When Less Family is More:

Trademark Acquisition, Family Ownership, and Internationalization

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Highlights

1) We examine the relationship between the acquisition of trademarks and international performance.
2) Family ownership negatively moderates the association.
3) The effect of trademark acquisition on international performance varies with the degree of family ownership.
4) We introduce a continuous variable for family ownership to overcome the dichotomy between family/ non-family firms.
5) We analyze 189 listed firms in France, Germany, Italy, Spain and the UK over 4 years yielding 712 observations.

Abstract

This study examines the relationship between international performance and the orientation of the firm towards trademark acquisition, and discusses family ownership as a moderator of this association. We conceptualize our study along three interrelated lines of 'openness' i.e. openness towards external resources, openness of governance, and openness towards international markets. The empirical investigation relies on a panel data analysis over four years, and on a cross-industry sample of European listed companies consisting of 712 observations. Our outcomes reveal that the attitude of the company to enrich the brand portfolio with externally developed trademarks is positively associated with the firms' international performance. We also find that this relationship is moderated by family ownership. "Less family is more": we find a positive relationship of openness towards trademark acquisitions with the firms' international performance, which decreases with the presence of a family in a dominant position.

Keywords: intangible assets, trademark acquisition, ownership, family firm, international performance, public firm.

INTRODUCTION

The ability to access and internalize external resources has become a crucial factor of success in the globalized economy (Chen, 2009; Park, 2011; Wang *et al.*, 2013). It feeds the strategic agility and enriches the diversity of the asset portfolio, supporting a better entry and expansion in new markets, and cultures (Bobillo *et al.*, 2010; Wang *et al.*, 2013; Yeoh, 2004). The innovation stream of research devoted much attention to external acquisition of intangibles, and mainly to the sourcing of assets such as knowledge or patents and alike (Chesbrough, 2003; Manolopoulos *et al.*, 2005; Mortara *et al.*, 2011).

We argue that international business studies should pay more attention to the acquisition of externally developed resources, also accounting for other kinds of intangible assets such as brands. Buying in brands is a fruitful strategy when a company plans to expand in international markets, especially when the company lacks brand awareness (Child and Rodrigues, 2005; Guillen and Garcia-Canal, 2009; Luo *et al.*, 2007) or when it acquires brands which appeal to consumers' wants in foreign markets. In general, brands and trademarks support firms' international performance as they constitute a major factor in achieving competitive advantage through differentiation and reputation (Deng and Tscale, 2003; Hall, 1992).

If, on one hand, brands are widely recognized as being strategic to successfully expand and operate abroad, on the other, the literature is little and inconclusive with regard to this issue, especially when companies achieve superior international performance through externally developed trademarks (Sharma *et al.*, 2017). On the other hand, a company that becomes more internationalized is likely to be more interested in exploring and maybe acquiring new brands to expand its ability to cope with new and diversified customer expectations. Several examples show that these strategies are becoming more and more popular. Consider, for instance Tata Group, which stated the necessity to buy a brand with global appeal (Gubbi *et al.*, 2010), or Rapala, which bought the Swedish Mora ICE brand and with it (and others) a global leadership position in the ice fishing category.

The topic is highly relevant in family business studies. Firstly, because of the 'sensitive liaison' between the family name/reputation and the business. Family businesses are particularly adept at leveraging on their brands (eg Johnson & Johnson – 'The family company'). Secondly, the development and exploitation of a strong brand – in contrast with rapid obsolescence of technologies – cover a long path, sometimes lasting decades and so intertwine firm and family history (Craig *et al.*, 2008; Micelotta *et al.*, 2011; Reuber *et al.*, 2011). Family firms are well known for the effort they put in establishing their identity because of closer identification with the company (Dyer and Whetten , 2006). Hence, we argue that family influence is important in our context. For example we surmise that the presence of family mitigates the positive effects of trademarks acquisition, because of the tendency to preserve and assign priority to internally developed brands because they make part of the family history and tradition.

