique characteristics of the industry in which it operates (Piva et al. 2013). Many studies use the sector of activity of the firm to see its influence on internationalization (Benito-Hernandez et al. 2014; Cerrato and Piva 2012; Costa 2022; Fernández and Nieto 2005, 2006; Piva et al. 2013; Varas-Fuente et al. 2022). There is a prevailing perception that FBs tend to be more traditional, risk averse, and resistant to embracing new ideas and changes

(Singh and Kota 2017). Consequentially, managers might opt to steer clear of or delay strategic decisions, such as investing in innovation projects or pursuing internationalization initiatives (Cerrato and Piva 2012), although Graves and Thomas (2004) demonstrated that the commitment of family SMEs to innovation is the same as non-family firms. These results are also confirmed in Indian family firms where FBs positively influence innovation (Singh and Kota 2017). This concern with innovation is essential as several studies conclude the positive impact of innovation on the internationalization of the firms (Almodóvar et al. 2016; Evert et al. 2018; Fernández and Nieto 2005, 2006; Graves and Thomas 2004; Singh and Kota 2017; Varas-Fuente et al. 2022).

The idea of developing competitive advantages through innovation and internationalization is within reach of family firms (Singh and Kota 2017). Piva et al. (2013) showed in a sample of Italian firms from high-tech industries that family entrepreneurial ventures were more inclined than their non-family counterparts to expand internationally by selling their goods or services and investing in foreign markets. FBs operating in high-tech industries demonstrate their ability to overcome the risk aversion typically associated with such businesses, in contrast to those operating in low- or medium-tech industries. Graves and Thomas (2004) argued that initiating the internationalization process poses the greatest challenge for FBs. To overcome the lack of knowledge within the firm, family entrepreneurial ventures hired new qualified personnel to compete against their rivals to fill the gap of experience that exists within the family (Piva et al. 2013). The business sector itself is influenced by national characteristics, with Cerrato and Piva (2012) showing that traditional Italian sectors (i.e., textile-clothing, food, etc.) were more likely to export and more international than their counterparts. In Spain, various studies have proven that the sector positively influences the process of internationalization (Fernández and Nieto 2005, 2006; Varas-Fuente et al. 2022). Within a sample of US manufacturers, high-tech firms exhibited a broader reach in terms of exporting to multiple countries compared to their low-tech counterparts (Zahra 2003). The same results were achieved in the case of Portuguese firms, where firms operating in high-tech regimes were more prone to run their business overboard and to more distant countries (Costa 2022). Therefore, firms from more technologically advanced regimes are expected to perform better internationally.

**H2a:** *Raising technological intensity does increase internationalization propensity.*

**H2b:** *Raising technological intensity does increase internationalization intensity.*

**H2c:** *Raising technological intensity does increase internationalization scope.*

#### 2.4. Other Determinants of the Internationalization Strategy

To expand internationally successfully, the firm must have qualified personnel that possess the necessary competencies (Cerrato and Piva 2012). Qualified personnel alone are not the sole factor determining a firm's internationalization. The relationship between general and specialized human capital hiring and export intensity follows an S-shaped pattern (Almodóvar et al. 2016). The hiring of qualified personnel in the first stage of initial internationalization will perform better, but as the export intensity of the firm increases, the increasing of specialized personnel will not achieve better results, given the fact that it may need other resources than human assets to improve (Almodóvar et al. 2016). However, FBs can be very reluctant to hire external managers, limiting the acquisition of new knowledge (Arregle et al. 2017).

**H3:** *Human capital intensity will have a positive impact on internationalization strategies.*

The literature on the internationalization of FBs focuses on the characteristics of these firms, such as age and size (Zahra 2003). Most of these firms are characterized by their small size, which can in turn impose limitations on the resources available to them for achieving success in internationalization (Benito-Hernandez et al. 2014; Cerrato and Piva

2012; Fernández and Nieto 2005, 2006; Graves and Thomas 2004). Consequently, one effective strategy for acquiring new knowledge and capabilities is to empower the younger generations by allowing them to occupy managerial positions (Fernández and Nieto 2005). Second generations possess new abilities and ambitions that positively influence the process of internationalization (Fernández and Nieto 2005; Varas-Fuente et al. 2022). This is one reason why older firms perform better in international markets, given that younger generations may already be involved in the business (Baronchelli et al. 2016). The level of education is also connected to the firm's financial performance, as the founder's education in family firms positively affects the firm's profitability (Lu et al. 2015). For these reasons, age and size are widely used in the literature to see the impact of experience, knowledge, and resources on internationalization (Almodóvar et al. 2016; Baronchelli et al. 2016; Benito-Hernandez et al. 2014; Cerrato and Piva 2012; Costa 2022; Fernández and Nieto 2006; Graves and Shan 2014; Graves and Thomas 2004; Lu et al. 2015; Manogna and Mishra 2021; Piva et al. 2013; Singh and Kota 2017; Zahra 2003). The influence of the family on the financial performance of the firm is one subject of analysis in the literature, with some studies arguing that family ownership positively influences financial performance (Anderson and Reeb 2003; Villalonga and Amit 2006), and others the opposite (Arosa et al. 2010). Financial resources play a crucial role in implementing a successful internationalization strategy (Graves and Shan 2014), with successful performance-enhancing creative pathways to expand the firm (Evert et al. 2018). Internationalization is a long-term endeavor that requires significant time for the investment to be recouped (Zahra 2003), being the reason why many studies use financial data like return on assets and leverage to see if the profitability or debt impacts the internationalization process (Costa 2022; Evert et al. 2018; Fernández and Nieto 2005; Graves and Shan 2014; Lu et al. 2015; Manogna and Mishra 2021; Singh and Kota 2017; Varas-Fuente et al. 2022).

