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INITIAL RESOURCE HETEROGENEITY DIFFERENCES BETWEEN FAMILY AND NON-FAMILY FIRMS: IMPLICATIONS FOR RESOURCE ACQUISITION AND RESOURCE GENERATION

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ABSTRACT

A fundamental, but overlooked stream of resource-based theory (RBT) is the analysis of combinations of initial heterogeneous resource endowments with homogeneous resources that are acquired in the market. These combinations can generate heterogeneous, specific non-tradable resources, which are a potential source of superior competitive advantage and, hence, performance. In order to operationalize this idea empirically, we analyse the development of internationalization resources (considered a specific category of non-tradable resources) within family and non-family firms. Compared to non-family firms, we argue that family firms are able to combine a particular type of heterogeneous initial resource (i.e. familiness) with homogeneous tradable resources acquired in the market. This question is tested using a panel of family and non-family Spanish manufacturing firms for the period 1990 to 2010. As a result, this study contributes to the literature on RBT, extending previous theoretical and empirical research in this stream.

Keywords: resource-based theory, resource management, resource use, heterogeneity, strategic factor markets, family firms, internationalization, entrepreneurship.

INTRODUCTION

Resource-based theory (RBT) has become one of the most widely used theoretical perspectives in the field of strategic management over the last two decades (Barney, 1991; Barney et al., 2011; Newbert, 2007). RBT suggests that firm performance is primarily attributable to heterogeneous resource endowments (Penrose, 1959). This heterogeneity constitutes the cornerstone of resource use (i.e. the development of 'strategic resources'[1]) (Peteraf and Barney, 2003). Traditionally, two alternative mechanisms have been identified as the source of this type of heterogeneity: external acquisition in the so-called strategic factor markets (SFM) (Barney, 1986), and internal accumulation (Dierickx and Cool, 1989). However, heterogeneity and the creation of strategic resources can also originate in suitable combinations of existing idiosyncratic resources from externally acquired resources (Maritan and Peteraf, 2011). Additionally, heterogeneous initial resource endowments may allow firms to obtain profitable access to SFM (Adegbesan, 2009). We suggest that initial heterogeneity might provide companies with a superior ability to transform non-strategic resources acquired in the market into strategic resources. This argument is consistent with the notion of buying commodity resources that can then be converted into complex or strategic resources (Denrell et al., 2003; Maritan and Peteraf, 2011).

The primary goal of this study is to shed light on a fundamental and overlooked aspect of RBT (Molloy et al., 2011): Can firms with heterogeneous initial resource endowments combine them with resources acquired in the market in order to develop new heterogeneous resources? In addition, taking a step back, is it possible to identify these heterogeneous initial resource endowments (Maritan and Peteraf, 2011), which constitute a baseline for developing successive heterogeneous positions? A relevant dimension of firm heterogeneity in the context of RBT is the ownership regime (i.e. family firms *vs* non-family firms) (Barney et al., 2011). Resource

[1] Maritan and Peteraf (2011) distinguish between commodity resources that trade in well-functioning markets and complex (or strategic) resources that are derived from combinations and transformations of commodity resources exchanged in highly imperfect markets.

endowments that are distinct to a firm as a result of family involvement are usually identified in terms of the *familiness* of the firm (Habbershon and Williams, 1999). Consequently, we argue that familiness (taken as a heterogeneous initial resource endowment) can support family firms in creating or developing heterogeneous resource positions from acquired market resources. In other words, we consider that familiness connects tradable resource acquisition (i.e. resources acquired in SFMs) with the development of non-tradable specific resource endowments (i.e. internally accumulated resources). Ultimately, we assume that the new heterogeneous resources generated may improve firm performance.

Our research question is tested using a treatment and a control sample of Spanish family and non-family manufacturing firms, respectively, for the period 1990 to 2010, during which the firms began operating internationally through export activity. Both samples are composed of firms with significant differences in their initial resource endowments in terms of familiness. However, at the same time, both sets of firms show similar behaviour in terms of the type of tradable resources they acquire (external services acquired in the market). This allows us to analyse how the combination of heterogeneous initial resource endowments (i.e. familiness) and tradable resources can foster the creation of specific heterogeneous resources (e.g. internationalization capabilities). In addition, we find that this process exerts a positive impact on the total factor productivity growth, which is considered a suitable performance measure.

Our study contributes to the literature in the following areas. With regard to the resource management research stream, our study bridges the gap between resource acquisition and resource accumulation[2] by taking a heterogeneous initial resource endowment (familiness) as a cornerstone. In this sense, research on resource acquisition and resource accumulation has evolved separately. Following Maritan and Peteraf (2011), we argue that the creation of heterogeneous resource positions in firms may also arise from suitable combinations of

[2] In terms of Maritan and Peteraf (2011).

accumulating and acquiring resources. Our study presents preliminary empirical evidence that allows for the isolation and measurement of firms' heterogeneous resource initial endowments. As several scholars have noted (e.g. Newbert, 2007; Wilden et al., 2016), one of the main causes of the lack of progress in RBT is the difficulty of isolating, directly observing, and measuring heterogeneous resource positions over time. We address this problem by focusing on a specific business feature that can be isolated empirically and considered a heterogeneous resource endowment (familiness). In addition, we demonstrate how combining familiness with resources acquired in the market (in particular, R&D and marketing) enables family firms to build new heterogeneous resource positions (in our case, internationalization capabilities). Further, we show how this contributes to superior firm performance in terms of productivity growth. Additionally, this study explicitly employs RBT to advance the understanding of the potential differences between family and non-family firms. RBT has played a significant role in clarifying the ways in which family firms differ from non-family firms in terms of both organizational behaviour and outcomes (Chrisman et al., 2010).

THEORY AND HYPOTHESES

The Creation of Heterogeneous Resource Positions

The creation of heterogeneous resource positions in firms has traditionally been explained by the operation of two alternative (and complementary) mechanisms (Maritan and Peteraf, 2011; Makadok, 2001): 1) resource acquisition —buying— in SFMs (Barney, 1986); and 2) resource accumulation or internal development —building— (Dierickx and Cool, 1989). The first mechanism emphasizes the importance of superior information about the value of tradable resources when taking advantage of imperfect factor markets (Barney, 1986; Makadok and Barney, 2001). However, for some non-tradable firm resources (most intangibles), finding a

market is highly unlikely because they are firm-specific and, therefore, must be developed internally.

As suggested by Maritan and Peteraf (2011), the joint action of the accumulation (building) and acquisition (buying) mechanisms can be particularly important to creating or developing certain types of firm-specific capabilities (e.g. those related to internationalization or innovation). Thus, it is reasonable to assume that firms can initially invest in resources that are subject to market failure, and that these resources must be developed internally. This assumption is consistent with the findings in the literature on capability building (Amit and Schoemaker, 1993; Dierickx and Cool, 1989; Makadok, 2001). However, investment in these resources, which can contribute to creating heterogeneous resource positions, may require additional investment in certain tradable resources (Baldwin and Clark, 1992; Maritan and Peteraf, 2011). Firms cannot buy capabilities in the market, but they 'can buy tradable constituent resources used to build up the capability to the point that it can perform its intended task' (Maritan and Peteraf, 2011: 1378). Therefore, as recognized by these same authors, in the event that firms invest in capabilities, the mechanisms of building and buying can be interconnected in a sequential way. Nevertheless, we suggest that a firm's heterogeneous initial resource endowments constitute the cornerstone of this process. Thus, we assume that a firm combines heterogeneous initial resources with homogeneous resources in order to obtain new heterogeneous resources.

Heterogeneous initial resource endowments may allow firms to benefit from factor market trading (Adegbesan, 2009). Specifically, this author argues that, as a result of such heterogeneity, some firms are guaranteed to achieve superior returns when trading in SFMs, 'even without differential expectations about the future value of resources' (Adegbesan, 2009: 464). The key to achieving superior returns is the degree of complementarity between existing resources and available resources in SFMs. Additionally, heterogeneity in initial resource endowments 'can lead to different paths of resource and capability development, including different [behaviour]

and choices made in SFMs, giving them a critical role in the [subsequent] creation of heterogeneous resource positions' (Maritan and Peteraf, 2011: 1381). We consider two ways in which a firm can combine heterogeneous initial resources: with resources acquired in the market ('buy to build') or with resources built in-house ('build to buy'). We believe that it makes more sense to choose the first option for the objective we pursue here, because this enables us to show how a specific resource (the heterogeneous initial resource) is combined with a non-specific resource (buy; i.e. external services) in order to generate a new specific resource (build; i.e. internationalization capability). The second option is also interesting, that is, combining two specific (initial and internally developed) resources to analyse their effect on market access (buy). However, we consider that choosing this option would distance us from our goal of trying to identify a heterogeneous initial resource and, thus, a starting point.

Denrell et al. (2003) propose a theoretical framework to analyse potential inefficiencies in SFMs, which suggests that firms can acquire (buy) some resources, which they then transform internally into complex (or strategic) resources. These authors note the need to distinguish between commodity resources that are traded in well-functioning markets and complex or strategic resources. The latter can be developed internally from combinations and transformations of commodity resources for which there are 'thin, highly imperfect markets', at best. Thus, SFM transactions can contribute to capability building. Nevertheless, as argued by Maritan and Peteraf (2011), the authors do not explain how resources acquired in the market may be combined with internal resources to generate such complex or strategic resources. In this sense, based on Penrose's (1959) arguments, Maritan and Peteraf (2011: 1379) suggest that, 'firms competing in SFMs may have different intended uses for the same resource because managers perceive different opportunities for its use or they plan to combine it with complementary resources'. This reasoning is consistent with Wernerfelt's (2011) argument that

the value a firm can create with a new resource acquired externally depends, to a great extent, on the resources they already possess.

Heterogeneity generates differences in performance (Priem and Butler, 2001). The dependent variable in the RBT is the sustainable competitive advantage (SCA), a term that refers to heterogeneity in outcomes (Foss and Knudsen, 2003). Barney (1991) defines SCA as efficiency differentials (average costs) in equilibrium, which is in line with the arguments of Peteraf (1993). A critical assumption of RBT is that 'it is an efficiency-based explanation of performance differences' (Peteraf and Barney, 2003: 311). Foss and Knudsen (2003) define heterogeneity as the differential efficiency properties of resources. This definition of heterogeneity is in line with the Baney's definition of SCA. Efficiency and productivity are closely related concepts (Fried et al., 2008). Makadok (2001) analyzes the implications that capabilities have on the productivity of resources to which the firm has access. This author highlights that the primary purpose of a capability is to enhance the productivity of the other firm's resources. Thus, we can argue that capabilities as familiness contribute to the improvement of productivity in the use of resources acquired in the market, through the process of building of an internationalization capability.

Chi (1994) point out that in the traditional strategy literature strategic resources are commonly identified with technology, marketing and management. King et al. (2008) highlight the complementarity between R&D and marketing. Marketing enables the successful commercialization of innovations, and contribute to appropriating value for a firm's technological resources. At the same time, R&D also improves the value of marketing resources, enhancing customer relationships, facilitating the absorbtion of external information. Caves (1996: 7-8) noted that R&D intensity and advertising intensity have emerged as the most robust measures of intangible assets in the multinationality literature. These measures have been used by RBT literature for the analysis of multinational enterpreises (Kim et al., 2015).

The external acquisition of resources is assential in order to renew and expand the resource base that constrains future development, especially technological (Chatain, 2014). Srivastava et al. (2001) highlight the importante of invest in market-based resources in order to generate firm-specific resources. Firms use strategic factor markets to obtain the resources they cannot generate internally. Nevertheless, Chatain (2014) emphasizes the importance of strategic factor markets in industries where there are multiple opportunities for resource development by the company, as it happens in R&D intensive industries and in industries where customers have heterogeneous tastes, which increases the importance of marketing.

Familiness as a Heterogeneous Initial Resource Position in Family Firms

Firms can sustain heterogeneous resource positions over time, which can explain why firms behave and perform differently (Knott, 2003). The origin of heterogeneous resource positions can be found in firms' initial resource endowments (Ahuja and Katila, 2004). Under SFM logic, the ultimate source of heterogeneous resource endowments stems from previous and successive SFM transactions (Barney, 1986; Makadok and Barney, 2001). This means we must assume that there are infinite series of SFM transactions. However, it would be reasonable to assume that there must be a starting point (Maritan and Peteraf, 2011). This leads to the inevitable question: where is the starting point? Or, to put it another way, is it possible to identify the baseline of the development of successive heterogeneous positions? A relevant dimension of a firm's initial heterogeneity can be the ownership regime, namely as a family or non-family firm (Barney et al., 2011).

Family firms are complex entities that vary across a range of characteristics. In general, family firms are characterised by individuals who are linked by family ties, and who exert a meaningful influence on the business, for example, via ownership or managerial positions they hold (Duran et al., 2016; König et al., 2013). Family firms cannot be considered a homogeneous group (Chua et al., 2012; Duran et al., 2016; Kraus et al., 2016; Liang et al., 2014; Singla et al.,

2014). However, they share a common characteristic: the existence of unique resources, which the literature refers to as the familiness of the firm (Cabrera-Suárez et al., 2001; Frank et al., 2010; Habbershon and Williams, 1999; Sirmon and Hitt, 2003; Tokarczyk et al., 2007; Weismeier-Sammer et al., 2013). Familiness is defined 'as the unique bundle of resources a particular firm has because of the system's interaction between the family, its individual members, and the business' (Habberson and Williams, 1999: 11). Similarly, familiness is the combination of social, human, financial, and physical capital resources in a firm that result from interactions between family and business systems (Sharma, 2008). However, familiness constitutes socially complex tacit knowledge, and while such knowledge is not necessarily unique to the family firm, it is prevalent among such firms (Tokarczyk et al., 2007). In a similar vein, some researchers (e.g. Arregle et al., 2007; Hoffman et al., 2006; Pearson et al., 2008) propose that family firms may create a particular form of social capital from their resources, which is known as family capital (Hoffman et al., 2006). This family capital has the quality of being unique to the family firms that generate it (Levie and Lerner, 2009). Consequently, family capital may well satisfy the conditions of being rare, valuable, non-substitutable, and difficult to imitate, which can deliver a competitive advantage to the firm. We think that familiness (and, hence, family capital) satisfies most of the characteristics of the resource accumulation process (Dierickx and Cool, 1989): causal ambiguity, resource interconnectedness, and time compression diseconomies. Family firms differ from non-family firms in terms of the resources they deploy and in how they deploy them (Levie and Lerner, 2009).

Sirmon and Hitt (2003) identify five categories of characteristics that differentiate family firms from non-family firms: human capital, social capital, patient capital, survivability capital, and governance capital. Chrisman et al. (2005) refer to two complementary dimensions or approaches that explain familiness (Sharma et al., 2012): the family involvement and the essence of such involvement. The involvement approach focuses on family ownership and control,

setting a minimum threshold of family influence. The essence approach refers to behaviors and resources that a family contributes to a business. Astrachan et al. (2002) propose the F-PEC scale that enables the assessment of family influence on a continuous way rather than restrict its use as a categorical (e.g., yes/no) variable. This scale comprises three subscales: power, experience, and culture. This scale has been used and validated by some studies (e.g. Chrisman et al., 2012; Holt et al., 2010; Klein et al., 2005; Merino et al., 2015). Additionally, Frank et al. (2016) developed the family influence familiness scale, composed by six dimensions: ownership; management, and control; proficiency level of active family members; sharing of information between active family members; transgenerational orientation; family-employee bond; and family business identity.

Thus, we argue that familiness constitutes a heterogeneous initial resource position in family firms. The different bundles of resources that shape familiness can be combined with other resources (homogeneous), which can be externally acquired (Adegbesan, 2009; Conner, 1991; Dierickx and Cool, 1989; Peteraf, 1993; Thomke and Kuemmerle, 2002). These combinations of resources can then be used to configure new heterogeneous resource positions.

Foss and Knudsen (2003) claim that immobility and uncertainty are necessary conditions for the expression of SCA while heterogeneity is best viewed as an additional condition. We can consider family as an inmobile resource when compared to non-family businesses; that is, such a characteristic is specific to a family business (i.e. heterogeneous) and can not easily be transferred to a non-family business. Familiness increases the uncertainty about the use of resources acquired in the market when compared to the use that a non-family company can make of the same resources. This is the mechanism of capability building referred to by Makadok (2001) whereby, by definition, a firm's capability can only generate economic profit after resource acquisition.

From Initial Heterogeneity and Resource Acquisition to the Creation of Heterogeneous Resource Positions

As noted above, family firms possess an idiosyncratic and valuable resource, namely familiness. Familiness can constitute a baseline for the development of successive heterogeneous resource positions. Such development can be associated with two alternative (or complementary) mechanisms: access to the market (buying) and internal development (building). The heterogeneous initial resource positions can be combined with resources acquired in the market to build additional heterogeneous resource positions.

Only firms with unique information can 'outsmart' SFMs in acquiring additional resources that are below their true value (Barney, 1986). The possession of unique information makes it necessary to have superior expectations about the future value of acquired resources. However, certain resources acquired in the market may take on an idiosyncratic value when they are integrated within a firm's current bundle of resources, thereby creating additional value (Adegbesan, 2009; Sirmon and Hitt, 2003; Wernerfelt, 2011). This may be especially applicable for intangible resources (Carpenter et al., 2001; Sirmon and Hitt, 2003). Obviously, the acquisition of some intangible resources in the market can allow firms to modify their resource stocks (Karim and Mitchell, 2000), which can ultimately help these firms to create new heterogeneous resource positions. An important difference between family firms and non-family firms lies in the effectiveness of their absorption of external resources (Sirmon and Hitt, 2003). Following this reasoning, family firms can be more effective than non-family firms in integrating certain intangible resources acquired in the market.