Given this premise, our study aims at establishing a relationship between acquisition of trademarks and the firms' international performance, investigating if and how (dominant) family ownership affects this interplay. The contribution is framed along three lines of 'openness': (a) openness towards external acquisition of trademarks, (b) openness of family ownership, and (c) openness towards internationalization. In doing so, we bridge research streams – acquisition of external non-technological intangibles, internationalization and family firms – to extend knowledge on the drivers of firms' international performance.

We consider all types of acquired trademarks, domestically and internationally sourced, of interest for international performance in our research setting. As mentioned before, we intend to offer a novel perspective in the field by investigating the 'strategic openness' towards external resources in the medium-long run, more than considering a mere market entry mode. In other words, the study aims at developing fresh insight in the field by establishing a link between different *forms of openness* (sourcing intangible assets externally, and venturing across borders), and not between different forms of entry (venturing across borders through acquisition of foreign brands).

The approach is in line with the premises of the resource based view which supports the crucial role of all intangible assets in supporting international performance (Lu *et al.*, 2010; Westhead *et al.*, 2001), such as, in our context, reputation which comes with trademarks or intangible resources related to firm governance. For example, particular intangible assets of family firms are commitment and stewardship which ensue from the above mentioned attachment of the family to the business or their longer term perspective – characteristics that have been linked to both product and international diversification strategies.

Extant research regarding the internationalization of family firms shows contrasting findings regarding, for example, its drivers, the building of strategic resources or international performance (e.g. Calabro *et al.*, 2013; Casillas and Moreno-Menéndes, 2017; Kontinen and Ojala, 2011; Pukall and Calabrò, 2014), which underline that little is known about their distinctive resources and their sources of competitive advantage. In general, among intangible resources, extant literature gives primary importance to technological resources and technological innovation (Caves, 1996; Denicolai *et al.*, 2015; Kotha *et al.*, 2001), while Hall (1992) found that managers considered firm and product reputation, encapsulated in the brand or trademark, as the most valuable intangible assets of their firms. With our study we aim to shed light on this related, but less explored topic which is an important and growing phenomenon in international business (Damoiseau *et al.*, 2011). Overall, a better understanding of the interrelations between the three forms of 'openness', ie. of governance, towards externally sourced trademarks, and towards international markets, may highlight factors which enhance, or inhibit, the international performance of family firms. Another important contribution concerns the generation of new knowledge about the moderating effect of family ownership on the relationship between externally acquired trademarks and foreign sales intensity. Scholars struggle in providing a common definition and operationalization of the family firm (Chrisman *et al.*, 2005; Siebels *et al.*, 2012), thus we investigate family ownership adopting a continuous variable. The majority of studies comparing family business and non family business rely on dichotomous variables which imply the recognition of family firms as homogeneous bodies. By

contrast, the adoption of continuous metrics is fundamental for a better understanding of variations among family firms (Chua *et al.*, 2012). Finally, through the investigation of non-technological assets we complement the open innovation stream of research which is primarily concerned with technological resources.

The paper is structured as follows. We first present extant studies about the acquisition of intangibles, its linkages with family governance and firms' international performance to develop our hypotheses. A brief methodology section precedes the empirical part of the study, which investigates a cross-country sample of European listed companies, through a panel data analysis over four years. Discussion and conclusions terminate the paper.

THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

Intangible Assets and International Performance: Brand creation or brand acquisition?

The literature in strategic management pays growing attention to the need for external resources and capabilities to complement the portfolio of internally developed assets (e.g. Bonardo *et al.*, 2010; Kogut and Zander, 1992; Kotlar *et al.*, 2013; Tsai *et al.*, 2008; Wang *et al.*, 2013). The benefits of external acquisition of resources include, for example, higher return on investment, lower costs, increased flexibility and reduced waiting time (Cesaroni, 2004; Zahra *et al.*, 2002), access to specialized skill sets, and creativity and the possibility to rapidly diversify not only knowledge but also products and markets (Buckley *et al.*, 2016).