### 3. Materials and Methods

#### 3.1. Database Description

The data used for this analysis were extracted from the SABI<sup>1</sup> database, and encompasses information about Portuguese firms from 2018 to 2021. The firms extracted belong to the Manufacturing sector, NACE REV. 2 10 to 33; as such, the first extraction contained 72,493 firms operating in Portugal. Firms with no data available for all time spans or with a total turnover, personnel expenses, and the number of employees equal to 0 for more than one year were excluded, as were firms created after 2018. The final sample was a balanced panel that contained 25,533 firms with a grand total of 102,132 observations. As mentioned in the literature, there is no consensus about the definition of family firms. However, the most common criteria used to classify family firms rely on family ownership (equity) and the managerial role of the family members. The information extracted from the database allowed us to know the names of the shareholders, the number of shares in possession, and the role of those on the board of directors and management. With these aspects, we classified a firm as an FB if those attributes met all the following criteria: (1) being classified in the shareholder company category as “one or more known individuals or families”; (2) the individual or family must control more than 50% of the total equity; (3) at least one family member holds a position on the board of directors or in a management role. A cross-reference<sup>2</sup> surname examination ensured that the named individuals belonged to the same family. This method provided a means to validate and verify familial connections within datasets, giving more individualized information on each shareholder.

#### 3.2. Variables in Use

##### 3.2.1. Dependent Variable(s)

Three proxies were created to measure the internationalization level of each firm: export propensity, export intensity, and geographical scope. The first aimed to appraise whether the firm was an exporter or not (i.e., export sales are equal to zero); this proxy is widely used in the literature to compare international and non-international firms (Benito-

Hernandez et al. 2014; Cerrato and Piva 2012; Fernández and Nieto 2005, 2006; Graves and Thomas 2004; Manogna and Mishra 2021; Piva et al. 2013). The second proxy weighted the importance of turnover on international markets based on the ratio of export sales over total sales; this measure is broadly used in the literature (e.g., Benito-Hernandez et al. 2014; Calabrò et al. 2013; Cerrato and Piva 2012; Fernández and Nieto 2005, 2006; George et al. 2005; Graves and Thomas 2004; Hernández-Perlines et al. 2016; Manogna and Mishra 2021; Singh and Kota 2017; Varas-Fuente et al. 2022). The third measured the number of countries to which the firm sells its products and services (Zahra 2003). Notwithstanding, some papers highlight the preference for regions rather than countries (Cerrato and Piva 2012). Here, a different approach has been used, proposing geographical scope as the presence in grouped external markets, such as the Common Market and Extra-Common Market. This choice relies on the fact that the sample encompasses firms located in Portugal, which belongs to the European Union, and due to the European integration rules, trade tariffs were removed.

### 3.2.2. Explanatory Variable(s)

Family Business was an explanatory variable (FB). It was a dummy variable that took the value 1 if the firm is owned and managed by the family and 0 otherwise. The goal was to examine whether family ownership and control have a negative impact on internationalization and whether FBs behave differently from NFBs. The technological regime was chosen as the accurate proxy to measure the commitment to innovation. In this vein, firms were divided into four categories, based on their main SIC code, following the technological intensity taxonomy proposed by (Bogliacino and Pianta 2016). Supplier dominated (1) represents the sectors with less demanded innovation, while science based (4) represents the sectors that require constant demand and significant R&D investments.

### 3.2.3. Control Variable(s)

Concerning human capital and internationalization, additional measurements were made; human capital intensity was measured by the ratio between personnel expenses and the number of employees, given the fact that different centers of activity show different characteristics (i.e., some industries are more labor intensive than others, so the amount of personnel expenses, per se, would be higher). In addition, companies offer higher salaries to more qualified staff to have higher productivity levels. The age of the business was measured through the years the firm has been operating to see if experience directly affects the internationalization of Portuguese firms. Firm dimension was measured based on total turnover, which is one of the analyses used by the European Commission (European Commission 2003). Regarding the geographic region, the Portuguese territory was divided into seven parts following NUT II<sup>3</sup> which is based on the location of the head office. Two finance variables were included, ROA and LEV, to see if the financial status directly impacts the firm's international activity. Variable descriptions and measurements are provided in Table 3.

**Table 3.** Variable description.

Abbreviation	Variable Name	Description	Measurement
Exp_P (1)	Export Propensity	Dummy 1 if the firms export 0 otherwise	Binary
Exp_Int (2)	Export Intensity	Ratio between external sales and total sales	Binary
Exp_Scope (3)	Geographical Scope	Number of regions where the firm exports	0 to 2
FB (4)	Family Business	If the firm is controlled and managed by a family	Binary

Table 3. Cont.

Abbreviation	Variable Name	Description	Measurement
Tech_reg (5)	Knowledge Intensity	Technological regime of the firm, according to the (Bogliacino and Pianta 2016)	1 to 4 (1 = supplier dominated; 2 = scale intensive; 3 = specialized supplier; 4 = science based)
HC_I (6)	Human Capital Intensity	Ratio between personnel expenses and number of employees	Mean
Age (7)	Age	Number of years since foundation	Absolute Value
Size (8)	Size	Total turnover of the firm	Logarithm
Region (9)	Region	Main office of the firm (NUT II)	1 to 7 (1 = Norte; 2 = Centro; 3 = LVT; 4 = Alentejo; 5 = Algarve; 6 = RAM; 7 = RAA)
ROA (10)	Return on Assets	Ratio between current income and total assets	Decimal
LEV (11)	Leverage	(Long-term liability + short-term financial debt)/Equity	Decimal

Source: Own elaboration.