This process of integrating acquired resources and effectively developing heterogeneous resource positions over time requires considerable human capital experience. In other words, it is a primary source of tacit knowledge. Family firms can enjoy certain advantages in this regard, assuming they usually involve family members in management activities much earlier than most

non-family firms. Nevertheless, compared to non-family firms, family managers are less likely to have the variety of experience needed to configure and leverage resources (Sirmon and Hitt, 2003: 351). However, given that family firm knowledge resources are likely to become path dependent, the acquisition of new resources from the market may be especially important in guaranteeing a firm's success and survival in a highly and uncertain competitive landscape. Such acquisition activities, which represent an important avenue for firms to obtain new complementary resource stocks (Barkema and Vermeulen, 1998; Vermeulen and Barkema, 2001), are critically relevant to family firms (Sirmon and Hitt, 2003).

We can also consider familiness to serve as the foundation for a particular mental model or for managerial cognition (Ginsberg, 1994). Managers with different mental models can observe the same industry or the same firm, and not only conceptualize the resource system differently, but also suggest different relevant resources to achieve a competitive advantage (Kunc and Morecroft, 2009). As a result, managers identify, cultivate, maintain, and deploy rent-producing resources (Ginsberg, 1994) in different ways. This can constitute a cognitive heterogeneity between family firms and non-family firms in terms of varying abilities to manage and integrate resources. These managerial mental models may provide family firms with an advantage in using market-acquired resources as compared to non-family firms. Additionally, in family firms, it is possible to find fewer intra-firm differences in managerial mental models, which might reduce disagreements over resource-building strategies. Family firms may also have advantages over non-family firms in terms of reaching a consensus with regard to the view of the firm, the industry, and the relevance of resources and how to combine them to obtain comparative advantages. These advantages may be particularly important when family firms decide to invest in risky activities, such as the development of innovation or internationalization capabilities. For example, Zahra (2003) observes that the involvement of family members in management positions positively correlates with internationalization. In addition, Tsao and Lien (2013) find

that family management can help mitigate the agency problems linked to internationalization, enabling them to achieve a stronger impact on performance from internationalization than non-family firms are able to do.

Family firm managers often possess more complete and appropriate knowledge of the resources that they evaluate (Sirmon and Hitt, 2003). In obtaining resources from the market, family firms can use unique information, which may facilitate acquiring resources below their market value (Barney, 1986; Makadok, 2001). However, a resource may have an idiosyncratic value when it is integrated into an acquiring firm's bundle of resources, thereby contributing to the creation of new heterogeneous positions. In a similar way, the idiosyncrasies of a family firm can entail valuable opportunities that are not visible to non-family firms, which might imply an advantage that family firms have over non-family firms. In the process of opportunity discovery, several of these components are necessary to exploit opportunities (Denrell et al., 2003). These authors implement Simon's arguments on complex systems (Simon, 1962) to suggest that a firm is more likely to discover opportunities that require a complex combination of commodities if such opportunities can be assembled using subsystems that are already available, because the commodities are considered to be valuable on their own. It is likely that the necessary subsystems are only available to, or considered to be valuable by the firms that discovered the opportunities. Among other explanations, Denrell et al. (2003) suggest that only firms that possess a complementary set of resources can make these subsystems valuable.

The social capital of a firm may also significantly improve the acquisition of certain valuable external resources. In fact, social capital can provide information, technological knowledge, and access to markets and, hence, to complementary resources (Hitt et al., 2001, 2002). Accordingly, it is expected that social capital has important effects on firms' activities, such as the creation of intellectual capital, inter-firm learning, supplier interactions, inter-unit and inter-firm resource exchanges, product innovation, and entrepreneurship (Adler and Kwon, 2002; Argote, 2012;

Sirmon and Hitt, 2003: 342). Social capital can also reduce the transaction costs related to searching, screening, adjustment, and contract enforcement (Gulati, 1998), and can improve the terms under which a firm can effectively use acquired resources.

In general, social capital is composed of three dimensions: structural, cognitive, and relational. These dimensions constitute the specific elements of familiness (Pearson et al., 2008). Each of these dimensions creates family firm capabilities and facilitates ties between a family firm and external stakeholders. Firms can build more effective relationships with suppliers, customers, and support organizations (e.g. financial institutions), while increasing legitimacy with other important stakeholders (Sirmon and Hitt, 2003). In particular, structural social capital can lead to organizational processes and capabilities (Pearson et al., 2008). The network ties of the structural dimension of social capital serve as a conduit for access to additional resources (Nahapiet and Ghoshal, 1998; Pearson et al., 2008). Thus, a firm's social capital affects its ability to acquire resources (Arregle et al., 2007; Sirmon and Hitt, 2003). Social capital increases the availability of resources, such as information, technology, knowledge, financial capital, and distribution networks. Specifically, a firm's relationship with suppliers affects its access to valuable external resources, such as raw materials and capital. These relationships can be critical to successful access to SFMs. Social capital also facilitates collaboration between firms (Dyer and Singh, 1998). Additionally, social relationships and strong ties provide an informal structure for efficient information flow (Pearson et al., 2008). As suggested by Adler and Kwon (2002: 28), 'Social capital facilitates access to broader sources of information and improves information quality, relevance, and timeliness.'

A firm's social capital also contributes to its legitimacy and reputation, which may be particularly important for smaller and entrepreneurial firms (Lounsbury and Glynn, 2001). A family's reputation enhances the firm's relationship with stakeholders (Habberson and Williams, 1999). Levie and Lerner (2009) suggest that family firms can capitalize on reciprocal altruism to

work together successfully, build strong relationships with their stakeholders, and preserve or build the long-term reputation of their business. In this regard, we further assume that family firm managers are especially interested in building up and maintaining long-term and trust-based relationships with external and internal stakeholders (Berrone et al., 2012; Duran et al., 2016). In fact, these long-term and trust-based ties are considered an important resource, facilitating, for example, internationalization (Kontinen and Ojala, 2011a, 2011b). The focus of family firms on ties to external stakeholders can embed these organizations in trust-based networks (Duran et al., 2016; Uzzi, 1997) and endow them with a superior ability to leverage external networks for internationalization purposes (Kontinen and Ojala, 2011a). Of particular importance is the focus of family firms on internal stakeholders, and especially their employees. Family firms tend to exhibit comparatively closer ties with their employees, as compared with prevailing standards in non-family firms (Almodóvar et al., 2016; Duran et al., 2016; Sirmon and Hitt, 2003). These closer ties can lead to particularly high levels of human capital that are likely to play an important role in internationalization, which may be constrained by the value of the firm's human capital (e.g. Cerrato and Piva, 2012; Hitt et al., 2006). A plausible explanation for this is that, inter alia, employees' tenures are usually longer in family firms (Lansberg, 1999), leading to high levels of experience in product- and market-specific knowledge.

The development of strategic resources (such as those related to internationalization) usually requires a long-term horizon, and this is a distinctive feature of family firms. The long-term orientation of family firms allows them to dedicate resources to innovation and risk taking, as well as effectively integrating and absorbing new resources (Sirmon and Hitt, 2003). Thus, when family firms engage in a resource evaluation process, the freedom to use the most appropriate time horizon, as opposed to one imposed by the market, allows for more accurate evaluations (Sirmon and Hitt, 2003). During resource integration, family firms are more likely than non-family firms are to use creativity and long-term time horizons to develop the best fit (or

integration) of resources. This focus allows for the realization of returns through the configuration and leveraging of resources. In particular, reputation is a resource that enhances the very long-term robustness of a business (Miller et al., 2008). Moreover, family firms are believed to be more interested in building enduring networks with clients and other suppliers of valuable resources (Miller et al., 2008).

The adoption of a long-term vision is more likely in family firms than in non-family firms, because family firms possess patient financial capital and survivability capital, which can influence the effectiveness of absorbing external resources to successfully develop, for example, strategic resources associated with internationalization (Sirmon and Hitt, 2003). In this context, Graves and Thomas (2008) suggest that the development of internationalization capabilities in family firms is strongly influenced by the specific financial resources available, as well as the ability to commit and use such financial resources. Similarly, Claver et al. (2009) find that the long-term vision of family firms is an important factor favouring or encouraging greater international engagement. Therefore, it seems clear that such resources may greatly facilitate the pursuit of long-term and more creative and innovative capabilities and/or activities. It is also more likely that family firms use both long-term time horizons and creativity to develop the best fit between their current bundle of resources and resources acquired externally (Sirmon and Hitt, 2003). The generational outlook and patient capital allow these firms to devote the appropriate time to cultivating the necessary links that facilitate rich resource acquisitions (Sirmon and Hitt, 2003) and appropriate combinations with the existing resources to ultimately achieve superior performance.

The above reasoning can be summarized as follows. Firms possess initial resource endowments that can be heterogeneous. We can isolate and identify a particular category of these resources in the case of family firms (familiness). These resources can be combined with externally acquired homogeneous resources (buying) to promote the creation of heterogeneous

resources (building), such as internationalization capabilities. Ultimately, this process should lead to firms achieving superior performance.

We propose the following hypotheses:

H1. *In family firms, heterogeneous initial resource endowments (i.e. familiness), combined with non-specific (homogeneous) resources acquired in the market will contribute to the internal development of non-tradable specific (heterogeneous) resources.*

More specifically, we propose the following:

H1a. *Heterogeneous initial resources combined with resources acquired in the market will have a positive effect on the internal development of non-tradable specific (heterogeneous) resources.*

H1b. *Internally developed heterogeneous resources will positively influence firm performance.*

DATA AND METHODS

Data and Sample

We use data drawn from the *Encuesta Sobre Estrategias Empresariales* (Survey on Business Strategies; ESEE, hereafter) for the period 1990 to 2010. This is a yearly survey conducted by the SEPI Foundation and covers a wide range of Spanish firms operating in the country's manufacturing sector. One of the main characteristics of the ESEE is its representativeness with respect to the reference population. The reference population is composed of Spanish manufacturing firms (family and non-family) with 10 or more employees. Importantly, all information contained in the ESEE is subject to quality and consistency controls. Studies that use the ESEE for the analysis of the family firm employ a dichotomous measure (e.g. Beneito et al., 2015; Bocatto et al., 2010; Greenwood et al., 2010; Kotlar et al., 2014). Also, this database has also been used by studies in analyses of internationalization strategies (e.g. Esteve-Pérez and Rodríguez, 2013; Fernández and Nieto, 2005, 2006; Fernández-Olmos et al., 2016; García et al., 2012; Golovko and Valentini, 2011, 2014; López and García, 2005; Salomon, 2006; Salomon

and Byungchae, 2010; Salomon and Jin, 2008). Pukall and Calabrò (2014: 107) examine 72 articles on the internationalization of family firms and found that "the vast majority of studies use a minimum percentage of ownership in combination with the requirement of at least one family member being in a management position in the company as the defining characteristics of a family firm".

To verify the hypotheses, we selected a sample composed of family and non-family firms. In addition, to isolate the internationalization decisions, we selected firms that began their international activity by exporting during the analysis period. Thus, it is possible to compare two different groups of firms that face the same decision and that use the same type of non-specific tradable resources (i.e. external services). Therefore, our sample allows us to check for possible differentiated behaviour between family and non-family firms. Our final sample includes 261 firms who began their internationalization process during the period 1990 to 2008: 161 of these firms are family firms, and 100 are non-family firms. We have created an unbalanced panel of 1,501 observations. The sample size is the result of a series of decisions determined by the nature of the hypotheses. First, we consider a time frame of 10 years in our empirical analysis to capture the potential development and/or creation of an internationalization capability in a firm. To catch the non-tradable firm-specific nature of resources inherent in internationalization capability, we required that the firms in our sample began exporting within the period 1990 to 2008, and then continued exporting on a permanent basis for at least three consecutive years. This condition allows us to distinguish between firms in which international activities can be considered to be a transitory or punctual phenomenon (because they lasted for less than three consecutive years) and those where such activities are a more consolidated phenomenon (because they were performed over a period of three years or longer). This minimum period agrees with the studies of Andersson and Lööf (2009) and Love and Ganotakis (2013). These studies examine the role of persistence in international export activities on firm performance, which the two studies define

in terms of productivity gains and innovation, respectively. Importantly, this is also in line with prior research that claims that the development of non-tradable resources is a time-consuming process (e.g. Dierickx and Cool, 1989).

In our empirical study we control two potential sources of heterogeneity within family firms, which are identified as important factors that determine the process of internationalization: the percentage of family participation and the presence of external members in the board of directors (Fernández and Nieto, 2005; Sciascia et al., 2012). In our sample of 161 family businesses that start exporting, the family maintains 100% ownership in all cases. Regarding the participation of external directors, we do not have information to control this extreme, but the family businesses of our sample have a mean age of 15 years and an average size of 75 employees, in addition to the family maintains the 100% of the property, which minimizes this potential source of heterogeneity.

Variables

A fundamental point in our study is to distinguish between family firms and non-family firms. There is still no consensus on a definition of a family firm in the family firm literature (e.g. see Duran et al., 2016; Kraiczy, 2013; Miller et al., 2007). In this study, we are only able to grasp the dimension of family involvement, not essence (Sharma et al., 2012). This is a common limitation to which prior research assumed that both dimensions are highly correlated to the extent of family involvement in the firm (e.g., Berrone et al., 2010; Gomez-Mejia et al., 2010; Zahra, 2003). This assumption has also received empirical validation (Chrisman et al., 2012; Chrisman and Patel 2012). Thus, we adopt an objective measure of family influence on decision making in a dichotomous way, consistently with other studies (e.g., Cruz et al., 2010; Sirmon et al., 2008; Kotlar et al., 2014), focusing on the family status of the top management team[3]. Our

[3] Kontinen and Ojala (2010) identify four criteria usually applied: ownership, management, continuity and subjective perception. The most common way of defining a family firm is a combination of ownership and management criteria.

database includes the number of owners and owner's relatives that occupy top managerial positions. Based on this information, state that a firm belongs to a family (i.e. it is a family firm) when there are one or more family members occupying top managerial positions. Thus, we define the variable *F* as a dummy variable that takes value 1 if at least one family member is involved in the top management team[4].

The dependent variable used to test Hypothesis 1a represents the firm's internationalization capability. This variable also acts as a mediating variable to analyze Hypothesis 1b. The internationalization capability constitutes a specific type of non-tradable resource that can be used by a firm to successfully obtain access to foreign markets. Importantly, this constitutes a sort of internally generated resource that usually comes from combinations of different resources, such as physical and financial resources, knowledge, expertise, technology and R&D activities, human capital and management capabilities, networks skills, and location resources (e.g. Fernhaber et al., 2008; Zahra et al., 2000). These capabilities are precisely in line with several internationalization theories that identify the possession of different types of strategic resources as the basis for a successful expansion of firms to new geographical markets (e.g. Alvarez, 2004; Andersen and Kheam, 1998; Knudsen and Madsen, 2002; Zahra and Nielsen, 2002). We use export intensity, measured by the ratio of export sales to total sales, as a proxy for a firm's internationalization capability. In fact, exporting is considered the most prevalent form of international expansion for most firms worldwide, and particularly for SMEs (e.g. Cerrato and Piva, 2012; Salomon and Shaver, 2005). Thus, the dependent variable used to test Hypothesis 1a is *Export Intensity* (*EI*) (e.g. Bell et al., 2001; Love and Ganokatis, 2013; Westhead et al., 2001; Zahra, 2003). However, this measure of a firm's internationalization capability goes beyond simply considering export intensity. As explained above, we require that the sample firms that

[4] In fact, the ESEE contains a specific question about the number of family owners and assistance in leadership and management positions in a firm. The use of this measure of a family firm, focusing on family participation in management, rather than using other measures based on ownership, is also justified by the impossibility of determining from the data the ownership stakes between family and non-family members.

began export activities continued to do so for at least three consecutive years (e.g. Love and Ganokatis, 2013).

A large body of literature addresses the internationalization capability of family firms through export intensity. However, this literature is far from being conclusive. Some studies find that family firms are less prone and slower to internationalize than their non-family counterparts (e.g. Fernández and Nieto, 2005; Graves and Thomas, 2006; Okoroafo, 1999). Other studies suggest that family firms have unique characteristics that promote internationalization, or export intensity (e.g. Davis et al., 1997; Zahra, 2003). Moreover, Zahra (2003) argues that the positive effect of family ownership on internationalization is reinforced when family members participate in control and management activities. The latter argument is in line with our theoretical reasoning above.

The dependent variable used to test Hypothesis 1b represents firm performance. We consider *Total Factor Productivity Growth* (*TFPG*) to measure performance in family firms using *Total Factor Productivity*[5] *(TFP)* (Cucculelli et al., 2014; Levinshon and Petrin, 2003). Productivity can be considered to be a better measure of firm performance than accounting-based measures, because the latter measures may be subject to manipulation by management (e.g. Carton and Hofer, 2006; Miller et al., 2007). Another key limitation of accounting-based measures is that they only provide a short-term perspective, because they are based on past and present values. In contrast, production efficiency-based measures (such as productivity) can provide a long-term perspective because they consider future-oriented aspects. From this standpoint, productivity is a measure more closely linked to the concept of value-creation, which is an inherent aspect of RBT. Productivity is also a suitable approach to firm performance, because a critical assumption of RBT is that 'it is an efficiency-based explanation of performance differences' (Peteraf and

[5] Levinston and Petrin (2003) proposed a semi-parametric productivity estimation. In addition, Petrin et al. (2003) include the Stata command to implement the Levinston–Petrin approach using third-degree polynomials. We use this approach in our firm productivity estimation. As such, we estimate a specific sectoral production function.