Benefits and drawbacks of acquisition in the field of international business – and not only – are mainly studied in relation to technological assets (Denicolai *et al.*, 2014; Symeonidou *et al.*, 2017; Wang *et al.*, 2013). Though important, these represent just one type of assets, and other resources, customer- or market-related, should not be overlooked (Hagen *et al.*, 2012; Hess and Rothaermel., 2011; Zucchella *et al.*, 2007). Trademarks, "*a distinctive sign, which identifies certain goods or services as those produced or provided by a specific person or enterprise*" (World Intellectual Property Organization – WIPO, 2012) represent such customer- and market-related assets They are

most commonly filed in the form of a logo, symbol, name or phrase, but they can also be filed as a specific color, sound, or a combination of these factors. Most importantly, a trademark should be distinctive, i.e., it should not confuse consumers by being identical or too similar to an already registered trademark (Mendonca *et al.*, 2004). Trademarks have two main functions: first, through a trademarked brand name and brand elements, consumers can identify the products that are offered by a specific firm. As such, trademarks ensure differentiation and therefore enable consumer recognition in ever more crowded marketplaces (Waeraas *et al.*, 2015). Second, trademarks are viewed as the foundation on which brand value can be built, securing benefits from current and future marketing investments (Block *et al.*, 2014). Thus, trademarks not only stand for, they also protect reputation. Trademarks are important intellectual property assets that enhance shareholder value (Davidson, 2004). In this vein, Krasnikov, Mishra & Orozco (2009) highlight the positive relation between trademarks and the firms' financial value. Block, De Vries, Schumann & Sandner (2014) have found that trademarks positively impact on market valuation and can be taken as a proxy for protection of marketing assets. These considerations point to the fact that trademarks in the eyes of major stakeholders – investors but also family in a dominant position – are associated with market expansion and growth orientation of firms.

Despite the relevance of the topic, very little literature is available with regard to the association between firms' international performance and the openness of the firm to acquire trademarks developed by other companies, and empirical evidence is almost absent. Among the few contributions, Papageorgiadis et al. (2016) show that copyright and trademark enforcement strength are crucial in stimulating international licensing flows. The work highlights the importance of these assets for international expansion, but it focuses on country level only.

The acquisition of trademarks or, in other words, the intensity with which the firm makes use of it, reflects the strategic posture of the firm, its openness towards external assets that offer growth opportunities by entering both new customer's segments and/or geographical areas (Tao *et al.*, 2017). Under this line of thought a brand portfolio including a relevant portion of externally generated

trademarks is a fast track to markets and sales, both domestic and international, as existing brand recognition and appreciation by consumers are bought in. Brand creation is a time-consuming effort with a rather high risk of failure, and even more so in foreign markets, where firms are subject to the liability of foreignness (Zaheer, 1995). The stream of studies on the internationalization of emerging market multinationals which target fast international expansion in developed markets through the acquisition of established brands and with market reputation confirms this view (Guillen and Garcia-Canal., 2009; Luo *et al.*, 2007). Along the lines of the 'make or buy decisions' in the firm, the main benefits of a pronounced openness towards brand acquisition are that costs can be evaluated against actual outcomes attributable to the brand, the potential for synergy with existing brands leading to reduced costs or an increase in marketing competence or both (Damoiseau *et al.*, 2011). Finally, and importantly, acquired brands have existing market presence, established manufacturing and extant customer bases and distribution networks (Gaur and Kumar., 2009) and thus are readily exploitable. *Vice versa*, it is also expected that organizations develop and acquire new brands as they become more international. As the firm ventures abroad it will learn more about the foreign customer wants and requirements and become aware of new opportunities (Johanson and Vahlne, 1977; Zahra et al., 2005; Muzychenko and Liesch, 2015). Not necessarily these can be satisfied or exploited with the existing brand portfolio or can be developed internally.

Mainstream arguments highlight primarily the benefit of acquiring *foreign* trademarks. However, there are good reasons to argue that *all* trademarks sourced from third parties may boost the international performance, including domestic ones. Firstly, more and more in the globalized economy a well-known national brand can be internationalized to serve the purpose of targeting a specific segment in a foreign country (Sharma *et al.*, 2017; Stocchi *et al.*, 2017). For instance, expansion abroad is frequently pursued through the exploitation of a national brand, as is the case with a 'Made in' or the 'Country-of-Origin' (Keller, 1993; Peterson *et al.*, 1995) or in the case of brands which appeal to a segment that is present in many markets or even globally. Following this argumentation, we support a 'strategic view' of the issue best illustrated with the '(international)