### 3.3. Exploratory Analysis

Table 4 shows the number of FBs and NFBs and some of the structural characteristics. Unsurprisingly, around 69% of the firms are FBs, as it was previously mentioned that in Europe, more specifically in the Iberian Peninsula, many enterprises are family-owned and managed. In only 213 firms, the family controls most of the capital, but no family member is part of the board of directors or has any management role. This means that, in most cases, the family does not hand over the firm's management to outsiders. This is consistent with most of the literature, where the family does not relinquish control of the business but is always involved in day-to-day operations and decision-making (Andreu et al. 2020; Baronchelli et al. 2016; Benito-Hernandez et al. 2014; Cerrato and Piva 2012; Zahra 2003). It is worth mentioning that NFBs exhibit higher average asset values than FBs, indicating a disparity in size between the two.

Table 4. Structural characteristics of FBs and NFBs.

Family Business	N° of Companies	>50% Family Owner but Not in Control	Assets Average (Thousand)	Age (Average)
FB	17 654	-	1 080	18
NFB	7 879	213	8 615	23

Source: Own elaboration according to data from SABI.

Table 5 shows the number of FBs and NFBs by region and economic activities. More than 50% of the enterprises are concentrated in the Norte, being the majority FBs, showing that this region is a catalyst of the Portuguese entrepreneurial ecosystem. There is also a predominant concentration of NACE 13, 14, 16, and 25 firms. The areas with fewer enterprises are the Algarve, RAM, and RAA.

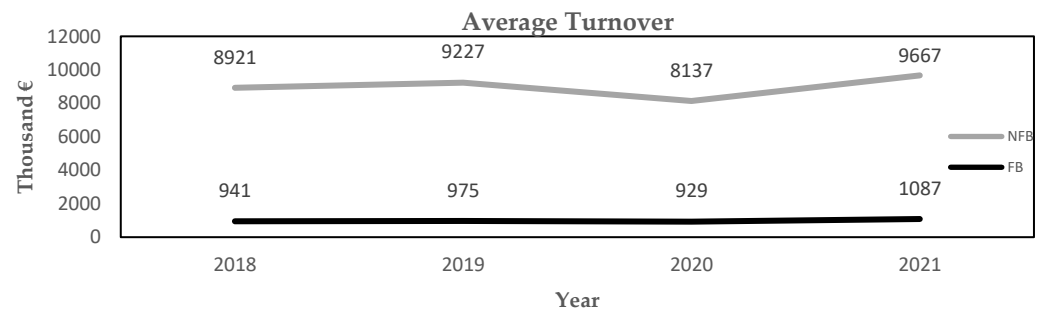
In Figure 2, it is possible to identify the difference between the average turnover of FBs and NFBs in the sample. We can see that NFBs are characterized as large businesses since, on average, their turnover is nine times bigger than FBs. FBs are known in the majority for being SMEs; in this case, this is no exception.

Table 5. FB and NFB per Region and NACE code.

NACE REV. 2	Region																				
	Alentejo			Algarve			Centro			LVT			Norte			RAM			RAA		
	NFB	FB	Total	NFB	FB	Total	NFB	FB	Total	NFB	FB	Total	NFB	FB	Total	NFB	FB	Total	NFB	FB	Total
10	90	198	288	26	75	101	241	492	733	293	465	758	306	655	961	31	34	65	33	38	71
11	41	45	86	7	10	17	45	52	97	53	84	137	105	148	253	7	9	16	4	2	6
12	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	1	-	1
13	4	2	6	2	11	13	41	57	98	23	55	78	347	787	1134	2	6	8	-	3	3
14	2	3	5	1	2	3	35	67	102	24	77	101	608	1765	2373	1	2	3	-	-	-
15	-	4	4	-	-	-	4	21	25	26	70	96	293	870	1163	-	1	1	-	-	-
16	14	45	59	6	25	31	97	223	320	73	152	225	192	745	937	4	19	23	5	19	24
17	3	-	3	-	-	-	33	25	58	25	25	50	55	126	181	-	2	2	-	1	1
18	11	19	30	7	18	25	41	109	150	102	299	401	115	340	455	2	2	4	2	8	10
19	1	-	1	-	-	-	2	2	4	4	1	5	1	2	3	-	-	-	-	-	-
20	10	7	17	4	1	5	52	41	93	53	76	129	76	89	165	-	2	2	-	2	2
21	2	1	3	-	-	-	8	3	11	32	8	40	11	5	16	-	-	-	-	-	-
22	5	1	6	3	1	4	110	110	220	48	80	128	129	209	338	2	2	4	-	2	2
23	23	38	61	15	38	53	186	234	420	150	305	455	170	388	558	6	14	20	5	15	20
24	1	1	2	-	-	-	14	27	41	17	15	32	38	51	89	-	2	2	-	-	-
25	32	75	107	17	80	97	445	1011	1456	294	784	1078	579	1586	2165	13	38	51	4	44	48
26	-	2	2	-	1	1	21	10	31	16	18	34	34	34	68	-	-	-	1	-	1
27	8	2	10	2	1	3	31	53	84	29	52	81	60	102	162	-	-	-	-	-	-
28	8	5	13	2	3	5	90	124	214	72	132	204	141	272	413	1	2	3	-	1	1
29	2	2	4	-	-	-	31	42	73	37	53	90	75	73	148	-	-	-	-	1	1
30	7	1	8	2	2	4	16	21	37	16	15	31	14	13	27	-	-	-	1	-	1
31	4	6	10	1	9	10	87	173	260	50	176	226	217	798	1015	-	10	10	-	3	3
32	5	10	15	5	12	17	46	91	137	87	176	263	141	331	472	3	7	10	1	7	8
33	11	45	56	21	36	57	91	212	303	200	407	607	134	367	501	8	23	31	4	15	19
Total	284	512	796	121	325	446	1767	3200	4967	1725	3525	5250	3841	9756	13,597	80	175	255	61	161	222