Barney, 2003: 311). Accordingly, productivity allows us to assess efficiency-based differences among firms, which is in line with our theoretical reasoning. The existence of a positive link between productivity and firm value has been suggested by several researchers (e.g. Bao and Bag, 1989; Palia and Lichtenberg, 1999; Riahi-Belkaoui, 1999). In general, these researchers argue that productivity, rather than short-term earnings, is a more reliable measure of firm performance. Some RBT studies have used productivity as independent variable (e.g. Henderson and Cockburn, 1994; Huselid, 1995; Koch and McGrath, 1996; Neal et al., 2005; Ray et al., 2004) We must point out that some authors, under the resource-based logic, consider that for measuring firm performance, are more appropriate profit-based measures, because "is the market's selection criterion determining which firms stay in the game and leave, and also which firms get more capital for growth and which get less" (Kaufman, 2015: 524).

The moderating variable for testing Hypothesis 1a tries to proxy the non-specific (homogeneous) resources acquired in the market. *External Services* (*ES*), which is measured in the following way: $ES_{i,t} = \frac{ES'_{i,t}}{\overline{ES_t^J}}$, where, $ES'_{i,t}$ represents the external services acquired by firm *i* at time *t*, and $\overline{ES_t^J}$ denotes the average external services in sector *j* at time *t*[6]. External services are measured as the ratio of the sum of external expenditures on R&D, as well as advertising and public relations expenses[7], to sales. In our view, this variable is a good proxy for certain types of intangible resources that can be acquired freely and in identical conditions by all firms (both family and non-family firms) in the market. Thus, we examine the potential effect of this variable on the variables denoting international capability (*EI*) to test Hypotheses 1a.

[6] We are grateful for the suggestion made by an anonymous Reviewer on this point.

[7] These variables refer to services purchased in the market from other organizations or individuals. In the case of R&D, the database distinguishes between internal and external R&D expenses. According to the database, both expenses have an accounting counterpart in the accounts of group 6 of the Spanish accounting plan. According to the Spanish accounting plan, the accounts of this group are used to reflect the acquisitions made by the company in its business activities. It refers to external expenses incurred by the company, without specifying whether a contract exists or are timely purchases in the market. In the case of advertising and public relations expenses, is not possible to break down advertising and public relations expenses.

The services considered are intangible resources that both family and non-family firms may acquire in identical conditions in the market. Using this proxy variable, we intend to measure the acquisition of key intangible resources as part of firms' strategic behaviour. We consider the external resources we analyse empirically to be knowledge-intensive business services (KIBS). KIBS are 'those services which offer to clients strategic information and expertise which is relatively intangible, potentially durable in its effects and [concurs] with problem solving and [policymaking] rather than routine administration' (O'Farrell and Moffat, 1995: 112). In particular, the use of KIBS is important in internationalization (Shearmur et al., 2015).

There is sound evidence of the effect of innovation on internationalization (Becker and Egger, 2013; Cassiman and Golovko, 2011, Cavusgil and Zou, 1994; Trevino and Grosse, 2002; Westhead et al., 2004). In fact, Burgel et al. (2001) found that firms reporting higher levels of R&D intensity were significantly more likely to be exporters. The propensity to export has been linked to technological awareness (Prefontaine and Bourgault, 2002) and technology intensity (Trevino and Grosse, 2002). Westhead et al. (2004) suggest that effort in advertising increases the probability of exporting. On the other hand, competing in foreign markets usually requires market-specific knowledge. This knowledge can be gained mainly through experience in the market, which is country-specific and cannot be transferred between firms or business units (Johanson and Vahlen, 1977, 1990; Luostarinen, 1980; Madhok, 1996, 1997). Thus, the learning process for the development of internationalization capabilities is intensive in marketing investments, which include, among others, advertising and public relations expenses in the foreign market.

In order to facilitate a homogeneous comparison between family and non-family firms and to reduce the risk of omitted variable bias, we incorporate a set of control variables. *Internal R&D intensity* is measured as the ratio $Int.R\&D_{i,t} = \frac{Int.R\&D'_{i,t}}{\overline{Int.R\&D^{J}_{t}}}$, where $Int.R\&D'_{i,t}$ is the internal R&D expenditure over total sales by firm *i* at time *t*, and $\overline{Int.R\&D^{J}_{t}}$ is the internal R&D

expenditure over the average total sales in sector *j* at time *t*. Then, *EOR* (export through own resources) is a dummy variable that takes the value one if the firm uses its own resources to gain access to foreign markets, and zero if the firm uses a specialized intermediary or a cooperative agreement with other firms or foreign headquarters to assess international markets. In addition, *Age* is the difference between the current year and the year the firm began operating; *Size* is the total number of a firm's employees; and *Foreign* is a dummy variable that takes the value one if the percentage of a firm's total equity owned by foreign capital sources is greater than 50%, and zero otherwise. We also include TFP_{t-1} as a control variable (i.e. one-period lag of TFP) to capture the dynamic adjustment of productivity. Then, *Group* is a dummy variable that takes the value one if the firm is independent, and zero otherwise[8] (i.e. the firm is a subsidiary, or is integrated into a corporate group). In the timeframe considered in this study (1990-2010) there are several years associated with the recent economic crisis. Thus, we also include a dummy variable (*Crisis*) to control for the potential effect of the crisis (i.e. from 2008 to 2010).

Empirical Model

In order to test our hypotheses, we empirically estimate the possible effect of combining a firm's heterogeneous initial resource endowments (i.e. familiness) with non-specific tradable resources acquired in the market on the internal development of non-tradable specific resources, and their impact on performance. To that end, initially we specify two regression models.

Hypothesis 1a requires to test if family firms engage in different behaviour in their internationalization activity than non-family firms do. Next, we focus on the impact of external services in terms of this differential behaviour. To this end, we compare the differences in the export intensity of the family (the 'treatment group') and the non-family (the 'control group') firms that began export activities. A difference-in-differences (DID) estimation is a useful

[8] About 17% of the firms considered in this study belong to a corporate group, although this percentage is very different between family and non-family firms (7% *vs* 30%, respectively).

statistical tool to make such a comparison (e.g. Bertrand et al. 2004, De Loecker, 2007; Greenaway and Kneller, 2008; Yang and Mallick, 2010). Specifically, this method allows us to calculate the potential effect of a treatment (in our case, the moderating variable, *ES*) on an outcome (in our case, the mediating variable, *EI*) by comparing the average change in the outcome variable over time for family firms to the average change over time for the non-family firms.

We propose the following specification to test Hypothesis 1a:

$$EI_{i,t} = \gamma_0 + \gamma_1 F_i + \sum_{t=1}^{10} \beta_t PE_t + \sum_{t=1}^{10} \alpha_t (F_i * PE_t) + \gamma_2 ES_{i,t-1} + \gamma_3 \left(F_i * ES_{i,t-1}\right) + \sum_{t=1}^{10} \mu_t \left(F_i * PE_t * ES_{i,t-1}\right) + \gamma_4 X_{i,t} + f_i + \varepsilon_{i,t}, \quad (1)$$

where $EI_{i,t}$ is the export intensity of firm *i* at year t $(t \geq 0)$, after starting export activity; F_i is a dummy variable that takes the value one for family firms, and zero otherwise; γ_1 represents the effect of F_i on $EI_{i,t}$ in the year when export activities began; PE_t is a dummy variable that takes the value one for each year after starting export activities $(\forall\, t = 1, \ldots, 10)$[9]; β_t is the time effect of *t* years after starting export activities; $F_i * PE_t$ is the interaction of family firm dummy with the year dummy, after starting export activities, taking the value one for each of the *t* years that have passed since the family firm began exporting, and zero otherwise; α_t represents the effect of family firms on $EI_{i,t}$, *t* years after exporting began; $ES_{i,t-1}$ are external services lagged one year; γ_2 represents the effect of external services on $EI_{i,t}$ in the year exporting began; $F_i * ES_{i,t-1}$ is the interaction between the dummy variable that identify the family firms F_i and the level of external services used $ES_{i,t-1}$; γ_3 represents the joint impact on export intensity of external services $ES_{i,t-1}$used for family firms F_i, prior to exporting; $F_i * PE_t * ES_{i,t-1}$ is the interaction between the dummy variable that identify the family firms F_i, the level of external

[9] The time horizon is 10 years, the time that is necessary to create internationalization capability. As noted above, we consider a maximum time frame of 10 years to identify the potential development and maintenance of a firm's internationalization capability.

services used $ES_{i,t-1}$, t year after exporting began PE_t; μ_t represents the joint impact on $EI_{i,t}$ of $ES_{i,t-1}$ and F_i in year *t* after exporting began; $X_{i,t}$ is a vector of firm-specific control variables; f_i is the firm fixed effect[10]; $\varepsilon_{i,t}$ is the error term.

A necessary condition to carry out DID estimation is to have a homogeneous group of family firms and non-family firms from the time when they began to operate internationally. This homogeneity between both groups of firms can initially be guaranteed if it is assumed that the start-up of the internationalization process involves sunk costs in both groups of firms (Melitz, 2003). The result of *Hotelling test* confirms the equality of means between family and non-family firms, when starting the export activity, in a set of relevant characteristics of both groups of firms: *TFP*, *Advertising Intensity* (measured as the ratio of advertising expenditure to total sales), *Total R&D Intensity* (measured as the ratio of total expenditure on R&D to total sales), *Age*, and *Size* (see Table 1). These characteristics have been considered by many prior empirical studies that have explored the potential differences between both types of firms (e.g. Anderson and Reeb, 2003; Craig et al., 2014; Jorissen et al., 2005; Kashmiri and Mahajan, 2010; McConaughy et al., 2001).

Insert Table 1

We analyse if our mediating variable, *EI* (i.e., internal resources developed), improves *TFPG* (i.e., firm performance). We specify this model only for the sample of family firms. We propose the following specification in order to test Hypothesis 1b:

$$TFPG_{i,t} = \gamma_0 + \gamma_1 EI_{i,t} + \gamma_2 X_{i,t} + f_i + \varepsilon_{i,t}, \qquad (2)$$

[10] The firm-level dummy variables allow us to control for systematic unobserved heterogeneity (Armstrong and Shimizu, 2007; Henderson and Cockburn, 1994). If we consider that the sectoral mobility of firms is reduced or zero, the firm-level dummy variable includes the sectoral effect.

where $TFPG_{i,t}$ is the *TFP* growth of firm *i* at year *t*; $EI_{i,t}$ is export intensity at year t $(t \geq 0)$, after starting export activity, γ_1 represents the effect of export intensity on performance; $X_{i,t}$ is a vector of firm-specific control variables; f_i is the firm fixed effect; $\varepsilon_{i,t}$ is the error term.

We propose the following specification to test whether *F* and *ES* has a direct influence on *TFPG*. More specifically, this econometric model has been designed to assess the extent to which *EI* serve to mediate the effect of *F* and *ES* on *TFP* growth:

$$TFPG_{i,t} = \gamma_0 + \gamma_1 EI_{i,t} + \gamma_2 ES_{i,t-1} + \gamma_3 X_{i,t} + f_i + \varepsilon_{i,t}, \quad (3)$$

where $ES_{i,t-1}$ is *ES* lagged a year; γ_2 represents the direct effect of *ES* used by the family firms on *TFPG*.

Our Hypothesis 1 suggests a moderated mediation effect between our variables of interest, that is, the relationship between family vs non-family firms with the mediator, the export intensity (*EI*) is moderated by external services (*ES*), and the mediator is directly related to performance (*TFPG*).[11] Preacher et al. (2007) prescribed a procedure to assess the combination of moderation and mediation effects. This approach allows us to test the indirect effect of *ES* on *TFPG* through *EI*. The implementation of this procedure requires two models: the first model analyses the moderator effect of *ES* (to this purpose, we have used the model proposed in Equation 1), and a second model that analyses the mediation effect of *EI*. We propose the following specification for this model:

$$TFPG_{i,t} = \gamma_0 + \gamma_1 EI_{i,t} + \gamma_2 F_i + +\gamma_3 (F_i * EI_{i,t}) + \beta_1 PE_{i,t} + \beta_2 (F_i * PE_{i,t}) + \gamma_4 ES_{i,t-1} + \gamma_5 (F_i * ES_{i,t-1}) + \sum_{t=1}^{10} \mu_t (F_i * PE_t * ES_{i,t-1}) + \gamma_6 X_{i,t} + f_i + \varepsilon_{i,t}, \quad (4)$$

[11] We acknowledge and thank this line of reasoning to anonymous Reviewer.

We use bootstrapping[12] as a resampling strategy to estimate and test the moderated mediation hypothesis or conditional indirect effect, generating 5,000 resamples that provide the basis for testing the value and significance of the conditional indirect effect of *ES* on *TFPG*. We have tested the indirect effect at high and low values of *ES* (mean plus and minus one standard deviation, respectively).

Some authors suggest the existence of a non-linear relationship between internationalization and performance. More specifically, Lu and Beamish (2004) synthesized the results of a range of empirical studies, and propose a multi-stage sigmoid relationship (i.e. an S-shaped relationship). The first stage of the internationalization is characterised by a learning process, which can reduce performance. After this stage, the internationalization is likely to generate increasing performance gains. And from a certain internationalization level, the complexity associated with coordination increases costs, which potentially reduce performance (Contractor et al., 2003; Thomas and Eden, 2004). The methodology proposed by Hansen (2000) allows us to identify the export intensity thresholds that define the different stages of the internationalization process. After the threshold identification (th), we can estimate the following regression model in order to test Hypothesis 1b:

$$TFPG_{i,t} = \gamma_0 + \gamma_1 I(EI_{i,t} \leq th) + \gamma_2 I(EI_{i,t} > th) + \gamma_3 X_{i,t} + f_i + \varepsilon_{i,t} \qquad (5)$$

where $TFPG_{i,t}$ is the *TFP* growth of firm *i* at year *t*; $I(EI_{i,t} \leq th)$ is a binary variable that takes value one if the $EI_{i,t}$ of firm *i* at year *t* is lower than the threshold value (th), and zero otherwise; $I(EI_{i,t} > th)$ takes the value one if the $EI_{i,t}$ of firm *i* at year *t* is higher than the th value, and zero otherwise; γ_1 represents the effect of $EI_{i,t}$ on $TFPG_{i,t}$ for family firms that have not exceeded the threshold value (th); γ_2 represents the effect of *EI* on *TFPG* for family firms that

[12] "In bootstrapping, the sample is conceptualized as a pseudo-population that represents the broader population form which the sample was derived, and the sampling distribution of any statistic can be generated by calculating the statistic of interest in multiple resamples of the data set" (Preacher et al., 2007:190).

have exceeded the threshold value (th);$ES_{i,t-1}$ is external services lagged a year; γ_3 represents the direct effect of external services used by the family firms on performance; $X_{i,t}$ is a vector of firm-specific control variables; f_i is the firm fixed effect; $\varepsilon_{i,t}$ is the error term.

The next specification allow us introduce *ES* to assess the mediating effect of *EI*:

$$TFPG_{i,t} = \gamma_0 + \gamma_1 I(EI_{i,t} \leq th) + \gamma_2 I(EI_{i,t} > th) + \gamma_3 ES_{i,t-1} + \gamma_4 X_{i,t} + f_i + \varepsilon_{i,t} \quad (6)$$

In all models, the estimation of modified *Wald test* revealed a potential problem of heteroscedasticity. Therefore, in all the models we initially apply the OLS method by incorporating the Huber Sandwich Estimator for controlling for potential problems of heteroscedasticity and, thus, to obtain more consistent estimates. Furthermore, the *Wooldridge test* highlighted a problem of serial correlation. In order to solve this potential problem of serial correlation, we opt for a Cluster Robust Variance Estimator (CRVE). To this end, we initially used the industry code to create the cluster, but because the number of industries considered in our study is low[13] (19 industries), it fails to reach an asymptotic behaviour. Accordingly, we use a wild[14] cluster bootstrap[15] and Rademacher weights to estimate the significance levels of the coefficients linked to the different explanatory variables included in the models. These estimates allow us to solve this potential problem of serial correlation (Davidson and Flachaire, 2008).

EMPIRICAL RESULTS

Table 2 shows the descriptive statistics (mean, standard deviation, median, minimum and maximum values, skewness, and kurtosis) of the main variables of interest in our study. We

[13] Cameron and Miller (2015) indicate that there is still no consensus on the minimum number of clusters, but studies vary in a range between a minimum of 20 and 50 clusters when working with balanced panels. The number increases when unbalanced panels are treated.

[14] The minimum of 10 clusters is exceeded for the wild bootstrap to reduce the problem of over-rejection (Webb, 2013).

[15] We use the STATA procedure proposed by Cameron and Trivendi (2009).

found no multicollinearity problems for the subsequent regression analysis[16]. The explanatory variables all have VIFs below the rule of thumb cut-off of 10 for regression models (Kutner et al., 2004), and the condition number obtained is also substantially below the rule of thumb of 30 (Belsley, 1991; Pesaran, 2015).

Insert Table 2

In Table 3, we provide the results of estimation related to Equation 1 in order to test Hypothesis 1a. To resolve the multicollinearity problem we have excluded the variable F_i and all temporal variables PE_t. The results from Model 1 provide evidence that the coefficients of the interactions $F_i * PE_t$ are positive and significant from the third year onwards. Hypothesis 1a predicts that, for family firms, the acquisition of resources in the market will have a positive effect on the internal development of non-tradable specific (heterogeneous) resources. We examine the coefficients linked to the following interaction terms over the timeframe of 10 years: $F_i * PE_{\mathrm{t}} * ES_{i,t-1}$ for Model 1. The coefficients are positive and significant for all years, except for the sixth year. Thus, the acquisition of external services by family firms can have a differential and positive impact on building internationalization capabilities compared to their non-family counterparts. This difference in the creation of internationalization capabilities can be motivated by the initial heterogeneous resources associated with being a family firm. Thus, these results provide support for Hypothesis 1a.