brand architecture' (Townsend et al., 2009). According to the authors it is the creation of such an 'international brand architecture', its composition – including the orientation towards internally vs externally generated trademarks – and its complementarities that at the end lead to superior performance in global expansion. This view points out that brands are not static in their status or relevance (e.g. domestic vs foreign): by contrast they evolve as the outcome of the internationalization process, and their value also depends on the consistency with the overall strategic architecture. Within the international brand architecture there are different brands at different positions, and these positions in the global strategy change over time. The strategy underpinning a performing 'international brand architecture' is not limited to the fit between one asset and one country, since the foreign expansion is supported also by diversity and complementarities of the trademark portfolio, especially for medium and large companies (Douglas *et al.*, 2001; Patel, 2014; Townsend *et al.*, 2009). For example, Nestlé breaks it overall portfolio of several thousand brands down into strategic global, regional and local brands. The portfolio, its structure and the 'origin' of the brands changes over time and in function of a dynamic economic and consumer landscape (Nestlé, 2006).

The brand architecture and more in particular the firms' portfolio breadth and depth are also associated with the capacity of the firm to exploit the potential of a new trademark. Depth and breadth refer to the 'origin' of trademarks including both national and foreign trademarks but also their in-house or external development. Under the views of open innovation and organizational learning literatures, diverse – here acquired - trademarks trigger learning and the creation of more/more variety of knowledge and competencies which helps to renew, adapt and change, most useful on foreign (and domestic) markets (e.g. Zahra et al., 2000; Zahra, 2012; Chesbrough, 2003; Symeonidou et al., 2017). Therefore, an adequate measure of openness towards the acquisition of trademarks and a reflection of the strategically composed overall brand architecture as discussed above must consider the degree or intensity of externally acquired trademarks (TAI) in relation to the overall trademark portfolio of the firm (internal and externally developed).

Formally we propose the following hypothesis 1:

H1: The Trademarks Acquisition Intensity (TAI) is positively associated with the Firms' International Performance.

Family Firms' Strategic Conduct, Trademark Acquisition and Internationalization

As argued above, the acquisition of a trademark has the potential to open new segments or market opportunities, but it requires appropriate conditions to leverage on the newly acquired resources (Rui *et al.*, 2008; Zheng *et al.*, 2016). Some factors may encourage or discourage decision makers from sourcing assets outside the firm's boundaries and using them strategically to achieve (international) performance. In other words, the relationship between internationalization and externally generated trademarks is likely to be subject to contingent factors. With regards to such contingent factors we argue that the family presence is of interest to strategy (e.g. Sirmon *et al*., 2008) and diversification strategy in particular (Gomez-Mejia *et al*., 2010) and that family ownership may act as a moderator of the relationship between trademark acquisition and international performance.

A brief discussion of the construct of family business, its definitions and operationalization introduces and gives a sense to our approach. Literature provides several views and lacks largely accepted definitions and empirical metrics (Feranita *et al.*, 2017; Pindado *et al.*, 2015; Sharma *et al.*, 2012). The dominant stream classifies a company as family business according to the ownership structure and/or the presence of family in the board of directors (e.g.Anderson and Reeb, 2003; Fahlenbrach, 2009; Miller *et al.*, 2007). However, what remains unclear is the threshold which makes the company a family firm (e.g. 5%, 10%, or 51%?) and the 'why' of the chosen threshold. Some scholars point out that this threshold is not absolute, since it depends on several factors, including country- and cultural-specific factors (Dunn, 1996; Martin-Reyna *et al.*, 2012). Our study deals with such issues through a continuous measurement of family ownership meaning the percentage of company shares owned by family/families, and in particular the 'dominant family'. We recognize that the influence of the family also plays out through other variables such as board membership, for

example. However, as is the case with percentages of ownership, also management involvement is subject to country- and culture-specific circumstances (Aguilera and Crespi-Cladera, 2012). On an interesting note, some studies report a high correlation – up to 0.96 – between percentage of family ownership and influence of the family in the board (Schulze *et al.*, 2001). Therefore, for a cross-country study as is our case, we view ownership and especially a continuous measurement as appropriate. Using family ownership we also aim to capture 'imprinting' and openness of the company governance, and to understand whether and to what extent the family business is inclined to preserve internal brands against those externally developed.