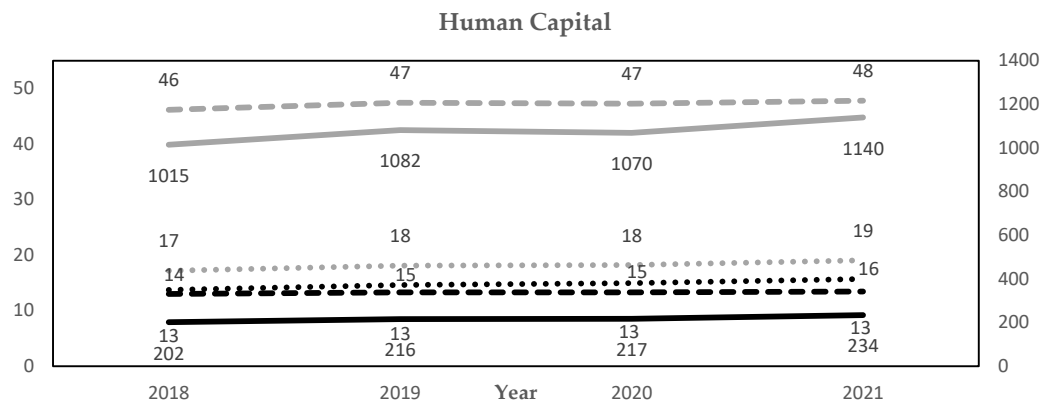
Source: Own elaboration according to data from SABI.





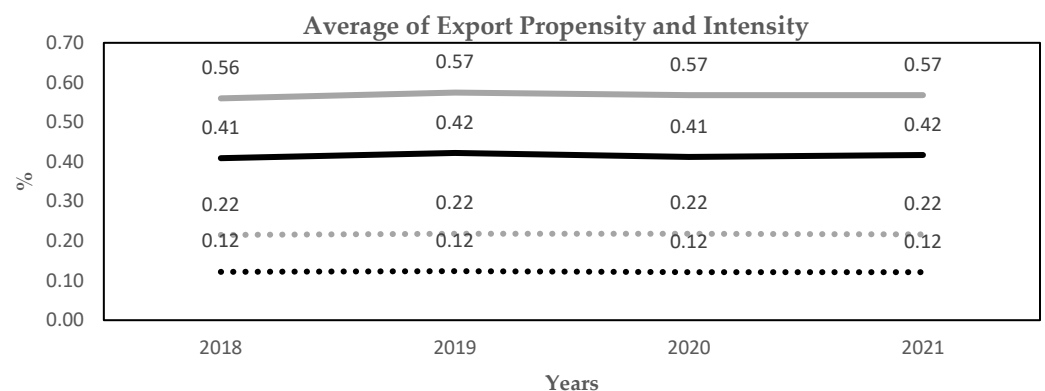
**Figure 2.** Average turnover of FBs and NFBs. Source: Own elaboration according to data from SABI.

Given that, in most cases, NFBs are bigger than FBs, it is no surprise that the average number of employees and the average expenses of personnel are higher in these firms, as seen in Figure 3. Consequently, the average cost per worker in NFBs is also higher, meaning that the higher salaries offered by these firms are more competitive than those offered by the family firms.



**Figure 3.** Human capital data from FBs and NFBs. Source: Own elaboration according to data from SABI.

Now, concerning the propensity to export, it is possible to see in Figure 4 that NFBs are more prone, on average, to participate in international market exchange. However, the propensity to export has been relatively constant over the years for family and non-family firms. Regarding export intensity, NFBs also have the upper hand, with the weight of the exports on total sales roughly double the FBs. This means that NFBs focus more on international growth than their counterparts. As before, the values are remarkably constant over time.



**Figure 4.** Export propensity and intensity of FBs and NFBs. Source: Own elaboration according to data from SABI.

Table 6 shows how far the firms' exports reach to see the extension of their international sales, comparing 2018 to 2021. It is possible to observe that in 2021, more FBs and NFBs expanded their exports to Extra-Community Markets, while there was a reduction, as expected, in the number of enterprises whose exports only reached the Community Market. There is an increasing trend where an expanding number of firms can export their products and services to distant markets.

**Table 6.** How far FBs and NFBs reach.

NACE REV. 2	Market							
	European Community Market				Extra-Community Market			
	NFB		FB		NFB		FB	
	2018	2021	2018	2021	2018	2021	2018	2021
10	146	159	235	201	250	273	183	230
11	31	25	44	43	137	147	131	152
12	-	-	-	-	2	2	-	-
13	101	94	241	240	153	170	200	222
14	161	124	426	328	184	207	326	415
15	74	52	176	161	114	136	202	242
16	90	81	295	276	104	106	153	162
17	26	29	51	62	57	54	55	49
18	77	80	183	187	65	67	167	155
19	2	2	2	2	4	4	-	1
20	39	30	41	28	103	116	56	74
21	6	6	2	4	32	31	8	10
22	74	66	119	131	156	166	145	149
23	128	122	279	288	202	212	249	259
24	17	14	29	29	41	43	28	26
25	395	404	972	1016	365	379	527	525
26	16	14	14	15	39	44	23	23
27	24	27	40	41	66	63	74	66
28	60	67	115	134	168	161	196	175
29	40	30	47	41	82	91	39	43
30	15	17	13	18	25	26	18	16
31	85	87	335	319	138	117	258	279
32	52	50	85	88	58	71	101	99
33	109	105	218	201	98	103	118	132
<b>Total</b>	1768	1685	3962	3853	2643	2789	3257	3504

Lastly, Table 7 shows the number of FBs and NFBs across the different technological regimes. Is it possible to observe a large predominance of FBs in sectors with low levels of innovation—around three times more. As there is technological progression, the gap will dissipate.