Insert Table 3

For the control variables, our results show that *Age*, *Size*, and *EOR* are positively and significantly related to *EI*. However, *Foreign* appears to exert a negative and significant effect

[16] Due to space limitations, the correlation matrix is not included. It is available upon request.

on *EI*. Finally, the remaining control variables are not statistically significant (*Inter. R&D*, *Group*, and *Crisis*).

Hypothesis 1b predicts that, for family firms, non-tradable specific resources (i.e. internationalization capability) generated by combining heterogeneous initial resources with resources acquired in the market will positively influence performance (i.e. firm productivity). Table 4 reports the results for the Model 2, where the coefficient of EI_{it} is positive but no significant. Therefore, at this point, our findings do not seem to provide evidence in favour of Hypothesis 1b when a linear model is used for estimation. Also, the results of Model 3 are identical to Model 2, except that it also tests for the independent effects of ES_{it-1} on *TFPG*, which is negative and non-significant. The inclusion of ES_{it-1} confirms that this variable do not affect the relationship between the mediating variable EI_{it} and the dependent variable $TFPG_{i,t}$.

Insert Table 4

The existence of a potential S-shaped relationship between *EI* and *TFPG* could explain why we found no conclusive support for Hypothesis 1b when a linear relationship is considered. To model this possible non-linear relationship, we identify and confirm three thresholds using the LM-test (Hansen, 2000) (see Table 5), that is, three internationalization levels from which the relationship between *EI* and *TFPG* could be modified. Therefore, we observe the following groups of firms over time: 1) firms with an *EI* lower than 21%; 2) firms with an *EI* between 21% and 69%; and 3) firms with an *EI* above 69%. Interestingly, in our sample, there are only 2 firm-year observations that exhibit an *EI* over 69%. Because the small number of firms could affect the robustness of our results, we opt to eliminate these observations in the subsequent empirical analysis. This leads us to define two dummy variables (one for each threshold): the first $\left[I\left(0 < EI_{i,t} \leq 0.21\right)\right]$ takes the value one if the EI_{it} is less than or equal to 21%, and zero

otherwise; and the second $\left[I\left(0.21 < EI_{i,t} \leq 0.69\right)\right]$ takes the value zero if the *EI* is less than 21%, and one if it lies between 21% and 69%.

Insert Table 5

In Model 4 (Table 5), the coefficients for the variables $I\left(0 < EI_{i,t} \leq 0.21\right)$ and $I\left(0.21 < EI_{i,t} \leq 0.69\right)$ are positive and significant, being the second coefficient higher than the first coefficient. These findings support the Hypothesis 1b. Model 5 is identical to Model 4 but including the variable *ES* lagged one period, this variable is not significant, confirming the mediating effect of *EI*. With regard to the control variables used in Models 3 to 6, we find that only *Int. R&D* has a positive and significant effect on our performance measure. However, TFP_{t-1} and *Age* exert a negative and significant effect. The rest of the control variables are non-significant.

In Model 6 (Table 6)[17], the coefficient for *EI* and for the interaction between *F* and *EI* are non-significant. These results are consistent with those of Models 2 and 3 (Table 4), which reject a linear relationship between the *EI* and *TFPG* for family firms. In Model 7, we have considered a non-linear relationship, so we have included the thresholds $I\left(0 < EI_{i,t} \leq 0.21\right)$ and $I\left(0.21 < EI_{i,t} \leq 0.69\right)$[18] and their interactions [$I\left(0 < EI_{i,t} \leq 0.21\right) * F_i$, and $I\left(0.21 < EI_{i,t} \leq 0.69\right) * F_i$]. The coefficients of $I\left(0 < EI_{i,t} \leq 0.21\right)$ and $I\left(0.21 < EI_{i,t} \leq 0.69\right)$ are not significant, the coefficient of interaction $I\left(0 < EI_{i,t} \leq 0.21\right) * F_i$ is positive and significant, and the coefficient of interaction $I\left(0.21 < EI_{i,t} \leq 0.69\right) * F_i$ is not significant. However, the VIFs evidence a multicollinearity problem. In Model 8, we have excluded the variables $I\left(0 < EI_{i,t} \leq 0.21\right)$ and $I\left(0.21 < EI_{i,t} \leq 0.69\right)$, which allows us to solve the potential

[17] In order to resolve the multicollinearity problem we have excluded the variable F_i all temporal variables PE_t and the interaction$F_i * ES_{i,t-1}$.

[18] In all models, we have excluded the firms with an *EI* higher than 69% because the small size of this group of firms.

multicollinearity problems. The coefficients of interactions $I(0 < EI_{i,t} \leq 0.21) * F_i$ and $I(0.21 < EI_{i,t} \leq 0.69) * F_i$are positive and significant, and are consistent with those obtained in Models 4 and 5.

Insert Table 6

A non-linear relationship between the *EI* and *TFPG* for family firms has been confirmed in Models 4, 7 and 8. For this reason, the export activity is measured with two thresholds $[I(0 < EI_{i,t} \leq 0.21), I(0.21 < EI_{i,t} \leq 0.69)]$ and their respective interactions $[I(0 < EI_{i,t} \leq 0.21) * F_i, I(0.21 < EI_{i,t} \leq 0.69) * F_i]$. The indirect effects of *ES* are estimated, considering the mediation effect estimated in Model 7, for each of the first 10 years of export activity. The results confirm a positive and significant indirect effect for all years, except for the first and tenth years. These indirect effects are positive and significant only when the *EI* is below 21%. Also, these indirect effects are significant for values higher that *ES* average, except for the sixth and eighth years, since that indirect effect when the *ES* takes a value equal to the mean plus standard deviation is not significant. Also, indirect effects rise when the *ES* is increased. The application of the same methodology in Model 8, in order to solve the multicollinearity problems, offers similar results. As a result of this analysis, we can confirm the existence of a mediator moderator effect, i.e. the use by family firms of external services has a positive and direct effect in the internationalisation and a positive and indirect effect on performance through the export activity. These results offer additional support for Hypothesis 1.

Insert Table 7

In view of our findings, we conclude that the Hypothesis 1 is supported. Thus, our results suggest that the existence of a heterogeneous initial resource endowment (i.e. familiness), when combined with non-specific (homogeneous) resources acquired in the market (i.e. external

services), can significantly contribute to the internal development of heterogeneous specific resources (i.e. internationalization capabilities). These resources eventually lead to an improvement in performance (i.e. productivity).

Robustness Test

Having analyzed the result obtained with the econometric models proposed, it is necessary to test their robustness. Testing the relationships proposed in the Hypothesis 1a and 1b may pose a self-selection bias. For the Hypothesis 1a we use the two-step treatment effects model developed by Heckman (1979) to control the potential endogeneity. For the Hypothesis 1b we use a common methodology in the learning by exporting studies (De Loecker, 2007). Finally, the use of a binary variable to identity the family firms implies that all family firms have identical initial heterogeneous resource endowments. At this point, we find the limitation of the database that we use that only allows us to use a dichotomous variable to identify family businesses. However, an additional analysis that may shed some light on the temporal stability of our results may be to consider the effect of firm generation on the previously analysed relationships.

Endogeneity Analysis

Firm performance may affect the ownership structure of firms in terms of family *vs* non-family ownership (Demsetz and Lehn, 1985; Demsetz and Villalonga, 2001; Maury, 2006; Miller et al., 2007). Additionally, Arregle et al. (2012) claim that family ownership may be endogenous because the development of internationalization capabilities is resource intensive (Hitt et al., 2006), and this requirement for further resources can modify the ownership structure. This phenomenon supposes a potential problem of self-selection in our empirical analysis. We address the self-selection, or reverse causality problem using the Heckman (1979) two-step treatment effects model (Tucker, 2010). The first stage of the procedure involves estimating the so-called

selection equation parameters using a probit model using the method of maximum likelihood[19]. Based on these results, we determine the 'inverse Mills ratio' (IMR). In the second stage, we include the IMR in the DID estimation (see Table 8).

Insert Table 8

In the Model 9 in Table 8 the coefficient[20] of IMR are significant. This corroborates the existence of a potential endogeneity problem, which, as noted above, has been controlled in our empirical analysis. In Model 9 it can be observed that the coefficients of the main interaction terms $F_i * PE_t * ES_{i,t-1}$ are positive and significant for all years. These results agree with those of Models 1. The inclusion of the IMR does not change our results, which suggests that the endogeneity bias has little or no effect on our results. Therefore, these results report additional support for Hypothesis 1a.

The econometric models proposed in equations 2, 3, 4 and 5, to verify the Hypothesis 1b, present a potential self-selection problem. The start of export activity has sunk costs, thus the firms need to reach a minimum productivity threshold to enter in foreign markets. Also, these markets force the least productive firms to exit (Melitz, 2003). Thus, only the ex-ante more productive enterprises are able to sell abroad, and only the more productive remain. Self-selection postulates that productivity gains are a requirement for export participation and not a result. Therefore, self-selection does not offer any hint on the underlying mechanisms generating productivity differences across enterprises that have started to export. In order to control the

[19] The dependent variable (*Family*) is a dummy variable that is equal to 1 if the firm is a family firm (such as it has been defined in this study), and 0 if not. The explanatory variables are: *Employment* stability (ratio between permanent employees and the total workforce); *Advertising intensity* and *Agreements with intermediaries* (which are two proxy variables for social capital where the second variable is a dummy variable that takes a value of 1 if the firm has agreements that involve trading intermediaries —mainly, wholesalers— and 0 otherwise); *Leverage* (which is a proxy variable for patient capital, and it is measured as the ratio of debt over total liabilities). Additionally, we also consider *Human capital* (ratio between personal costs and sales), *Total R&D intensity*, *Size*, *Age*, *Foreign* and *Group.* All these variables are related to several characteristics that are shown in previous Tables 1 and 2. The results of these estimates can be obtained from the authors upon request.

[20] To solve the multicollinearity problems we have excluded the variables *Group.*

selection bias, we check whether the starting family exporters (treatment group) during the internationalization increase more their productivity than non-exporters family firms (control group). The treatment group is our previous sample of starter family exporters. To matching the control group we use the propensity score techniques proposed by Rosenbaum and Robin (1985). The basic idea of matching is to select from the all sample of family firms that do not start the export activity, those family firms whose distribution of the variables affecting productivity is as similar as possible to the distribution of starter export family firms. Rosenbaum and Robin (1985) suggest the use of the probability of receiving treatment (star export activity) conditional on those characteristics. Accordingly, we first identify the probability to becoming a family export starter (or 'propensity score') using a probit model[21]. In these sense, P_{it} denote the predicted probability of becoming a family export starter at time *t* for firm *i.* A non-starter export family firm *j*, which is 'closest' in terms of its 'propensity score' to an starter export family firm, is then selected as a match for the latter using the 'caliper' matching method. More formally, at each point in time and for each starter export family firm *i*, a non-starter family firm *j* is selected such that $\lambda > \left|P_{it} - P_{jt}\right| = \min_{k \in D}\left\{\left|P_{it} - P_{jt}\right|\right\}$, where is a λ prespecified scalar, and D denotes the set of all family firms that do not start the export activity. We have identified 209 family non exporter, and the *Hotelling test* confirms the equality of means between exporting and non-exporting family firms in a set of relevant characteristics of both groups of firms: *TFP*, *Advertising Intensity*, *Total R&D Intensity* (measured as the ratio of total expenditure on R&D to total sales), *Age*, and *Size* (see Table 7). These characteristics have been considered by many prior empirical studies that have explored the potential differences between both types of firms (De Loecker, 2007; Manjón, Máñez, Rochina-Barrachina, and Sanchis-Llopis, 2013).

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[21] The dependent variable is a dummy variable that is equal to 1 if the firm is a family exports starter, and 0 if not. The explanatory variables are: *TFP (lagged one period), Advertising intensity (lagged one period)*, *Total R&D intensity (lagged two periods)*, *Size*, *Age*, *Foreign, Group and Crisis.* The results of these estimates can be obtained from the authors upon request.

Insert Table 9

We have identified a treatment group of family firms that starting their export activity, and a control group of family firms with similar characteristics of treatment group when initiated their export activity. The differences in performance between two groups will be caused by export activity. The difference-in-differences (DID) method allows us the estimation of effect of export activity on productivity (Manjón, et al., 2013). We propose the following specifications in order to test Hypothesis 1b:

$$TFPG_{i,t} = \gamma_0 + \gamma_1 XP_i + \sum_{t=1}^{10} \beta_t PE_t + \sum_{t=1}^{10} \alpha_t (XP_i * PE_t) + \gamma_2 I(0 < EI_{it} \leq 0.21) + \gamma_3 I(0.21 < EI_{it} \leq 0.69) + \gamma_4 X_{i,t} + f_i + \varepsilon_{i,t}, \quad (7)$$

$$TFPG_{i,t} = \gamma_0 + \gamma_1 XP_i + \sum_{t=1}^{10} \beta_t PE_t + \sum_{t=1}^{10} \alpha_t (XP_i * PE_t) + \gamma_2 I(0 < EI_{it} \leq 0.21) + \gamma_3 I(0.21 < EI_{it} \leq 0.69) + \gamma_4 ES_{i,t-1} + \gamma_5 X_{i,t} + f_i + \varepsilon_{i,t}, \quad (8)$$

where $TFPG_{i,t}$ is TFP growth at year t $(t \geq 0)$ from export activity begin; XP_i is a dummy variable that takes the value one for exporting firms, and zero otherwise; γ_1 represents the difference in *TFP* growth between treatment and control samples in the year previous to begin the export activity; PE_t is a dummy variable that takes the value one for each year after starting export activities (this measure of time is the same for family export firms and no-exporting firms) $(\forall\, t = 1, \ldots, 10)$; β_t is the time effect of *t* years after starting export activities; $XP_i * PE_t$ is the interaction of export activity with the year dummy, before starting export activities, taking the value one for each of the *t* years that have passed since the family firm began exporting, and zero otherwise; α_t represents the effect of export activity on *TFP* growth *t* years after exporting began; $I(0 < EI_{it} \leq 0.21)$ is a binary variable that take value 1 when *EI* is lower or equal than 21% and zero otherwise; γ_2 measures the effect of export activity on *TFP* growth, when *EI* is lower than or equal to 21% of sales; $I(0.21 < EI_{it} \leq 0.69)$ is a binary variable that take value 1 when export intensity is in the interval (0.21, 0.69); γ_3 measure the effect of *EI* on *TFP* growth,

when *EI* is in the interval (0.21, 0.69); $X_{i,t}$ is a vector of firm-specific control variables; f_i is the firm fixed effect; $\varepsilon_{i,t}$ is the error term. The Equation 7 included the variable $ES_{i,t-1}$ is *ES* lagged a year; γ_2 represents the direct effect of *ES* used by the family firms on *TFPG*, which has been included to assess the mediating effect.

In Model 10 in Table 10, the coefficients of interactions ($XP_i * PE_t$) are not significant, except for the eight year. These results do not support the hypothesis of a learning time path in export activity. The coefficient of first threshold [$I(0 < EI_{it} \leq 0.21)$] is significant and positive; this finding confirms that when export intensity is lower or equal than 21% the family firms increases their productivity. However, the coefficient of second threshold [$I(0.21 < EI_{it} \leq 0.69)$] is non significant. The Model 11 has the same results and the coefficient of *ES* lagged a period is non significant, confirming the mediating effect. The endogeneity control confirms partially results obtained previously; only the family firms with export intensity lower to 21% improve their productivity.

Insert Table 10

Family Generation Analysis

Familiness may be heterogeneous between firms and vary over time (Astrachan et al., 2002, Pearson et al., 2008). In explaining this heterogeneity, particularly important is the generation of the company (Jaskiewicz et al., 2015). Therefore, at this point we propose an exploratory analysis of the effect that the generations of the family business can exert on the relations previously established in our proposed hypotheses and models. We have approximated the generations of the family business considering the number of years since the founding of the company. Thus, we define two binary variables to incorporate into the model the generations of the family firm: FG_i takes value one when the family firm is below 30 years old (thus managed by the first generation), and zero for the rest of firms; NG_i takes value 1 when the family firm is above 30

years old, and zero for the rest of firms. This measure has been used by Fiss and Zajac (2004) Fernández and Nieto (2005), who uses the same database that us. The sample has 161 family firms of which 138 are managed by the founders (85%), and 23 are managed by the subsequent generations (15%).

Thus, in the Equation 1 the variable F_i is replaced by FG_i and NG_i. Likewise, we propose this specification:

$$EI_{i,t} = \gamma_0 + \gamma_1 FG_i + \gamma_2 NG_i + \sum_{t=1}^{10} \beta_t PE_t + \sum_{t=1}^{10} \alpha_t (FG_i * PE_t) + \sum_{t=1}^{10} \alpha'_t (NG_i * PE_t) + \gamma_3 ES_{i,t-1} + \gamma_4 (FG_i * ES_{i,t-1}) + \gamma_5 (NG_i * ES_{i,t-1}) + \sum_{t=1}^{10} \mu_t (FG_i * PE_t * ES_{i,t-1}) + \sum_{t=1}^{10} \mu'_t (NG_i * PE_t * ES_{i,t-1}) + \gamma_5 X_{i,t} + \gamma_6 IMR_{i,t} + f_i + \varepsilon_{i,t}, \quad (9)$$

The results from Model 12 in Table 11 show that the coefficients[22] of the interactions $FG_i * PE_t$ are positive and significant from all year between the fourth and ninth year. However, neither of coefficients of the interactions $NG_i * PE_t$ are significant, except the sixth, eighth and tenth years. During the ten first years of internationalization process, the family firms managed by first generation tend to engage in more export activity than the rest of family and non-family firms. The coefficients linked to the interaction terms $FG_i * PE_t * ES_{i,t-1}$ are positive and significant for all years. However, none of the coefficients of the interaction terms $NG_i * PE_t * ES_{i,t-1}$ are significant, except the third year. These results are in line with the Hypothesis 1a, and show that the complementarity between the initial heterogeneous resources of family firms and the resources acquired in the market is potentiated when the internationalization process is managed by the first generation.