We turn now to a brief description of key characteristics of (single)-family controlled firms which may positively or negatively influence the performance effect of acquired trademarks in international expansion. Property ownership is a strong form of influence: in both modern common and civil law it confers the rights of *usus* – right to use property – and *abusus* – right to alter, modify, or destroy – on property owners (Carney, 2005; Williamson, 1985). La Porta et al. (1999, p. 28) add: "*the dominant form of controlling ownership in the world is not that by banks or corporations but by families*". Ownership is regarded as a safeguard of the desire to maintain 'familiness' which results from the close identification of the family with the firm, and its attachment and commitment to the firm. It is also a means of maintaining control to confront the risk bearing of family firms that are concerned with the (long term) concentration of their family's wealth in the organization. We argue that these two key traits of family governance, i.e. 'familiness' and risk bearing (Gomez-Mejia *et al.*, 2010), lead to capital and managerial constraints which moderate negatively the strategy of trademark acquisition and their success on international markets.

At a first glance, embedding trademark acquisition in an ownership structure that endorses and leverages brands as we have mentioned earlier (Craig *et al.*, 2008; Micelotta *et al.*, 2011), is more likely to lead to improved international performance. For example, Craig, Dibrell & Davis (2008) on a product-market level, describe family firms to achieve market success by identifying family with brand identity. The association of the family name with the firm products and brand reflects the

willingness of the family to have its name recognized and respected within the community (Dunn, 1996) which corresponds to the family's objective of augmenting family reputation via the business (Berrone *et al.*, 2010). Family visibility is also prominent in large publicly traded family companies, which often advertise their family roots (e.g. Johnson & Johnson – The family company). However, at a second glance, families are emotionally strongly attached to their identity and thus to (family) brands which are intertwined with family history and reputation (Gersick *et al.*, 1997; Zahra, 2012). With externally developed brands they may see a misfit with or even a loss of their identity and reputation and a threat to shared (family) values. Also, acquired trademarks most probably respond to new challenges on international markets and thus, in the eyes of the family, may represent a deviation of the company's strategic direction.

High ownership stakes, beyond guaranteeing control and safeguarding the maintenance of 'familiness', also promote the involvement and participation of multiple generations in the firm, (Gersick *et al*. 1997) and so provide an opportunity to learn about the business and reinforce the family members' identification and attachment with the firm (Pierce *et al*. 2001) which may exacerbate the perceived misfit and the threat to family brands. All other things equal, family controlled firms therefore will give priority to the promotion of internally developed brands and so loose the opportunity of synergistic effects of the overall brand architecture and portfolio.

The increased complexity which is associated with the integration and use of externally developed trademarks requires increased management and financial support. 'New' knowledge and capabilities must be generated and 'more' financial support must be guaranteed in order to leverage the acquired trademark on international markets. Portfolio diversification through trademark acquisition thus requires expertise from parties external to the firm (Galve Górriz and Salas Fumás, 1996; Schulze *et al*., 2003). The family must be open to adding a new cadre of managers, outside advice, or professional management on international markets, to generate international performance. For example, Anderson and Reeb (2004) found that only with outside voices (i.e. independent directors) family involvement led to performance increases. However, hiring outside managers and changes in