**Table 7.** Technological regime per FB and NFB.

Sup_dom (1)		Sup_dom Total	Scale_int (2)		Scale_int Total	Spe_supplier (3)		Spe_supplier Total	Sci_based (4)		Sci_based Total
NFB	FB		NFB	FB		NFB	FB		NFB	FB	
5119	12.765	17.884	1471	2683	4154	969	1906	2875	320	300	620

Source: Own elaboration according to data from SABI.

#### 4. Econometric Estimations

This study aimed to investigate the factors influencing the internationalization strategies of FBs, focusing on the impact of various variables and their relationships. To do this, a series of econometric models were carried out to study the following hypotheses:

**H1a:** *FBs are less prone to pursuing internationalization strategies.*

**H1b:** *Being an FB will have a negative impact on export intensity.*

**H1c:** *Being an FB will have a negative impact on presence in multiple markets.*

**H2a:** *Raising technological intensity does increase internationalization propensity.*

**H2b:** *Raising technological intensity does increase internationalization intensity.*

**H2c:** *Raising technological intensity does increase internationalization scope.*

**H3:** *Human capital intensity will have a positive impact on internationalization strategies.*

Before testing this hypothesis, the first step was to validate all the classical hypotheses and proceed with the econometric estimations. Additionally, it was important to provide some descriptive statistical analysis, such as the Pearson correlation, to examine the relationships among variables and identify any evidence of multicollinearity. The Pearson correlation was estimated for every year in the analyses given the fact of the panel data structure. After that, three panel models were estimated to study the impact of the variables in the different proxies of internationalization for the period 2018–2021.

For the first model the dependent variable is dichotomous, therefore a probit panel model is the most appropriate estimation. This model is widely used in the literature to study this proxy (Cerrato and Piva 2012; Fernández and Nieto 2005, 2006; Manogna and Mishra 2021; Piva et al. 2013).

The second model was estimated with a tobit panel, where the dependent variable is continuous, assuming values between 0 and 1. The presence of multiple observations with a value of 0 for the dependent variable undermines the assumption of linearity, making the least squares method unsuitable. This model is frequently used in the literature (Almodóvar et al. 2016; Cerrato and Piva 2012; Fernández and Nieto 2005, 2006; Manogna and Mishra 2021; Varas-Fuente et al. 2022). The third and last model was a Poisson panel model; the dependent variable was a count variable. To ensure this was the correct count model, we needed to check if the data were equidispersed<sup>4</sup>. All three models were estimated using random effects since fixed effects omitted the time-invariant variables (i.e., FB, Tech\_reg, Region), which are crucial for this work's analyses.

To check the robustness of our results, further analyses were conducted. The robustness analysis aimed to address whether the results held when some of the empirical assumptions changed. Also, by changing some of the variables, we wanted to infer if the combined effects did change the impact on the dependent variable. Splitting the sample allowed us to understand if FBs and NFBs behave similarly. Finally, the overall analysis would help draw a clear picture of how the different pillars are important in multiple scenarios. If the results held similar, it would mean that the impacts identified in the first round of estimations were robust and deserving of being considered solid. First, we created an interaction between the FB variable with HC\_I and Tech\_reg to see the impact and identify how these variables interact and influence the internationalization process and the model. Finally, the sample was divided for every model, in FBs and NBs, to see if the results were sensitive and if the influence of the different variables was the same for both types of firms.

#### 4.1. Main Results

Table 8 presents the descriptive statistics and pairwise correlation matrix among all variables used in the last year of analysis, 2021. Correlations were run for all other time frames and no significant differences were found with no highly correlated variable, suggesting that multicollinearity is not a concern.

**Table 8.** Descriptive statistics and correlation matrix (2021).

	Min	Max	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
Exp_P (1)	0	1	0.463	0.499	1										
Exp_Int (2)	0	1	0.151	0.287	0.566 ***	1									
Exp_Scope (3)	0	2	0.680	0.807	0.907 ***	0.620 ***	1								
FB (4)	0	1	0.691	0.462	−0.140 ***	−0.153 ***	−0.173 ***	1							
Tech_reg (5)	1	4	1.461	0.787	0.084 ***	0.021 ***	0.091 ***	−0.080 ***	1						
HC_I (6)	0	1381.440	16.743	15.343	0.141 ***	0.124 ***	0.156 ***	−0.101 ***	0.127 ***	1					
Age (7)	3	306	21.208	15.893	0.147 ***	0.100 ***	0.196 ***	−0.139 ***	0.039 ***	0.076 ***	1				
Size (8)	−11.513	16.017	5.970	1.881	0.511 ***	0.415 ***	0.578 ***	−0.244 ***	0.077 ***	0.272 ***	0.279 ***	1			
Region (9)	1	7	1.871	1.175	−0.143 ***	−0.115 ***	−0.131 ***	−0.033 ***	0.113 ***	0.041 ***	0.047 ***	−0.032 ***	1		
ROA (10)	−249.2215	130.9542	−0.051	2.263	0.034 ***	0.021 ***	0.033 ***	−0.006	0.005	0.021 ***	0.019 ***	0.074 ***	−0.003	1	
LEV (11)	−4295.626	38,152.650	2.609	243.836	0.007	−0.004 ***	0.003	−0.010	−0.004	−0.006	−0.005	0.010	0.000	0.000	1

Notes: \*\*\* correlation significant at 0.01 level.