Insert Table 11

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[22] To solve the multicollinearity problems we have excluded the variables FG_i and NG_i as well as all temporal variables PE_t, and the interaction $NG_i * ES_{i,t-1}$.

Likewise, this specification allow us to test the robustness of Hypothesis 1b controlling the endogeneity and the family generation effect:

$$TFPG_{i,t} = \gamma_0 + \sum_{t=1}^{10} \beta_t PE_t + \gamma_1 FG_i + \sum_{t=1}^{10} \alpha_t (FG_i * PE_t) + \gamma_2 NG_i + \sum_{t=1}^{10} \alpha'_t (NG_i * PE_t) + \gamma_4 FG_i * I(0 < EI_{it} \leq 0.21) + \gamma_5 FG_i * I(0.21 < EI_{it} \leq 0.69) + +\gamma_6 NG_i * I(0 < EI_{it} \leq 0.21) + \gamma_7 NG_i * I(0.21 < EI_{it} \leq 0.69) + \gamma_8 X_{i,t} + f_i + \varepsilon_{i,t}, \quad (10)$$

In Model 13 in Table 12, the interactions[23] of first and second thresholds with *FG* $[FG_i * I(0 < EI_{it} \leq 0.21) *, FG_i * I(0.21 < EI_{it} \leq 0.69)]$ are positive and significant; the coefficient of first threshold is lesser than the coefficient of second threshold. The coefficients of the same interactions with *NG* $[NG_i * I(0 < EI_{it} \leq 0.21) *, NG_i * I(0.21 < EI_{it} \leq 0.69)]$ are negative and significant. Theses results confirm a non-linear and positive relationship between the internationalization process and performance when the first generation manages the family firm.

Insert Table 12

DISCUSSION AND CONCLUSIONS

This study provides empirical evidence of one of the key aspects of RBT: the generation of rents through the creation of heterogeneous resource positions that combine heterogeneous initial resources and homogeneous resources acquired in the market. This question has been examined theoretically by an increasing number of scholars under the lens of RBT. However, it remained unexplored from an empirical perspective. In our view, this may be due to the difficulty of identifying heterogeneous initial resource endowments in firms. Our study is the first to attempt to explore this issue by focusing on a singular feature that may imply a real difference in relation to the initial resource heterogeneity of a firm. Thus, we consider two types of firms (family and non-family firms) and argue that family firms may initially possess a bundle of resources that

[23] To solve the multicollinearity problems we have excluded the variables FG_i, NG_i, as well as all temporal variables PE_t.

non-family firms do not. Therefore, we hypothesize that family firms are able to combine their heterogeneous initial resource endowments (i.e. familiness) with non-specific tradable resources acquired in the market to generate non-tradable heterogeneous resources.

Our contribution focuses on the existence of a heterogeneous initial resource endowment in firms, which we identified as familiness in the case of family businesses. Therefore, with regard to the argument on the mechanisms that lead to resource heterogeneity, we have tried to build on the point of departure of the interplay between resource buying and building. Additionally, the value of resources acquired in an SFM varies for non-identical firms (Barney, 1986). In this sense, the SFM has a specific value for each firm, which is not solely based on information. Following Maritan and Peteraf (2011), our framework includes managerial cognition and mental models, thereby improving the simple information-based predominant perspectives in SFM theory that do not consider such differences. We have argued that managerial cognition is one of the heterogeneous initial resources that differentiates family and non-family firms. Maritan and Peteraf (2011), along the same line as authors such as Amit and Shoemaker (1993), affirm that heterogeneity in endowments can be linked to discretionary managerial decisions that lead to different paths of resource development and deployment, including different choices made in SFMs. As a result, firms create heterogeneous resource positions and generate sources of sustainable economic rent.

Our findings are in accordance with the theoretical reasoning of Maritan and Peteraf (2011), who recognize the importance of considering the interplay of resource accumulation (i.e. building) and acquisition (i.e. buying) to obtaining a better understanding of the complexities involved in the generation and evolution of heterogeneous resource positions, which are central to RBT. This means that SFM activity and capability building are not as independent or as separable as suggested by the traditional RBT approach. Our findings suggest that, in the case of the development of internationalization capabilities, the mechanisms of buying and building can

be closely interconnected. Additionally, our findings support the idea that heterogeneous firm endowments may permit profitable factor market trading (Adegbesan, 2009).

Our main objective was to identify the heterogeneous initial resource endowments. In order to reach this goal, we combined a resource that could potentially be initial and heterogeneous (i.e. familiness) with homogeneous resources that can be acquired in the market. We have shown that combining these resources contributes to generating new heterogeneous and firm-specific resources through a buy-to-build sequence. Nevertheless, this sequence is out of our focus, that is, to combine two specific (initial and internally developed) resources to analyse their effects on market access (buy). We consider that this is an important aspect to develop, in order to complete what Maritan and Peteraf (2011: 1383) describe as 'a virtuous cycle of buying and building'.

We have observed that the process of converting resources acquired in the market (i.e. external services) to internationalization capabilities is not immediate, and require more than one period. This is consistent with RBT, which states that resource stocks cannot adjust instantaneously (firm-specific internationalization capability), while resource flows can adjust instantaneously (non-specific resources acquired in the market) (Dierickx and Cool, 1989). In this case, we have shown how resources acquired in the market over a long period are converted to internationalization capabilities when they are combined with a firm's heterogeneous initial resources; in our case, the resources are associated with being a family business. Our results support the existence of a purposive pattern of behaviour (resource accumulation path) in making appropriate choices about the acquisition of resources towards building a strategic capability (internationalization). This is also in line with Shearmur et al. (2015), who argue that knowledge-intensive business services are important for internationalization purposes, although mainly in the initial stages.

In order to show that the capability developed internally is heterogeneous and valuable, we found evidence confirming the effect of internationalization on performance, in particular, on

firm productivity. Our findings suggest that the effect of combining initially heterogeneous resources and tradable resources acquired in the market on productivity is non-linear, when family firms reach a minimum level of internationalization capability the effect positive effect increase. Our results are also consistent with the research stream that finds a positive effect of internationalization through exporting on productivity (e.g. see Aw et al., 2011; De Loecker, 2007; Girma et al., 2004; Ito and Lechevalier, 2010).

This work provides additional empirical support for the line of research initiated by Habbershon and Williams (1999) who, based on RBT, developed the concept of familiness. They defined familiness as the characteristics of family businesses that are heterogeneous with respect to non-family businesses and, therefore, have the potential to generate a competitive advantage. We have argued that this resource is initially heterogeneous because familiness is inherent to the nature of a family business from the date of its inception. We have incorporated the familiness resource in the process of generating heterogeneous resource positions, which is essential in RBT. This study further contributes to bringing a significant stream of literature on family business to the RBT conversation. Also, we consider that this approach of the family business from the RBT lens places these types of companies at the core of the development of this theory. Thus, it is possible to switch from using RBT to study several issues related to family businesses to using a key concept in the field of family business research (such as, familiness) to theorize and build a theory in RBT. Rau (2014) notes the lack of research which uses the RBT to better understand the family firm stemming from their resource management.

One possible limitation of this study is that we analyse heterogeneity at a general level, rather than at an industry level. Thus, we have analysed heterogeneity broadly, which is beyond the competitive heterogeneity (intra-industry performance differences) that RBT originally attempts to explain (*vs* a structure-conduct-performance paradigm) (Hoopes et al., 1993). We believe that our analysis extends this vision and compares companies from different sectors,

which is in line with Foss and Knudsen (2003), who expanded the definition of sustainable competitive advantage to inter-industry comparisons, rather than focusing solely on intra-industry comparisons. Of course, this is an interesting avenue for future work, which could focus on specific sectors to analyse the competitive advantage of companies competing in the same industry that are building resources by combining familiness with other resources. In our work, we have discussed how resources are built that enhance the competitiveness of enterprises, in order to make them more productive.

Another limitation of our work is associated with heterogeneity within family firms. We are not able to fully capture the richness of family firms' heterogeneous resources. Nevertheless, levels of familiness may differ between different family firms (Pearson et al., 2008). This could have been captured by carrying out a deeper analysis of familiness, for example through surveys, as it does a series of works from the analysis of the three dimensions of power, experience and culture proposed by Astrachan et al. (2002). In our case, this has not been possible given the characteristics of the database we have used. However, if a survey had been chosen as proposed by Astrachan et al. (2002) it would not have been possible to have a longitudinal panel that captured the generation of resources over a period of time and a large number of observations, as we do in this work. Nevertheless, Klein et al. (2005) claim that adopting a dichotomous approach may be appropriate in investigations that use large databases (e.g., Chua et al., 2004).

However, the measure, although dichotomous, does allow us to capture an essential differential aspect between the companies analyzed and define two groups of companies: family and non-family. This differential aspect constitutes an *initial* resource heterogeneity, and is *initial* because it denotes an inherent characteristic of the company from the moment of its foundation. And we focused on trying to capture this sort of initial resource heterogeneity in the moment of the foundation of the company. We assume that, in the foundation, all the family companies start from the same point respect to their family character. Of course, this initial heterogeneity can

evolve over time, but ceases to be initial. As we have shown, different firms acquire new resources throughout their history, and "small initial heterogeneities will amplify over time" (Barney et al., 2011: 1306). We have focused on analyzing how this initial heterogeneous position (initial characteristic that we have controlled, so that it remains constant throughout the analyzed period) combined with new resources acquired in the market during the period analyzed contributes to generate new heterogeneous resources internally. For the future development of this work remains to be analyzed how initial heterogeneities can evolve over time; that is, how and under what circumstances, the initial heterogeneity that constitutes the familiness evolves over time towards an increasing (or decreasing) heterogeneous characteristic (which ceases to be initial).

In our empirical analysis we have found some hints that indicate that a heterogeneous initial resource (i.e. familiness) may evolve over time. One of the limitations of studies that analyze familiness is that it does not analyze its dynamics (Pearson et al., 2008). Family is not homogeneous in all companies, as suggested by the literature that measures the familiness and one of the variables that influence its evolution is the time. We have observed that familiness contributes to building an international capability from generic resources. And in our sample this occurs especially in entrepreneurial family firms[24]; in our case, family businesses that are in the first generation. Jaskiewicz et al. (2015) point out that once founders release ownership and control to next family members, firms often become less innovative and less entrepreneurial (Block et al., 2013; Bloom and Van Reenen, 2007; Gómez-Mejía et al., 2010). These authors

[24] De Clercq et al. (2005) found that for small and medium-sized enterprises, encuentran que entrepreneurial orientation are positively associated with internationalization intent. Autio et al. (2000) found that earlier initiation of internationalization and greater knowledge intensity are associated with faster international growth and more entrepreneurial behavior. Covin and Slevin (1991) link entrepreneurial posture with levels of advertising and R&D. In the test of robustness that we have made we have built a control sample composed of family companies that do not export. For this, a probit model has been developed that quantifies the probability of starting exporting, in which it has been confirmed that family firms with higher levels of productivity, advertising spending and R&D are those that have a higher probability of exporting. The vast majority of these companies are in the first generation.

argue that the founders' entrepreneurial orientation is lost as later generation family members become involved (Lumpkin et al., 2008; Miller et al., 2011).

Some authors link family business with entrepreneurship, finding some characteristics included within the concept of familiness as favoring entrepreneurship (Aldrich and Cliff, 2003; Kellermanns and Eddleston, 2006; Lumpkin et al., 2010; Nordqvist et al., 2008; Zahra et al., 2004; Zellweger et al., 2010). Thus, we might suggest that more entrepreneurial family firms may have greater familiness. However, our objective is to determine that initial resource heterogeneity and its effect on the use of resources acquired in the market on the construction of specific resources of the company. In this case, the identification of familiness with entrepreneurship in the family business has helped us to make a fine grained approach to an initial heterogeneous resource (i.e. familiness). Deepening this idea constitutes a promising line of research in the field of family business literature and entrepreneurship under the RBT lens.

Further empirical work is needed to extend the generality of our findings to other contexts. For example, institutional environmental differences will need to be studied in future. Importantly, the firms in our sample are smaller than those used in similar studies. This may negatively affect a firm's internationalization because size exercises a positive effect on a firm's internationalization (Hitt et al., 2006). Historically, Spanish firms have shown minor export activity when compared to other developed countries. Previous analyses (e.g. Fernández and Nieto, 2005) show a negative relationship between family ownership and international involvement for a different timeframe (1991–1999), and our study is focused in the fisrt years of international process. Likewise, our study focuses on a specific type of strategic resource, and we believe that it will be of interest to see whether our findings are similar to those of future research when other types of strategic resources are considered. For example, this could be the case for technological or innovation capabilities.

Our empirical findings suggest several useful ideas for business practice. First, it is crucial to strengthen those characteristics of the firm that can constitute a source of heterogeneity. We have shown that this heterogeneity serves to convert resources that are available to any firm into valuable internal resources to achieve a competitive advantage. In our opinion, it will become increasingly important (if not always) to base a firm's strategy on heterogeneous resources (initial and internally generated). This is because new information technologies (e.g. open innovation) may make many homogeneous resources available to all companies, under the same conditions. As a result, generating a competitive advantage will be based on how companies use such resources, which, in turn, will depend on the heterogeneous positions of the companies (initial or internally generated).

REFERENCES

Adegbesan JA. 2009. On the origins of competitive advantage: Strategic factor markets and heterogeneous resource complementarity. *Academy of Management Review* 34(3): 463-475.

Adler PS, Kwon S. 2002. Social capital: Prospects for a new concept. *Academy of Management Review* 27**(1)**: 17-40.

Ahuja G, Katila R. 2004. Where do resources come from? The role of idiosyncratic situations. *Strategic Management Journal* 25**(8-9)**: 887-907.

Aldrich HE, Cliff JE. 2003. The pervasive effects of family on entrepreneurship: Toward a family embeddedness perspective. *Journal of Business Venturing* 18**(5)**: 573-596.

Almodóvar P, Verbeke A, Rodríguez-Ruiz Ó. 2016) The Internationalization of small and medium-sized family enterprises: The role of human asset quality. *Journal of Leadership & Organizational Studies* 23**(2)**: 162-174.

Alvarez R. 2004. Source of export-success in small and medium sized enterprises: the impact of public program. *International Business Review* 13**(1)**: 383-400.

Amit R, Schoemaker PJ. 1993. Strategic assets and organizational rent. *Strategic Management Journal* 14**(1)**: 33-46.

Andersen O, Kheam LS. 1998. Resource-based theory and international growth strategies: an exploratory study. *International Business Review* 7(2): 163-84.

Anderson RC, Reeb DM. 2003. Founding-family ownership, corporate diversification, and firm leverage. *Journal of Law and Economics* 46**(2)**: 653-684.

Argote L. 2012. *Organizational learning: Creating, retaining and transferring knowledge*. Springer Science & Business Media.

Armstrong CE, Shimizu K. 2007. A review of approaches to empirical research on the resource-based view of the firm. *Journal of Management 33***(6)**: 959-986.

Arregle JL, Hitt M, Sirmon D, Very P. 2007. The development of organizational social capital: Attributes of family firms. *Journal of Management Studies* 44(1): 73-95.

Astrachan JH, Klein SB, Smyrnios KX. 2002. The F-PEC scale of family influence: A proposal for solving the family business definition problem. *Family business review* 15**(1)**: 45-58.

Autio E, Sapienza HJ, Almeida JG. 2000. Effects of age at entry, knowledge intensity, and imitability on international growth. *Academy of Management Journal* 43**(5)**: 909-924.

Aw BY, Roberts MJ, Yi Xu D. 2011. R&D investment, exporting, and productivity dynamics. *The American Economic Review* 101**(4)**: 1312-1344.

Baldwin CY, Clark KB. 1992. Capabilities and capital investment: New perspectives on capital budgeting. *Journal of Applied Corporate Finance* 5**(2)**: 67-82.

Bao BH, Bag DH. 1989. An empirical investigation of the association between productivity and firm value. *Journal of Business Finance & Accounting* 16**(5)**: 699-717.

Baldwin, C. Y., & Clark, K. B. 1992. Capabilities and capital investment: New Perspectives on capital budgeting. *Journal of Applied Corporate Finance* 5**(2)**: 67-82.

Barkema HG, Vermeulen F. 1998. International expansion through start-up or acquisition: A learning perspective. *Academy of Management Journal* 41**(1)**: 7-26.

Barney JB. 1986. Strategic factor markets: Expectations, luck, and business strategy. *Management Science* 32**(10)**: 1231-1241.

Barney JB. 1991. Firm resources and sustained competitive advantage. *Journal of Management* 17**(1)**: 99-120.

Barney JB. 2001. Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of Management* 27**(6)**: 643-650.

Barney JB, Ketchen DJ, Wright M. 2011. The future of resource-based theory: Revitalization or decline? *Journal of Management* 37**(5)**: 1299-1315.

Becker SO, Egger PH. 2013. Endogenous product versus process innovation and a firm's propensity to export. *Empirical Economics* 44**(1)**: 1-26.

Bell J, McNaughton R, Young S. 2001. Born-again global firms: An extension to the born global phenomenon. *Journal of International Management 7***(3)**: 173-189.

Belsley D. 1991. *Conditioning Diagnostics: Collinearity and Weak Data in Regression*. Wiley: NY.

Beneito P, Rochina-Barrachina ME, Sanchis-Llopis A. 2015. Ownership and the cyclicality of firms' R&D investment. *International Entrepreneurship and Management Journal* 11**(2)**: 343.

Berrone P, Cruz C, Gomez-Mejia LR. 2012. Socioemotional wealth in family firms: Theoretical dimensions, assessment approaches, and agenda for future research. *Family Business Review* 25**(3)**: 258-279.

Bertrand M, Duflo E, Mullainathan S. 2004. How much should we trust differences-in-differences estimates? *Quarterly Journal of Economics* 119: 249-275.

Block JH, Miller D, Jaskiewicz P, Spiegel F. 2013. Economic and technological importance of innovations in large family and founder firms: an analysis of patent data. *Family Business Review* 26: 180-199.

Bloom N, Van Reenen J. 2007. Measuring and explaining management practices across firms and countries. *Quarterly Journal of Economics* 122: 1351-1408.

Bocatto E, Gispert C, Rialp J. 2010. Family-Owned Business Succession: The Influence of Pre-performance in the Nomination of Family and Nonfamily Members: Evidence from Spanish Firms. *Journal of Small Business Management* 48**(4)**: 497-523.

Burgel O, Fier A, Licht G, Murray G. 2001. *The Rapid Internationalization of High-Tech Young Firms in Germany and the United Kingdom*. London: Anglo-German Foundation.

Cabrera-Suárez K, De Saá-Pérez P, García-Almeida D. 2001. The succession process from a resource-and knowledge-based view of the family firm. *Family Business Review* 14**(1)**: 37-46.

Cameron AC, Trivedi PK. 2009. *Microeconomics using Stata*. Stata Press Publications: College Station, TX.

Cameron AC, Miller DL. 2015. A practitioner's guide to cluster-robust inference, *Journal of Human Resources* 50**(2)**: 317-372.

Carpenter MA, Sanders WG, Gregersen HB. 2001. Bundling human capital with organizational context: The impact of international assignment experience on multinational firm performance and CEO pay. *Academy of Management Journal* 44**(3)**: 493-511.

Carton RB, Hofer CW. 2006. *Measuring Organizational Performance: Metrics for Entrepreneurship and Strategic Management Research*. Edward Elgar Publishing: Cheltenham.

Cassiman B, Golovko E. 2011. Innovation and internationalization through exports. *Journal of International Business Studies* 42**(1)**: 56-75.

Caves RE. 1996. *Multinational enterprise and economic analysis*. Cambridge University Press.

Cavusgil ST, Zou S. 1994. Marketing strategy-performance relationship: an investigation of the empirical link in export market ventures. *The Journal of Marketing* 58**(1)**: 1-21.

Cerrato D, Piva M. 2012. The internationalization of small and medium-sized enterprises: the effect of family management, human capital and foreign ownership. *Journal of Management & Governance* 16**(4)**: 617-644.

Chatain O. 2014. How do strategic factor markets respond to rivalry in the product market? *Strategic Management Journal* 35**(13)**: 1952-1971.

Chrisman JJ, Chua JH, Pearson AW, Barnett T. 2012. Family involvement, family influence, and family-centered non-economic goals in small firms. *Entrepreneurship Theory and Practice* 36**(2)**: 267-293.

Chrisman JJ, Chua JH, 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 JJ, Kellermanns FW, Chan KC, Liano K. 2010. Intellectual foundations of current research in family business: An identification and review of 25 influential articles. *Family Business Review*, 23**(1)**: 19-26.

Chrisman JJ, Patel P J. 2012. Variations in R&D investments of family and non-family firms: Behavioral agency and myopic loss aversion perspectives. *Academy of Management Journal* 55**(4)**: 976-997.

Chi T. 1994. Trading in strategic resources: Necessary conditions, transaction cost problems, and choice of exchange structure. *Strategic Management Journal* 15**(4)**: 271-290.

Chua JH, Chrisman JJ, Chang EP. 2004. Are family firms born or made? An exploratory investigation. *Family Business Review* 17**(1)**: 37-54.

Chua JH, Chrisman, JJ, Steier LP, Rau SB. 2012. Sources of heterogeneity in family firms: An introduction. *Entrepreneurship Theory and Practice* 36**(6)**: 1103-1113.

Claver E, Rienda L, Quer D. 2009. Family firms' international commitment: The influence of family-related factors. *Family Business Review* 22**(2)**: 125-135.

Conner KR. 1991. A historical comparison of resource-based theory and five schools of thought within industrial organization economics: do we have a new theory of the firm? *Journal of Management* 17**(1)**: 121-154.

Contractor FJ, Kundu SK, Hsu CC. 2003. A three-stage theory of international expansion: The link between multinationality and performance in the service sector. *Journal of International Business Studies* 34**(1)**: 5-18.

Covin JG, Slevin DP. 1991. A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship: Critical Perspectives on Business and Management* 3: 5-28.

Craig JB, Pohjola M, Kraus S, Jensen SH. 2014. Exploring relationships among proactiveness, risk-taking and innovation output in family and non-family firms. *Creativity and Innovation Management* 23**(2)**: 199-210.

Cruz CC, Gomez-Mejia LR, Becerra M. 2010. Perceptions of benevolence and the design of agency contracts: CEO-TMT relationships in family firms. *Academy of Management Journal* 53**(1)**: 69-89.

Cucculelli M, Mannarino L, Pupo V, Ricotta F. 2014. Owner management, firm age, and productivity in Italian family firms. *Journal of Small Business Management* 52**(2)**: 325-343.

Davidson R, Flachaire E. 2008. The wild bootstrap, tamed at last. *Journal of Econometrics* 146**(1)**: 162-169.

Davis JH, Schoorman FD, Donaldson L. 1997. Toward a stewardship theory of management. *Academy of Management Review*, 22**(1)**: 20-47.

De Clercq D, Sapienza HJ, Crijns H. 2005. The internationalization of small and medium-sized firms. *Small Business Economics* 24**(4)**: 409-419.

De Loecker J. 2007. Do exports generate higher productivity? Evidence from Slovenia. *Journal of International Economics* 73**(1)**: 69-98.

Demsetz H, Lehn K. 1985. The structure of corporate ownership: Causes and consequences. *Journal of Political Economy 93***(6)**: 1155-1177.

Demsetz H, Villalonga B. 2001. Ownership structure and corporate performance. *Journal of Corporate Finance 7***(3)**: 209-233.

Denrell J, Fang C, Winter SG. 2003. The economics of strategic opportunity. *Strategic Management Journal* 24**(10)**: 977-990.

Dierickx I, Cool K. 1989. Asset stock accumulation and sustainability of competitive advantage. *Management Science* 35**(12)**: 1504-1513.

Duran P, Kammerlander N, Van Essen M, Zellweger T. 2016. Doing more with less: Innovation input and output in family firms. *Academy of Management Journal* 59**(4)**: 1224-1264.

Dyer JH, Singh H. 1998. The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review* 23**(4)**: 660-679.

Esteve-Pérez S, Rodríguez D. 2013. The dynamics of exports and R&D in SMEs, *Small Business Economics* 41**(1)**: 219-240.

Fernández Z, Nieto MJ. 2005. Internationalization strategy of small and medium-sized family businesses: Some influential factors. *Family Business Review* 18**(1)**: 77-89.

Fernández Z, Nieto MJ. 2006. The impact of ownership on the international involvement of SMEs. *Journal of International Business Studies* 37**(3)**: 340-351.

Fernández-Olmos M, Gargallo-Castel A, Giner-Bagües E. 2016. Internationalisation and performance in Spanish family SMES: The W-curve. *BRQ Business Research Quarterly* 19**(2)**: 122-136.

Fernhaber SA, Gilbert BA, McDougall EE. 2008. International entrepreneurship and geo-graphic location: an empirical examination of new venture internationalization. *Journal of International Business Studies* 39**(2)**: 267-290.

Fiss PC, Zajac EJ. 2004. The diffusion of ideas over contested terrain: The (non) adoption of a shareholder value orientation among German firms. *Administrative Science Quarterly* 49**(4)**: 501-534.

Foss NJ, Knudsen T. 2003. The resource-based tangle: towards a sustainable explanation of competitive advantage. *Managerial and Decision Economics* 24**(4)**: 291-307.

Frank H, Lueger M, Nosé L, Suchy D. 2010. The concept of "Familiness": Literature review and systems theory-based reflections. *Journal of Family Business Strategy* 1**(3)**: 119-130.

Frank H, Kessler A, Rusch T, Suess-Reyes J, Weismeier-Sammer D. 2017. Capturing the familiness of family businesses: Development of the family influence familiness scale (FIFS). *Entrepreneurship Theory and Practice* 41**(5)**: 709-742.

Fried HO, Lovell CAK, Schmidt SS. 2008. Efficiency and productivity, in Fried HO, Lovell CAK, Schmidt SS. (Eds), *The measurement of productive efficiency and productivity growth*, 3-106. Oxford University Press.

García F, Avella L, Fernández E. 2012. Learning from exporting: The moderating effect of technological capabilities. *International Business Review* 21**(6)**: 1099-1111.

Ginsberg A. 1994. Minding the competition: From mapping to mastery. *Strategic Management Journal* 15**(S1)**: 153-174.

Girma S, Greenaway A, Kneller R. 2004. Does exporting increase productivity? A microeconometric analysis of matched firms. *Review of International Economics* 12**(5)**: 855-866.

Golovko E, Valentini G. 2011. Exploring the complementarity between innovation and export for SMEs growth, *Journal of International Business Studies* 42**(3)**: 362-380.

Golovko E, Valentini G. 2014. Selective Learning-by-Exporting: Firm Size and Product versus Process Innovation. *Global Strategy Journal* 4**(3)**: 161-180.

Gomez-Mejia LR, Makri M, Larraza-Kintana M. 2010. Diversification decisions in family-controlled firms. *Journal of Management Studies* 47**(2)**: 223-252.

Graves C, Thomas I. 2006. Internationalization of Australian family businesses: A managerial capabilities perspective. *Family Business Review* 19**(3)**: 207-224.

Graves C, Thomas J. 2008. Determinants of the internationalization pathways of family firms: An examination of family influence. *Family Business Review* 21**(2)**: 151-167.

Greenaway D, Kneller R. 2008. Exporting, productivity and agglomeration. *European Economic Review* 52**(5)**: 919-939.

Greenwood R, Díaz AM, Li SX, Lorente JC. 2010. The multiplicity of institutional logics and the heterogeneity of organizational responses. *Organization Science* 21**(2)**: 521-539.

Gulati R. 1998. Alliances and networks. *Strategic Management Journal* 19**(4)**: 293-319.

Habbershon TG, Williams ML. 1999. A resource-based framework for assessing the strategic advantages of family firms. *Family Business Review* 12**(1)**: 1-25.

Hansen BE. 2000. Sample splitting and threshold estimation, *Econometrica* 68**(3)**: 575-603.

Heckman JJ. 1979. *Statistical models for discrete panel data*. Department of Economics and Graduate School of Business, University of Chicago.

Henderson R, Cockburn I. 1994. Measuring competence? Exploring firm effects in pharmaceutical research. *Strategic Management Journal* 15**(S1)**: 63-84.

Hitt MA, Bierman L, Uhlenbruck K, Shimizu K. 2006. The importance of resources in the internationalization of professional service firms: The good, the bad, and the ugly. *Academy of Management Journal* 49**(6)**: 1137-1157.

Hitt MA, Ireland RD, Camp SM, Sexton DL. 2001. Strategic entrepreneurship: Entrepreneurial strategies for wealth creation. *Strategic Management Journal* 22**(special issue)**: 479-491.

Hitt MA, Ireland RD, Camp SM, Sexton DL. 2002. Strategic entrepreneurship: Integrating entrepreneurial and strategic management perspectives, in Hitt MA, Ireland RD, Camp SM, Sexton DL. (Eds), *Strategic entrepreneurship: Creating a new integrated mindset*, 1-16. Blackwell Publishers: Oxford, UK.

Hoffman J, Hoelscher M, Sorenson R. 2006. Achieving sustained competitive advantage: A family capital theory. *Family Business Review* 19**(2)**: 135-145.

Holt DT, Rutherford MW, Kuratko DF. 2010. Advancing the field of family business research: Further testing the measurement properties of the F-PEC. *Family Business Review* 23**(1)**: 76-88.

Hoopes DG, Madsen TL, Walker G. 2003. Why is there a resource-based view? Toward a theory of competitive heterogeneity. *Strategic Management Journal* 24**(10)**: 889-902.

Huselid MA. 1995. The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal* 38**(3)**: 635-672.

Ito K, Lechevalier S. 2010. Why some firms persistently out-perform others: investigating the interactions between innovation and exporting strategies. *Industrial and Corporate Change* 19**(6)**: 1997-2039.

Jaskiewicz P, Combs JG, Rau SB. 2015. Entrepreneurial legacy: Toward a theory of how some family firms nurture transgenerational entrepreneurship. *Journal of Business Venturing* 30**(1)**: 29-49.

Jorissen A, Laveren E, Martens R, Reheul AM. 2005. Real versus sample-based differences in comparative family business research. *Family Business Review* 18**(3)**: 229-246.

Johanson, J., Vahlne, JE. 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., Vahlne, JE. 1990. The mechanism of internationalisation. *International Marketing Review* 7**(4)**,11-24.

Karim S, Mitchell W. 2000. Path-dependent and path-breaking change: reconfiguring business resources following acquisitions in the U.S. medical sector, 1978-1995. *Strategic Management Jour*nal 21**(Special Issue)**: 1061-1081.

Kashmiri S, Mahajan V. 2010. What's in a name? An analysis of the strategic behavior of family firms. International *Journal of Research in Marketing* 27**(3)**: 271-280.

Kaufman, B.E. 2015. The RBV theory foundation of strategic HRM: critical flaws, problems for research and practice, and an alternative economics paradigm *Human Resource Management Journal* 25**(4)**: 516-540.

Kellermanns FW, Eddleston KA. 2006. Corporate entrepreneurship in family firms: A family perspective. *Entrepreneurship theory and practice* 30**(6)**: 809-830.

Kim H, Hoskisson RE, Lee SH. 2015. Why strategic factor markets matter: "New" multinationals' geographic diversification and firm profitability. *Strategic Management Journal* 36**(4)**: 518-536.

King DR, Slotegraaf RJ, Kesner I. 2008. Performance implications of firm resource interactions in the acquisition of R&D-intensive firms. *Organization Science, 19***(2)**: 327-340.

Kim H, Hoskisson RE, Lee SH. 2015. Why strategic factor markets matter: "New" multinationals' geographic diversification and firm profitability. *Strategic Management Journal* 36**(4)**: 518-536.

Klein SB, Astrachan JH, Smyrnios KX. 2005. The F-PEC scale of family influence: Construction, validation, and further implication for theory. *Entrepreneurship Theory and Practice* 29**(3)**: 321-339.

Knott AM. 2003. Persistent heterogeneity and sustainable innovation. *Strategic Management Journal* 24(8): 687-705.

Knudsen T, Madsen TK. 2002. Export strategy: a dynamic capabilities perspective. S*candinavian Journal of Management* 18**(4)**: 475-502.

Koch MJ, McGrath RG. 1996. Improving labor productivity: Human resource management policies do matter. *Strategic Management Journal*, 17**(5)**: 335-354.

König A, Kammerlander N, Enders A. 2013. The family innovator's dilemma: How family influence affects the adoption of discontinuous technologies by incumbent firms. *Academy of Management Review* 38**(3)**: 418-441.

Kontinen T, Ojala A. 2010. The internationalization of family businesses: A review of extant research. *Journal of Family Business Strategy* 1**(2)**: 97-107.

Kontinen T, Ojala A. 2011a. Network ties in the international opportunity recognition of family SMEs. *International Business Review* 20**(4)**: 440-453.

Kontinen T, Ojala A. 2011b. Social capital in relation to the foreign market entry and post-entry operations of family SMEs. *Journal of International Entrepreneurship* 9**(2)**: 133-151.

Kotlar J, De Massis A, Fang H, Frattini F. 2014. Strategic reference points in family firms. *Small Business Economics* 43**(3)**: 597.

Kraiczy N. 2013. *Innovations in Small and Medium-Sized Family Firms. An Analysis of Innovation Related Top Management Team Behaviors and Family Firm-Specific Characteristics*. Springer Gabler: Wiesbaden.

Kraus S, Mensching H, Calabrò A, Cheng CF, Filser M. (2016). Family firm internationalization: A configurational approach. *Journal of Business Research* 69**(11)**: 5473-5478.

Kunc MH, Morecroft JDW. 2009. Resource-based strategies and problem structuring: using resource maps to manage resource systems. *Journal of the Operational Research Society* 60**(2)**: 191-199.

Kutner MH, Nachtsheim CJ, Neter J. 2004. *Applied Linear Regression Models* (4th ed.). McGraw-Hill Irwin.

Lansberg I. 1999. *Succeeding Generations: Realizing the Dream of Families in Business*. Harvard Business Press: Boston, MA.

Levie J, Lerner M. 2009. Resource mobilization and performance in family and nonfamily businesses in the United Kingdom. *Family Business Review* 22**(1)**: 25-38.