Three models were estimated to evaluate the impact of the different variables on the firms' export activity; all estimations were globally significant ( $p < 0.01$ ). However, the interpretation of the variables could only be made through marginal effects. The model's significance and the proxies' sign were seen through the model's estimation. Still, the interpretation and significance of the variables could only be made through marginal effects, as represented in Table 9.

**Table 9.** Marginal effects of the panel data: degree of internationalization.

	Model 1	Model 2	Model 3
	Exp_P	Exp_Int	Exp_Scope
FB	−0.022 *** (0.005)	−0.015 *** (0.002)	0.009 (0.011)
Scale_int	0.114 *** (0.006)	0.017 *** (0.002)	0.213 *** (0.015)
Spe_supplier	0.066 *** (0.007)	0.016 *** (0.002)	0.118 *** (0.017)
Sci_based	0.096 *** (0.015)	0.016 *** (0.005)	0.139 *** (0.034)
HC_I	−0.000 * (0.000)	−0.000 *** (0.000)	0.000 (0.000)
Age	0.000 *** (0.000)	−0.000 *** (0.000)	0.000 (0.000)
Size	0.129 *** (0.001)	0.034 *** (0.000)	0.283 *** (0.005)
Centro	−0.025 *** (0.006)	−0.014 *** (0.002)	−0.053 *** (0.014)
LVT	−0.136 *** (0.006)	−0.045 *** (0.002)	−0.235 *** (0.012)
Alentejo	−0.111 *** (0.012)	−0.036 *** (0.004)	−0.182 *** (0.026)
Algarve	−0.235 *** (0.015)	−0.076 *** (0.005)	−0.455 *** (0.024)
RAM	−0.322 *** (0.017)	−0.092 *** (0.006)	−0.556 *** (0.024)
RAA	−0.367 *** (0.016)	−0.118 *** (0.006)	−0.612 *** (0.020)
ROA	−0.003 *** (0.001)	0.000 (0.000)	0.005 (0.007)
LEV	0.000 (0.000)	−0.000 *** (0.000)	0.000 (0.000)

Significance Levels: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Model 1 showed the impact of the variables on the probability of the firm exporting. This model indicated a negative relationship between FBs and export propensity. Therefore, Hypothesis 1a is supported. This suggests that FBs are less likely to internationalize than NFBs. This finding aligns with similar results obtained by [Cerrato and Piva \(2012\)](#), [Fernández and Nieto \(2005\)](#), [Graves and Thomas \(2004\)](#), and [Manogna and Mishra \(2021\)](#), who discovered a negative correlation between family ownership and the likelihood of the company going international. One plausible interpretation for this outcome is that FBs do not want to risk their financial wealth and control of the firm ([Gómez-Mejía et al. 2007](#)). Given the uncertainty of this operation, the risk aversion of these enterprises ([Berrone et al. 2012](#); [Cerrato and Piva 2012](#)) makes companies unwilling to internationalize. What concerns the Tech\_reg is that we can see a positive impact of more demanding innovation sectors compared to those that are supplier dominated (the less required sector on innovation). Consequently, Hypothesis 2a is supported. However, this is not a linear path, with more innovative sectors of activities representing more likelihood of going international, as the scale intensive is the one who most influences the probability of going global. However,

innovation improves the possibility of going international, as proven in previous studies (Fernández and Nieto 2005, 2006).

Model 2 exhibited the impact of the different proxies on the export intensity. It was possible to observe the negative effects of the FBs in the dependent variable, so Hypothesis 1b is supported. This result agrees with the studies of (Benito-Hernandez et al. 2014; Fernández and Nieto 2005, 2006; Graves and Thomas 2004; Manogna and Mishra 2021; Varas-Fuente et al. 2022). One possible explanation is the lack of internal funds (Benito-Hernandez et al. 2014) and the limited resources of these firms due to the small size of the majority (Fernández and Nieto 2005). FBs may consider bringing in new shareholders or taking on debts to acquire new resources. However, due to their reluctance, they often encounter challenges in this operation (Benito-Hernandez et al. 2014). In this estimation, the more innovative sector of activities positively impacts the firms' export intensity. However, in this case, there was no significant difference between *scale\_int*, *spe\_supplier*, and *sci\_based*, with their impact being virtually the same. Therefore, Hypothesis 2b is supported.

In the last Model (3), although family business proxy showed a positive effect, it was not statically significant, so Hypothesis 1c is not supported. There is no evidence that FBs positively or negatively affect the number of markets they export to. What concerns *Tech\_reg*, once again, is that the more demanding innovation sectors positively influenced the number of markets they export, with scale intensive contributing the most. It is also possible to observe that the weight of technological intensity was higher for the diversity of markets compared to the other proxies. Hence Hypothesis 2c is supported. Human capital intensity was negative and significant in Models 1 and 2, but its effect was almost null. Consequently, we cannot say that it has a significant influence on the process of internationalization. Thus, Hypothesis 3 is partially supported. This means that paying higher salaries to workers to attract qualified personnel and increase productivity has no significant effect on internationalization. The same scenario occurs for the age variable, whose effect is near zero. Therefore, the mentality on which a firm must grow step by step before going international is not supported. The size of the firm was positive and significant across the three models, meaning that large companies perform better at all stages of internationalization. With their greater availability of resources, larger firms are better equipped to overcome the obstacles associated with internationalization. The region variable, meanwhile, highlighted the characteristics of the Portuguese territory that contribute to internationalization. All regions negatively influenced the likelihood, intensity, and reach of export compared to the North region. This means that the North region possesses the infrastructures and the networking that allow it to be highly correlated to export activity. In contrast, firms from the RAM and RAA regions encountered more challenges in the internationalization process. Concerning the firms' financial status, only ROA turned out to be negative and significant in the likelihood of exporting. In the rest of the models, it turned out to be insignificant, just like the variable *Lev*. Overall, a firm's financial status did not have an impact on internationalization.