Levinsohn J, Petrin A. 2003. Estimating production functions using inputs to control for unobservables. *The Review of Economic Studies* 70**(2)**: 317-341.

Liang X, Wang L, Cui Z. 2014. Chinese private firms and internationalization: Effects of family involvement in management and family ownership. *Family Business Review* 27**(2)**: 126-141.

López J, García R. 2005. Technology and export behaviour: A resource-based view approach. *International Business Review* 14**(5)**: 539-557.

Lounsbury M, Glynn MA. 2001. Cultural entrepreneurship: Stories, legitimacy, and the value of acquisition of resources. *Strategic Management Journal* **22(6-7)**: 545-564.

Love JH, Ganotakis P. 2013. Learning by exporting: Lessons from high-technology SMEs. *International Business Review* 22**(1)**: 1-17.

Lu JW, Beamish PW. 2004. International diversification and firm performance: The S-curve hypothesis. *Academy of Management Journal* 47**(4)**: 598-609.

Lumpkin GT, Brigham KH, Moss TW. 2010. Long-term orientation: Implications for the entrepreneurial orientation and performance of family businesses. *Entrepreneurship and Regional Development* 22**(3-4)**: 241-264.

Lumpkin GT, Martin WL, Vaughn M. 2008. Family orientation: individual-level influences on family firm outcomes. *Family Business Review* 21: 127-138.

Luostarinen R. 1980. *Internationalization of the Firm*. Helsinki: The Helsinki School of Economics.

Madhok, A. 1996. The organization of economic activity: Transaction costs, firm capabilities, and the nature of governance. *Organization Science* 7**(5)**, 577-590.

Madhok, A. 1997. Cost, value and foreign market entry mode: The transaction and the firm. *Strategic Management Journal* 18**(1)**, 39-61.

Makadok R. 2001. Toward a synthesis of the resource-based and dynamic-capability views of rent creation. *Strategic Management Journal* 22**(5)**: 387-401.

Makadok R, Barney JB. 2001. Strategic factor market intelligence: an application of information economics to strategy formulation and competitor intelligence. *Management Science* 47**(2)**: 1621-1638.

Manjón M, Máñez JA, Rochina-Barrachina ME, Sanchis-Llopis JA. 2013. Reconsidering learning by exporting. *Review of World Economics* 149**(1)**: 5-22.

Maritan CA, Peteraf MA. 2011. Building a bridge between resource acquisition and resource accumulation. *Journal of Management* 37**(5)**: 1374-1389.

Maury B. 2006. Family ownership and firm performance: Empirical evidence from Western European corporations. *Journal of Corporate Finance* 12**(2)**: 321-341.

McConaughy DL, Matthews CH, Fialko AS. 2001. Founding family controlled firms: Performance, risk, and value. *Journal of Small Business Management* 39**(1)**: 31-49.

Melitz MJ. 2003. The impact of trade on intra-industry reallocations and aggregate industry productivity. *Econometrica* 71**(6)**: 1695-1725.

Merino F, Monreal-Pérez J, Sánchez-Marín G. 2015. Family SMEs' Internationalization: Disentangling the Influence of Familiness on Spanish Firms' Export Activity. *Journal of Small Business Management* 53**(4)**: 1164-1184.

Miller D, Le Breton-Miller I, Lester RH, Cannella AA. 2007. Are family firms really superior performers? *Journal of Corporate Finance* 13**(5)**: 829-858.

Miller D, Le Breton-Miller I, Lester RH. 2011. Family and lone founder ownership and strategic behaviour: social context, identity, and institutional logics. *Journal of Management Studies* 48: 1-25.

Miller D, Le Breton-Miller I, Scholnick B. 2008. Stewardship vs. stagnation: An empirical comparison of small family and non-family businesses. *Journal of Management Studies* 45**(1)**: 51-78.

Molloy JC, Chadwick C, Ployhart RE, Golden SJ. 2011. Making intangibles "tangible" in tests of resource-based theory: A multidisciplinary construct validation approach. *Journal of Management* 37**(5)**: 1496-1518.

Nahapiet J, Ghoshal S. 1998. Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review* 23**(2)**: 242-266.

Neal A, West MA, Patterson MG. 2005. Do organizational climate and competitive strategy moderate the relationship between human resource management and productivity? *Journal of Management* 31**(4)**: 492-512.

Newbert SL. 2007. Empirical research on the resource-based view of the firm: an assessment and suggestions for future research. *Strategic Management Journal* 28**(2)**: 121.

Nordqvist M, Habbershon TG, Melin L. 2008. Transgenerational entrepreneurship: Exploring entrepreneurial orientation in family firms. In *Entrepreneurship, Sustainable Growth and Performance: Frontiers in European Entrepreneurship Research*, Landström H, Crijns H, Laveren E, Smallbone D (Eds.). London: Edward Elgar: 93-116.

Okoroafo SC. 1999. Internationalization of family businesses: Evidence from Northwest Ohio, USA. *Family Business Review* 12**(2)**: 147-158.

O'Farrell PN, Moffat LA. 1995. Business services and their impact upon client performance: an exploratory interregional analysis. *Regional Studies* 29**(2)**, 111-124.

Palia D, Lichtenberg F. 1999. Managerial ownership and firm performance: A re-examination using productivity measurement. *Journal of Corporate Finance* 5**(4)**: 323-339.

Pearson AW, Carr JC, Shaw JC. 2008. Toward a theory of familiness: A social capital perspective. *Entrepreneurship Theory and Practice* 32**(6)**: 949-969.

Penrose ET. 1959. *The theory of the growth of the firm*. John Wiley & Sons: NY.

Pesaran MH. 2015. *Time series and panel data econometrics*. OUP.

Peteraf MA. 1993. The cornerstones of competitive advantage: a resource-based view. *Strategic Management Journal* 14**(3)**: 179-191.

Peteraf MA, Barney JB. 2003. Unraveling the resource-based tangle, *Managerial and Decision Economics* 24**(4)**: 309-323.

Petrin A, Levinsohn J, Poi BP. 2003. Production function estimation in Stata using inputs to control for unobservable. *Stata Journal* 4**(2)**: 113–123.

Preacher, KJ, Rucker, DD, Hayes, AF. 2007. Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42: 185-227.

Prefontaine, L., Bourgault, M. (2002). Strategic analysis and export behaviour of SMEs a comparison between the United States and Canada. *International Small Business Journal* 20**(2)**, 123-138.

Priem RL, Butler JE. 2001. Is the resource-based "view" a useful perspective for strategic management research? *Academy of Management Review* 26(1): 22-40.

Pukall TJ, Calabrò A. 2014. The internationalization of family firms: A critical review and integrative model. *Family Business Review* 27**(2)**: 103-125.

Rau S. 2014. Resource-based view of family firms, in Melin L, Nordqvist M, Sharma P (Eds.), *SAGE Handbook of Family Business*. SAGE, London, 321-339.

Ray G, Barney JB, Muhanna WA. 2004. Capabilities, business processes, and competitive advantage: choosing the dependent variable in empirical tests of the resource-based view. *Strategic Management Journal* 25**(1)**: 23-37.

Riahi-Belkaoui A. 1999. Productivity, profitability, and firm value. *Journal of International Financial Management & Accounting* 10**(3)**: 188-201.

Rosenbaum PR, Rubin DB. 1985. Constructing a control group using multivariate matched sampling methods that incorporate the propensity score. *The American Statistician* 39**(1)**: 33-38.

Salomon R. 2006. Spillovers to foreign market participants: assessing the impact of export strategies on innovative productivity. *Strategic Organization* 4**(2)**: 135-164.

Salomon R, Byungchae J. 2010. Do leading or lagging firms learn more from exporting? *Strategic Management Journal* 31**(10)**: 1088-1133.

Salomon R, Jin B. 2008. Does knowledge spill to leaders or laggards? Exploring industry heterogeneity in learning by exporting. *Journal of International Business Studies* **39**(1): 132-150.

Salomon RM, Shaver JM. 2005. Learning by exporting: new insights from examining firm innovation. *Journal of Economics & Management Strategy* 14**(2)**: 431-460.

Sciascia S, Mazzola P, Astrachan JH, Pieper TM. 2012. The role of family ownership in international entrepreneurship: Exploring nonlinear effects. *Small Business Economics* 38**(1)**: 15-31.

Sharma P. 2008. Familiness: Capital stocks and flows between family and business. E*ntrepreneurship Theory and Practice* 32**(6)**: 971-977.

Sharma P, Chrisman JJ, Gersick KE. 2012. 25 years of family business review: reflections on the past and perspectives for the future. *Family Business Review*, 25**(1)**: 5-15

Shearmur R, Doloreux D, Laperrière A. 2015. Is the degree of internationalization associated with the use of knowledge intensive services or with innovation? *International Business Review* 24**(3)**: 457-465.

Simon HB. 1962. New developments in the theory of the firm. *The American Economic Review* 52**(2)**: 1-15.

Singla C, Veliyath R, George R. 2014. Family firms and internationalization-governance relationships: Evidence of secondary agency issues. *Strategic Management Journal* 35**(4)**: 606-616.

Sirmon DG, Arregle JL, Hitt MA, Webb JW. 2008. The role of family influence in firms' strategic responses to threat of imitation. *Entrepreneurship Theory and Practice* 32**(6)**: 979-998.

Sirmon DG, Hitt MA. 2003. Managing resources: Linking unique resources, management, and wealth creation in family firms. *Entrepreneurship Theory and Practice* 27**(4)**: 339-358.

Srivastava RK, Fahey L, Christensen HK. 2001. The resource-based view and marketing: The role of market-based assets in gaining competitive advantage. *Journal of Management* 27**(6)**: 777-802.

Thomas DE, Eden L. 2004. What is the shape of the multinationality-performance relationship? *Multinational Business Review* 12**(1)**: 89-110.

Thomke S, Kuemmerle W. 2002. Asset accumulation, interdependence and technological change: evidence from pharmaceutical drug discovery. *Strategic Management Journal* 23**(7)**: 619-635.

Tokarczyk J, Hansen E, Green M, Down J. 2007. A resource-based view and market orientation theory examination of the role of "familiness" in family business success. *Family Business Review* 20**(1):** 17-31.

Trevino L.J., Grosse R. (2002). An analysis of firm-specific resources and foreign direct investment in the United States. *International Business Review*, 11**(4)**, 431-452.

Tsao SM, Lien WH. 2013. Family management and internationalization: The impact on firm performance and innovation. *Management International Review* 53**(2)**: 189-213.

Tucker JW. 2010. Selection bias and econometric remedies in accounting and finance research. *Journal of Accounting Literature*, 29: 31-57.

Uzzi B. 1997. Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly* 42**(1)**: 35-67.

Vermeulen F, Barkema H. 2001. Learning through acquisitions. *Academy of Management Journal* 44**(3)**: 457-476.

Webb MD. 2013. Reworking wild bootstrap based inference for clustered errors (No. 1315). Queen's Economics Department Working Paper.

Weismeier-Sammer D, Frank H, von Schlippe A. 2013. Untangling 'Familiness' A Literature Review and Directions for Future Research. *The International Journal of Entrepreneurship and Innovation* 14**(3)**: 165-177.

Wernerfelt B. 2011. The use of resources in resource acquisition. *Journal of Management* 37**(5)**: 1369-1373.

Westhead P, Wright M, Ucbasaran D. 2001. The internationalization of new and small firms: A resource-based view. *Journal of Business Venturing 16***(4)**: 333–358.

Westhead P, Wright M, Ucbasaran D. 2004. Internationalization of private firms: environmental turbulence and organizational strategies and resources. *Entrepreneurship & Regional Development* 16**(6)**: 501-522.

Wilden R, Devinney TM., Dowling GR. 2016. The Architecture of Dynamic Capability Research Identifying the Building Blocks of a Configurational Approach. *Academy of Management Annals* 10**(1)**: 997-1076.

Yang Y, Mallick S. 2010. Export premium, self-selection, and learning-by-exporting: Evidence from matched Chinese firms. *The World Economy* 33**(10)**: 1218- 1240.

Zahra SA. 2003. International expansion of U.S. manufacturing family business: The effect of ownership and involvement. *Journal of Business Venturing* 18**(3)**: 495-512.

Zahra SA, Hayton JC, Salvato C. 2004. Entrepreneurship in family vs. Non-Family firms: A Resource-Based analysis of the effect of organizational culture. *Entrepreneurship Theory and Practice* 28**(4)**: 363-381.

Zahra SA, Ireland RD, Hitt MA. 2000. International expansion by new venture firms: International diversity, mode of market entry, technological learning, and performance. *Academy of Management Journal* 43**(5)**: 925-950.

Zahra SA, Nielsen AP. 2002. Sources of capabilities, integration and technology commercialization. *Strategic Management Journal* 23**(5)**: 377-398.

Zellweger TM, Eddleston KA, Kellermanns FW. 2010. Exploring the concept of familiness: Introducing family firm identity. *Journal of Family Business Strategy* 1**(1)**: 54-63.

Table 1. Hotelling test (family firms that starting to export vs family firms that do not export)

	Non-Family Firms (control sample)					*Family Firms (treatment sample)*				
Variables	**N**	**Mean**	**S. D.**	**Min.**	**Max.**	**N**	**Mean**	**S.D.**	**Min.**	**Max.**
TFP	100	2.96	1.93	0.16	11.70	161	3.00	2.19	0.10	12.13
Advertising Intensity	100	1.13	2.38	0.00	16.50	161	1.08	2.23	0.00	19.00
Total R&D intensity	100	0.00	0.01	0.00	0.07	161	0.01	0.02	0.00	0.14
Age	100	18.51	17.15	1.00	102.00	161	15.62	14.51	1.00	111.00
Size	100	107.82	172.73	8.00	968.00	161	75.18	146.58	8.00	970.00

2-group *Hotelling's T-squared* =3.702
F(5,255) = 0.729; *p-value* = 0.602

Table 2. Descriptive statistics

Variables	**Obs.**	**Mean**	**S.D.**	**Median**	**Min.**	**Max.**	**Skewness**	**Kurtosis**
TFPG	1,501	-0.013	0.308	-0.022	-1.673	1.879	0.376	6.680
TFP	1,501	2.918	2.035	2.465	0.215	15.423	2.032	9.303
EI	1,501	9.172	15.724	3.300	0.001	99.400	3.152	14.119
ES	1,501	0.944	1.672	0.376	0.000	34.942	7.953	129.509
Int. R&D	1,501	0.855	2.970	0.000	0.000	36.777	5.369	39.268
Age	1,501	21.862	17.619	17.000	1.000	118.000	2.459	11.150
Size	1,501	102.867	202.420	32.000	10.000	2.488	4.191	27.407
EOR	1,501	0.372	0.484	0.000	0.000	1.000	--	--
Foreign	1,501	0.065	0.246	0.000	0.000	1.000	--	--
Group	1,501	0.172	0.378	0.000	0.000	1.000	--	--
Crisis	1,501	0.093	0.291	0.000	0.000	1.000	--	--

Table 3. Export intensity analysis (DID)

	EI
Independent and control variables	**Model 1**
$F_i * PE_1$	-0.244
$F_i * PE_2$	0.791
$F_i * PE_3$	1.537*
$F_i * PE_4$	2.117****
$F_i * PE_5$	2.691***
$F_i * PE_6$	2.336****
$F_i * PE_7$	3.294****
$F_i * PE_8$	3.254****
$F_i * PE_9$	3.703***
$F_i * PE_{10}$	2.729**
$ES_{i,t-1}$	0.504
$F_i * ES_{i,t-1}$	-3.079****
$F_i * PE_1 * ES_{i,t-1}$	2.440****
$F_i * PE_2 * ES_{i,t-1}$	3.210**
$F_i * PE_3 * ES_{i,t-1}$	3.042****
$F_i * PE_4 * ES_{i,t-1}$	2.003****
$F_i * PE_5 * ES_{i,t-1}$	2.492****
$F_i * PE_6 * ES_{i,t-1}$	1.920
$F_i * PE_7 * ES_{i,t-1}$	2.138**
$F_i * PE_8 * ES_{i,t-1}$	1.906**
$F_i * PE_9 * ES_{i,t-1}$	2.249**
$F_i * PE_{10} * ES_{i,t-1}$	1.863**
$Int.R\&D_{i,t-1}$	0.022
$EOR_{i,t}$	1.152**
$Age_{i,t}$	0.155**
$Size_{i,t}$	0.004**
$Foreign_{i,t}$	-5.130****
$Group_{i,t}$	1.309
$Crisis$	0.162
Constant	2.417**
Number of observations	1,539
Firms	258
R^2	0.890
Adjusted-R^2	0.865
Max VIF	6.650
Condition Number	8.552

*****p<.001*, ****p<0.01*, ***p<0.05*, **p<0.1*.

The coefficients are the same for CRVE (Cluster Robust Variance Estimators) and WCB (Wild Cluster Bootstrap) estimates, but the errors are different. These coefficients, robust standards errors for CRV and *p-values* for WCB estimates are not shown in this table. All these results can be obtained from the authors upon request.