#### 4.2. Robustness Check

Two robustness tests were made to strengthen the obtained findings. Four interaction variables were added in the first test, one between FB and *HC\_I* and the other three between FB and *Tech\_reg*, for each dependent variable. As before, the results must be interpreted through marginal effects, as presented in Table 10 and not through the coefficients. The results suggest that FBs for a given level of technological intensity (*scale\_int*) outperformed NFBs, meaning that these firms stand out and are more capable of managing in technologically demanding sectors. Human capital intensity in FBs is positively associated, although in a small portion, with the diversity of markets where they export. Second, we checked the robustness of our results by dividing the sample into FBs and NFBs for every model. The results in Table 11 are like those presented in Table 9, with only the Alentejo region being not significant for NFBs in Models 8 and 9.



**Table 10.** Marginal effects of the panel data with new interaction variables.

	Model 4	Model 5	Model 6
	Exp_P	Exp_Int	Exp_Scope
FB	−0.033 *** (0.007)	−0.019 *** (0.002)	−0.073 *** (0.018)
Scale_int	0.093 *** (0.011)	0.010 *** (0.003)	0.107 *** (0.023)
Spe_supplier	0.076 *** (0.013)	0.018 *** (0.004)	0.120 *** (0.029)
Sci_based	0.108 *** (0.023)	0.017 ** (0.007)	0.090 ** (0.045)
FB*Scale_int	0.031 ** (0.013)	0.009 ** (0.004)	0.146 *** (0.027)
FB*Spe_supplier	−0.014 (0.015)	−0.002 (0.005)	0.003 (0.033)
FB*Sci_based	−0.020 (0.030)	−0.003 (0.009)	0.103 * (0.061)
HC_I	−0.000 ** (0.000)	0.000 *** (0.000)	−0.002 *** (0.001)
FB*HC_I	0.000 ** (0.000)	0.000 *** (0.000)	0.003 *** (0.001)
Age	0.000 ** (0.000)	0.000 *** (0.000)	0.000 (0.000)
Size	0.129 *** (0.01)	0.034 *** (0.000)	0.283 *** (0.005)
Centro	−0.025 *** (0.006)	−0.014 *** (0.002)	−0.052 *** (0.014)
LVT	−0.136 *** (0.006)	−0.045 *** (0.002)	−0.234 *** (0.012)
Alentejo	−0.111 *** (0.012)	−0.036 *** (0.004)	−0.180 *** (0.026)
Algarve	−0.235 *** (0.015)	−0.076 *** (0.005)	−0.452 *** (0.023)
RAM	−0.322 *** (0.017)	−0.092 *** (0.006)	−0.553 *** (0.023)
RAA	−0.367 *** (0.016)	−0.118 *** (0.006)	−0.609 *** (0.020)
ROA	−0.003 *** (0.001)	0.000 (0.000)	0.005 (0.006)
LEV	0.000 (0.000)	0.000 *** (0.000)	0.000 (0.000)

Significance Levels: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .**Table 11.** Marginal effects of the panel data with sample divided into FBs and NFBs.

	Model 7		Model 8		Model 9	
	Exp_P		Exp_Int		Exp_Scope	
	FB	NFB	FB	NFB	FB	NFB
scale_int	0.128 *** (0.008)	0.088 *** (0.010)	0.018 *** (0.002)	0.014 *** (0.004)	0.236 *** (0.019)	0.141 *** (0.025)
spe_supplier	0.064 *** (0.009)	0.070 *** (0.012)	0.015 *** (0.003)	0.020 *** (0.005)	0.108 *** (0.019)	0.129 *** (0.030)
Sci_based	0.089 *** (0.021)	0.102 *** (0.020)	0.013 * (0.007)	0.022 *** (0.008)	0.172 *** (0.049)	0.134 *** (0.048)

Table 11. Cont.

	Model 7		Model 8		Model 9	
	Exp_P		Exp_Int		Exp_Scope	
	FB	NFB	FB	NFB	FB	NFB
HC_I	0.000 (0.000)	−0.000 ** (0.000)	−0.000 (0.000)	−0.000 *** (0.000)	0.000 * (0.000)	0.000 (0.001)
Age	0.001 *** (0.000)	0.000 (0.000)	−0.000 (0.000)	0.000 *** (0.000)	0.000 (0.000)	−0.000 (0.000)
Size	0.135 *** (0.002)	0.117 *** (0.001)	0.034 *** (0.001)	0.037 *** (0.001)	0.270 *** (0.006)	0.299 *** (0.007)
Centro	−0.023 *** (0.007)	−0.027 *** (0.010)	−0.013 *** (0.002)	−0.017 *** (0.004)	−0.043 *** (0.015)	−0.054 ** (0.024)
LVT	−0.142 *** (0.007)	−0.124 *** (0.010)	−0.042 *** (0.002)	−0.052 *** (0.004)	−0.207 *** (0.013)	−0.250 *** (0.022)
Alentejo	−0.145 *** (0.015)	−0.047 ** (0.020)	−0.049 *** (0.005)	−0.011 (0.008)	−0.209 *** (0.027)	−0.080 (0.051)
Algarve	−0.256 *** (0.016)	−0.183 *** (0.030)	−0.076 *** (0.005)	−0.075 *** (0.010)	−0.425 *** (0.021)	−0.417 *** (0.061)
RAM	−0.320 *** (0.020)	−0.325 *** (0.035)	−0.086 *** (0.007)	−0.106 *** (0.011)	−0.497 *** (0.023)	−0.592 *** (0.053)
RAA	−0.369 *** (0.016)	−0.358 *** (0.037)	−0.115 *** (0.007)	−0.127 *** (0.012)	−0.544 *** (0.019)	−0.647 *** (0.052)
ROA	−0.002 * (0.001)	−0.007 *** (0.002)	0.001 (0.001)	−0.000 (0.001)	0.003 (0.008)	0.007 (0.010)
LEV	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	−0.000 *** (0.000)	0.000 (0.000)	−0.000 (0.000)