Table 4. Productivity analysis for family firms

	TFPG	TFPG	TFPG	TFPG
Independent and control variables	**Model 2**	**Model 3**	**Model 4**	**Model 5**
EI_{it}	0.005	0.005		
$I(0 < EI_{i,t} \leq 0.21)$			0.096**	0.097**
$I(0.21 < EI_{i,t} \leq 0.69)$			0.221***	0.215**
$ES_{i,t-1}$		-0.023		-0.024
$TFP_{i,t-1}$	-0.232****	-0.234****	-0.232****	-0.234****
$Int.R\&D_{i,t-1}$	0.027****	0.027****	0.027****	0.028****
$EOR_{i,t}$	0.048	0.045	0.043	0.040
$Age_{i,t}$	-0.023***	-0.022***	-0.024***	-0.023***
$Size_{i,t}$	0.001**	0.001	0.000	0.000
$Foreign_{i,t}$	0.457	0.454	0.436	0.433
$Group_{i,t}$	-0.117	-0.114	-0.116	-0.112
$Crisis$	0.019	0.017	0.023	0.021
Constant	0.979***	0.988***	0.956***	0.965***
Number of observations	878	878	876	876
Firms	161	161	161	161
R^2	0.381	0.382	0.384	0.385
Adjusted-R^2	0.208	0.201	0.211	0.211
Max VIF	1.850	1.850	1.900	1.330
Condition Number	5.843	6.129	8.075	8.429

*****p<.001*, ****p<0.01*, ***p<0.05*, **p<0.1*.

The coefficients are the same for CRVE (Cluster Robust Variance Estimators) and WCB (Wild Cluster Bootstrap) estimates, but the errors are different. These coefficients, robust standards errors for CRV and *p-values* for WCB estimates are not shown in this table. All these results can be obtained from the authors upon request.

Table 5. Identification of export intensity thresholds

	Threshold Estimate	LM-test for no threshold
First threshold	0.21	28.23***
Second threshold	0.69	20.53**

Number of Bootstrap Replications: 5,000

Trimming Percentage: 0.15

**** p<0.01*, *** p<0.05*, ** p<0.1*

Table 6. Productivity analysis for family and no-family firms (DID)

	TFPG	**TFPG**	**TFPG**
Independent and control variables	**Model 6**	**Model 7**	**Model 8**
$F_i * PE_1$	-0.007	-0.163	-0.155
$F_i * PE_2$	0.000	-0.139	-0.132
$F_i * PE_3$	-0.037	-0.168	-0.159
$F_i * PE_4$	-0.087	-0.231	-0.224
$F_i * PE_5$	-0.081	-0.219	-0.211
$F_i * PE_6$	-0.133	-0.270*	-0.262
$F_i * PE_7$	-0.070	-0.220*	-0.211
$F_i * PE_8$	-0.093	-0.232**	-0.223*
$F_i * PE_9$	-0.133	-0.277**	-0.267*
$F_i * PE_{10}$	-0.125	-0.253*	-0.243
EI_{it}	-0.002		
$F_i * EI_{it}$	0.004		
$I(0 < EI_{i,t} \leq 0.21)$		-0.012	
$I(0.21 < EI_{i,t} \leq 0.69)$		-0.056	
$I(0 < EI_{i,t} \leq 0.21) * F_i$		0.172**	0.161***
$I(0.21 < EI_{i,t} \leq 0.69) * F_i$		0.277	0.227***
$ES_{i,t-1}$	-0.047	-0.048	-0.049
$F_i * PE_1 * ES_{i,t-1}$	-0.015	-0.014	-0.008
$F_i * PE_2 * ES_{i,t-1}$	0.094	0.096	0.092
$F_i * PE_3 * ES_{i,t-1}$	0.048	0.041	0.037
$F_i * PE_4 * ES_{i,t-1}$	0.058	0.047	0.042
$F_i * PE_5 * ES_{i,t-1}$	0.018	0.016	0.012
$F_i * PE_7 * ES_{i,t-1}$	0.026	0.021	0.045
$F_i * PE_8 * ES_{i,t-1}$	0.021	0.021	0.017
$F_i * PE_9 * ES_{i,t-1}$	-0.036	-0.042	0.016
$F_i * PE_{10} * ES_{i,t-1}$	-0.069	-0.073	-0.046
$TFP_{i,t-1}$	-0.240****	-0.240****	-0.240****
$Int.R\&D_{i,t-1}$	0.015****	0.015****	0.015****
$EOR_{i,t}$	0.022	0.021	0.019
$Age_{i,t}$	-0.002	-0.002	-0.002
$Size_{i,t}$	0.000	0.000	0.000
$Foreign_{i,t}$	0.097	0.113	0.117
$Group_{i,t}$	-0.040	-0.042	-0.042
$Crisis$	0.008	0.014	0.013
Constant	0.751***	0.755***	0.749***
Number of observations	1,471	1,471	1,471
Firms	251	251	251
R^2	0.320	0.323	0.319
Adjusted-R^2	0.158	0.161	0.161
Max VIF	6.710	11.320	7.910
Condition Number	9.775	18.351	13.724

*****p<.001*, ****p<0.01*, ***p<0.05*, **p<0.1*.

The coefficients are the same for CRVE (Cluster Robust Variance Estimators) and WCB (Wild Cluster Bootstrap) estimates, but the errors are different. These coefficients, robust standards errors for CRV and *p-values* for WCB estimates are not shown in this table. All these results can be obtained from the authors upon request.

Table 7. Bootstrapping results for test of conditional indirect effects at specific values of external services

		Model 7		**Model 8**	
Year	*ES*	$I(0 < EI_{i,t} \leq 0.21)$	$I(0.21 < EI_{i,t} \leq 0.69)$	$I(0 < EI_{i,t} \leq 0.21)$	$I(0.21 < EI_{i,t} \leq 0.69)$
1st	μ-σ	-0.324	-0.448	-0.326	-0.459
	μ	0.335	0.462	0.336	0.474
	μ+σ	0.994	1.372	0.998	1.407
2th	μ-σ	-0.255	-0.351	-0.256	-0.360
	μ	0.610*	0.842	0.612*	0.863
	μ+σ	1.474*	2.035	1.480*	2.086
3th	μ-σ	-0.123	-0.170	-0.124	-0.175
	μ	0.704*	0.972	0.707*	0.996
	μ+σ	1.531*	2.114	1.537*	2.167
4th	μ-σ	0.100	0.138	0.100	0.141
	μ	0.638*	0.881	0.641*	0.903
	μ+σ	1.177*	1.624	1.182*	1.665
5th	μ-σ	0.130	0.179	0.130	0.184
	μ	0.804*	1.109	0.807*	1.137
	μ+σ	1.478*	2.040	1.484*	2.091
6th	μ-σ	0.129	0.179	0.130	0.183
	μ	0.655*	0.904	0.657*	0.927
	μ+σ	1.180	1.629	1.185	1.670
7th	μ-σ	0.270	0.373	0.271	0.382
	μ	0.847*	1.169	0.850*	1.198
	μ+σ	1.424*	1.965	1.429*	2.015
8th	μ-σ	0.274	0.378	0.275	0.387
	μ	0.784*	1.082	0.787*	1.110
	μ+σ	1.295	1.787	1.300	1.832
9th	μ-σ	0.308	0.425	0.309	0.436
	μ	0.903*	1.246	0.906*	1.278
	μ+σ	1.498*	2.068	1.504*	2.120
10th	μ-σ	0.188	0.260	0.189	0.266
	μ	0.680	0.939	0.683	0.963
	μ+σ	1.172	1.618	1.177	1.659
Number of observations		1,471			
Firms		251			
5000 bootstrapping resamples					

*****p<.001*, ****p<0.01*, ***p<0.05*, **p<0.1*.

Table 8. Export intensity analysis (by including IMR in DID)

	EI
Independent and control variables	**Model 9**
$F_i * PE_1$	-0.211
$F_i * PE_2$	0.790
$F_i * PE_3$	1.505*
$F_i * PE_4$	2.106****
$F_i * PE_5$	2.666***
$F_i * PE_6$	2.253***
$F_i * PE_7$	3.276****
$F_i * PE_8$	3.114****
$F_i * PE_9$	3.560***
$F_i * PE_{10}$	2.528**
$ES_{i,t-1}$	0.463
$F_i * ES_{i,t-1}$	-3.089****
$F_i * PE_1 * ES_{i,t-1}$	2.467****
$F_i * PE_2 * ES_{i,t-1}$	3.234**
$F_i * PE_3 * ES_{i,t-1}$	3.098****
$F_i * PE_4 * ES_{i,t-1}$	2.014****
$F_i * PE_5 * ES_{i,t-1}$	2.522****
$F_i * PE_6 * ES_{i,t-1}$	1.967*
$F_i * PE_7 * ES_{i,t-1}$	2.159*
$F_i * PE_8 * ES_{i,t-1}$	1.910**
$F_i * PE_9 * ES_{i,t-1}$	2.224**
$F_i * PE_{10} * ES_{i,t-1}$	1.839**
$Int.R\&D_{i,t-1}$	0.028
$EOR_{i,t}$	1.092**
$Age_{i,t}$	0.152**
$Size_{i,t}$	0.003**
$Foreign_{i,t}$	-6.412****
$Crisis$	0.078
IMR_{it}	2.855****
Constant	0.931
Number of observations	1,539
Firms	258
R^2	0.889
Adjusted R^2	0.864
Max VIF	6.660
Condition Number	11.614

*****p<.001*, ****p<0.01*, ***p<0.05*, **p<0.1*.

The coefficients are the same for CRVE (Cluster Robust Variance Estimators) and WCB (Wild Cluster Bootstrap) estimates, but the errors are different. These coefficients, robust standards errors for CRV and *p-values* for WCB estimates are not shown in this table. All these results can be obtained from the authors upon request.

Table 9. Hotelling test (family firms that starting to export vs family firms that do not export)

	Family Firms not export activity (control sample)					***Family Firms that starting export activity (treatment sample)***				
Variables	**N**	**Mean**	**S. D.**	**Min.**	**Max.**	**N**	**Mean**	**S.D.**	**Min.**	**Max.**
TFP	209	2.31	1.51	0.21	9.47	161	3.00	2.19	0.10	12.13
Advertising Intensity	209	0.58	1.31	0.00	10.90	161	1.08	2.23	0.00	19.00
Total R&D intensity	209	0.00	0.07	0.00	0.33	161	0.01	0.02	0.00	0.14
Age	209	24.01	20.50	2.00	122.00	161	15.62	14.51	1.00	111.00
Size	209	46.44	77.34	2.00	512.00	161	75.18	146.58	8.00	970.00

2-group *Hotelling's T-squared* = 7.530
F(5,364) = 1.489; *p-value* = 0.192

Table 10. Productivity analysis for family firms (DID)

	TFPG	**TFPG**
Independent and control variables	**Model 10**	**Model 11**
PE_1	-0.020	-0.021
PE_2	-0.072**	-0.073**
PE_3	-0.057	-0.058
PE_4	-0.063	-0.062
PE_5	-0.103***	-0.105***
PE_6	-0.124****	-0.125****
PE_7	-0.156****	-0.157****
PE_8	-0.131****	-0.133****
PE_9	-0.203****	-0.204****
PE_{10}	-0.217****	-0.218****
$XP_i * PE_1$	-0.058	-0.058
$XP_i * PE_2$	0.012	0.013
$XP_i * PE_3$	-0.002	0.000
$XP_i * PE_4$	-0.098	-0.010
$XP_i * PE_5$	-0.013	-0.001
$XP_i * PE_6$	-0.074	-0.070
$XP_i * PE_7$	-0.044	-0.040
$XP_i * PE_8$	-0.126**	-0.121**
$XP_i * PE_9$	-0.095	-0.089
$XP_i * PE_{10}$	0.057	0.062
$I(0 < EI_{it} \leq 0.21)$	0.074***	0.075****
$I(0.21 < EI_{it} \leq 0.69)$	0.116	0.111
$ES_{i,t-1}$		-0.015
$TFP_{i,t-1}$	-0.249****	-0.250****
$Int.R\&D_{i,t}$	-0.000	-0.000
$EOR_{i,t}$	0.037	0.034
$Age_{i,t}$	-0.0025	-0.002
$Size_{i,t}$	0.001***	0.001***
$Foreign_{i,t}$	0.087	0.086
$Group_{i,t}$	0.020	0.022
$Crisis$	-0.001	-0.001
Constant	0.714***	0.724***
Number of observations	2,290	2,290
Firms	370	370
R^2	0.508	0.515
Adjusted R^2	0.395	0.398
Max VIF	4.040	4.040
Condition Number	9.967	10.318

****$p<.001$, ***$p<0.01$, **$p<0.05$, *$p<0.1$.

The coefficients are the same for CRVE and WCB estimates, but the errors are different. These coefficients, robust standards errors for CRV and *p-values* for WCB estimates are not shown in this table.

Table 11. Export intensity analysis considering the family firm generation (by including IMR in DID)

EI			
Independent and control variables	**Model 12**	**Independent and control variables**	
$FG_i * PE_1$	-0.164	$NG_i * PE_1 * ES_{i,t-1}$	-5.477
$FG_i * PE_2$	0.600	$NG_i * PE_2 * ES_{i,t-1}$	4.284
$FG_i * PE_3$	1.284	$NG_i * PE_3 * ES_{i,t-1}$	1.611
$FG_i * PE_4$	1.901**	$NG_i * PE_4 * ES_{i,t-1}$	0.450
$FG_i * PE_5$	2.766**	$NG_i * PE_5 * ES_{i,t-1}$	0.487
$FG_i * PE_6$	1.872**	$NG_i * PE_6 * ES_{i,t-1}$	-0.501
$FG_i * PE_7$	2.600****	$NG_i * PE_7 * ES_{i,t-1}$	0.607
$FG_i * PE_8$	2.482**	$NG_i * PE_8 * ES_{i,t-1}$	-0.155
$FG_i * PE_9$	2.809*	$NG_i * PE_9 * ES_{i,t-1}$	1.959
$FG_i * PE_{10}$	1.142	$NG_i * PE_{10} * ES_{i,t-1}$	-1.897
$FG_i * ES_{i,t-1}$	-3.714****	$Int.R\&D_{i,t-1}$	0.025
$FG_i * PE_1 * ES_{i,t-1}$	3.269***	$EOR_{i,t}$	1.070**
$FG_i * PE_2 * ES_{i,t-1}$	4.173****	$Age_{i,t}$	0.140**
$FG_i * PE_3 * ES_{i,t-1}$	4.161****	$Size_{i,t}$	0.003**
$FG_i * PE_4 * ES_{i,t-1}$	2.789****	$Foreign_{i,t}$	-6.540****
$FG_i * PE_5 * ES_{i,t-1}$	3.396****	$Crisis$	-0.068
$FG_i * PE_6 * ES_{i,t-1}$	3.048*	IMR_{it}	3.251**
$FG_i * PE_7 * ES_{i,t-1}$	3.166****	*Constant*	1.293
$FG_i * PE_8 * ES_{i,t-1}$	2.736**		
$FG_i * PE_9 * ES_{i,t-1}$	3.258**		
$FG_i * PE_{10} * ES_{i,t-1}$	3.199**		
$NG_i * PE_1$	-1.562		
$NG_i * PE_2$	-1.322		
$NG_i * PE_3$	-0.023		
$NG_i * PE_4$	0.907		
$NG_i * PE_5$	0.011		
$NG_i * PE_6$	1.952*		
$NG_i * PE_7$	2.281		
$NG_i * PE_8$	3.724***		
$NG_i * PE_9$	2.381		
$NG_i * PE_{10}$	4.684***		
Number of observations	1,539		
Firms	258		
R^2	0.892		
Adjusted R^2	0.864		
Max VIF	8.360		
Condition Number	11.098		

*****p<.001*, ****p<0.01*, ***p<0.05*, **p<0.1*.

The coefficients are the same for CRVE (Cluster Robust Variance Estimators) and WCB (Wild Cluster Bootstrap) estimates, but the errors are different. These coefficients, robust standards errors for CRV and p-values for WCB estimates are not shown in this table. All these results can be obtained from the authors upon request.

Table 12. Productivity analysis for family firms considering the family firm generation (DID)

	TFPG
Independent and control variables	**Model 13**
$FG_i * PE_1$	-0.005
$FG_i * PE_2$	-0.033
$FG_i * PE_3$	-0.021
$FG_i * PE_4$	-0.053
$FG_i * PE_5$	-0.064****
$FG_i * PE_6$	-0.097***
$FG_i * PE_7$	-0.122***
$FG_i * PE_8$	-0.121***
$FG_i * PE_9$	-0.156**
$FG_i * PE_{10}$	-0.107***
$NG_i * PE_1$	0.089
$NG_i * PE_2$	-0.045
$NG_i * PE_3$	0.080
$NG_i * PE_4$	-0.039
$NG_i * PE_5$	-0.023
$NG_i * PE_6$	-0.005
$NG_i * PE_7$	-0.059
$NG_i * PE_8$	-0.112***
$NG_i * PE_9$	-0.244****
$NG_i * PE_{10}$	-0.138**
$FG_i * I(0 < EI_{it} \leq 0.21)$	0.049****
$FG_i * I(0.21 < EI_{it} \leq 0.69)$	0.118**
$NG_i * I(0 < EI_{it} \leq 0.21)$	-0.161**
$NG_i * I(0.21 < EI_{it} \leq 0.69)$	-0.572****
$TFP_{i,t-1}$	-0.246****
$Int.R\&D_{i,t}$	0.003
$EOR_{i,t}$	0.028
$Age_{i,t}$	-0.004*
$Size_{i,t}$	0.001*
$Foreign_{i,t}$	0.090
$Group_{i,t}$	0.004
$Crisis$	-0.012
Constant	0.714***
Number of observations	2,289
Firms	370
R^2	0.514
Adjusted R^2	0.397
Max VIF	2.320
Condition Number	8.418

****$p<.001$, ***$p<0.01$, **$p<0.05$, *$p<0.1$.

The coefficients are the same for CRVE and WCB estimates, but the errors are different. These coefficients, robust standards errors for CRV and *p-values* for WCB estimates are not shown in this table.