Significance Levels: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

## 5. Conclusions

The current research contributes to the literature on the relationship between family ownership and control on the multiple dimensions of internationalization of Portuguese firms belonging to the manufacturing sector. It addresses the impact of ownership on export propensity, intensity, and reach of exports. The three alternative proxies are meant to work as complementary perspectives of the internationalization strategy, providing a more complete picture in this domain. An evaluation of these three proxies for a wide temporal space (four years) has not yet been undertaken in the literature, to the best of our knowledge, allowing for a deeper analysis of the different levels of internationalization, thus answering the call of some researchers (Costa 2022). We also contribute to the empirical literature by refining the FB definition for those who, in the future, will use the same database (SABI) and also in the geographical contexts where surnames may pose this challenge.

The econometric analysis focuses on Portuguese firms that are often neglected in the literature and offers new insights into the characteristics of this entrepreneurial fabric, which may serve as an example for countries with similar ecosystems. Overall, family presence and management in the firm negatively affect the process of internationalization. These results are in line with previous evidence for the Portuguese case (Costa 2022), and also with evidence from Graves and Thomas (2004), whose study implements similar proxies; it also approaches the results of Calabrò et al. (2013). Moreover, the statistical insignificance in terms of the impact of being a family business on the scope of markets in which the firm does internationalize, is similar to the results provided by Arregle et al. (2017).

Perhaps the commonly found risk aversion, lack of funds, lack of resources due to their size, and the inflexibility of entry for foreign investors of these firms are some of the main arguments used in the literature for the negative influence of these businesses on internationalization. The literature has already provided solutions to help these businesses surpass these barriers. Given the potential reluctance of FBs to seek external counsel, the government can play a pivotal role in foresting networks that facilitate meaningful connections between proficient FB advisors and family enterprises (Graves and Thomas 2004).

These can help improve knowledge and connection with foreign suppliers and consumers (Lu et al. 2015).

High technological regimes performed better internationally at all levels, indicating that innovation plays an essential role in the internationalization of businesses. These findings are connected to the evidence provided by Almodóvar et al. (2016). These results are a valuable insight for policymakers, providing evidence to support the fact that the reinforcement of innovation ecosystems could help FBs to overcome some barriers to innovate. However, there is also a need to consider that, in the same way as in the overall entrepreneurial fabric, in the present sample, most FBs are concentrated in low-tech regimes, meaning that these sectors are less demanding in terms of innovation. Therefore, these enterprises normally rely upon two competitive advantages: low prices or high quality standards in international markets. Given European countries' difficulty competing with emerging economies regarding labor costs, the only solution for these businesses is to invest in premium and quality products, aiming for high added value. The analysis of this reality in the Portuguese context needs to be grounded in a particular culture. Future research could compare the Portuguese reality with other Mediterranean economies such as Spain and Italy to address the importance of the cultural singularities and the importance of regions.

We also found regional competitive advantages from the Northern region positively impacting internationalization. In this region, an ecosystem exists that helps firms overcome the difficult process of going international. The success generated in this region has a ripple effect, spreading its benefits through knowledge and networking to other entities within its sphere, resembling a cluster in which agglomeration economies are generating advantages. In the future, the introduction of variables proxying the regional effects could provide additional information of use to both managers and policy makers.

However, this study suffers from some limitations. The first one is the lack of data on R&D expenses, which is proxied using the technological regime previously presented in the literature, with some drawbacks arising from the generalized effect and not the firm effect reality. Another limitation is the lack of information about the formal qualifications of the employees in each firm. To address this information gap, a new proxy—average earnings per worker—was created following some productivity-related inspiration, enabling new interpretations and insights into the effects of human capital on internationalization. These limitations may indicate important future research directions, especially concerning human capital. It is important to investigate and understand the impact of hiring workers with higher qualifications to fully comprehend their direct effect on internationalization, as well as varying levels of education.

In conclusion, this study offers valuable insights into the internationalization dynamics of Portuguese manufacturing firms, particularly those with family ownership and control. The findings underscore the challenges family-owned businesses face and highlight the significance of factors such as technological intensity and regional competitive advantages. By addressing limitations and suggesting future research directions, this study paves the way for further exploration of the complex interplay among family dynamics, human capital, and internationalization. Lastly, these insights contribute to a more comprehensive understanding of strategies and opportunities for enhancing the global engagement of family-owned businesses in the Portuguese entrepreneurial fabric.

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## Notes

<sup>1</sup> <https://login.bvdinfo.com/R0/SabiNeo>, accessed on 11 April 2023.

<sup>2</sup> This action was carried out using Python.

<sup>3</sup> Nomenclature of Territorial Units for Statistics.

<sup>4</sup> The following steps were made: The proportionality (overdispersion, most commonly) parameter is estimated as the Pearson chi-squared statistic divided by the residual degrees of freedom, which is estimated in this case as 0.7448691. Since it is not above the unit (1) value, it indicates that the conditional data is not overdispersed. Following Rabe-Hesketh and Skrondal (2005), “Multilevel and longitudinal modelling using stata”, Stata Press, Texas, pp. 189–90, we can further check for overdispersion (or underdispersion) by estimating the model using the glm command with the scale(x2) option, which scales the standard errors of the coefficients using the square root of the Pearson statistic. If the standard errors’ estimates do not change much, it indicates that the conditional data are equidispersed and the Poisson model estimated is appropriate for these data.

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