the firms' organization are likely to find resistance from family members who may feel that their influence is being reduced (Zahra, 2012) and fear information asymmetries, goal conflict (Galve Górriz and Salas Fumás, 2002), corroded authority and again, a threat to identification. In fact, family firms have been reported to be less likely to incorporate outsiders' perspectives and opinions in their decision making (Gomez-Meja *et al*., 2010; Galve Górriz and Salas Fumás, 2002). In the case of a single controlling family, such 'insulation' or 'alienation' (Nordqvist, 2005) is expected to be even more pronounced leading to managerial constraints which negatively impact international performance. The same line of thought applies to the generation of financial resources. Trademark acquisition and internationalization are resource consuming strategies which will require more external funding, which can be obtained by issuing new stock or through debt financing. Higher debt levels increase dependence on and influence of outsiders (e.g. banks), which, similarly to our argumentation above, may reduce the family's authority, influence and power (Schulze *et al*., 200). Family owners consequently will be more reluctant to borrow funds to support the use of externally developed trademarks on international markets and so loose growth opportunities and performance. With regard to a single controlling family, the 'parsimony' (Carney, 2005) and reluctance towards accessing additional resources of family firms is amplified by the entrenchment effect of dominant owners (Anderson and Reeb, 2003, 2004) who are in a position to divert firm resources to serve family needs and lead to conservatism and risk aversion from which inadequate investment in renewing products or trademarks ensue (Bertrand and Schoar, 2006; George *et al.*, 2005; Gomez-Mejia *et al.*, 2003). In summarizing our discussion of the adverse impact of family ownership – which reflects the openness of the family – we propose that family ownership is 1) a strong proxy in assessing the inherent reluctance of the firm towards trademarks developed by other actors and 2) a new, valuable moderating variable in the trademark acquisition – international performance association.

Although we have touched upon the 'dominant family' in our discussion above, we add here more details concerning the ownership structure which relates to family control. For example, the two

situations where many families own almost equal shares of the company and the one where just one family is dominant depict radically different scenarios for firm strategizing. The 'family in a dominant position' here is the family owning the highest percentage of company shares. The dominant family often sets the strategy of the company across generations (Habbershon and Willliams., 1999). The investigation of this condition is a further step forward in the understanding of variations among family firms since it goes beyond the dichotomy family vs non-family business (Chua *et al.*, 2012).

Some scholars support a positive effect of ownership concentration, since it facilitates long-term orientation (Hill and Snell, 1988) and because of the incentive to monitor the company more carefully (Demsetz and Lehn, 1985). However, in general, research is highly inconclusive with regard to effects of having a family in a dominant position (Kraus *et al.*, 2016; Singla *et al.*, 2011; Singla *et al.*, 2017). In the context of this research we surmise that concentrated ownership amplifies the negative influence of the family ownership as moderator between openness towards external asset acquisition and international performance (H2). Having a dominant family in the ownership structure reduces agency issues, thus making the family influence even more impactful (Jensen and Mecklin., 1976; Silva *et al.*, 2008). Singla *et al.* (2011) empirically show that concentrated ownership is more impacting than family control over board and managerial roles. *Vice versa*, some scholars point out that when the ownership is significantly dispersed among several families, the relevance of this variable – family ownership – as a proxy for family influence becomes less significant (Harris and Ogbonna., 2007).

Concentrated ownership tends to create a tension between family and other shareholders, where the most intriguing issue from a research standpoint is the 'grey' area in which the continuum of family – from low to high ownership – can highlight differentiated impacts on strategic investments. Some recent works point out that family is a matter of degree (Chrisman and Patel ., 2012; Li *et al.*, 2016; Miller *et al.*, 2010; Sciascia *et al.*, 2012) and argue that the higher the family involvement and ownership concentration, the more negative is the influence on different dimensions such as investment, internationalization and growth.

All these arguments taken together, we posit a second hypothesis as follows:

H2: The percentage of shares owned by the family in a dominant position negatively moderates the relation between Trademarks Acquisition Intensity and Firms' International Performance.

RESEARCH DESIGN AND METHODS

Method, Data and Sample

The empirical analysis relies on a panel regression analysis using a proprietary database consisting of 178 firms over four years (2008-2011), meaning 712 observations in total. Outcomes are supported by a study for possible endogeneity issues, and by several robustness checks (see below).

Our database consists of a cross-industry and cross-country sample, which contains listed companies from the five largest European countries: United Kingdom, Germany, France, Italy, and Spain. In Western European countries family firms are reported as the most common firm type (Faccio and Lang, 2002). The cross-country sample adds empirical value since most research has so far involved single country studies only (Kontinen and Ojala, 2010). Given the fact that ownership structures are institutionally independent as argued earlier, the cross-country sample enhances external validity of our findings across a wide range of economies. Furthermore, the adoption of continuous variables allows to overcome the issue of defining a threshold for family ownership, thus mitigating the issue of potentially different levels in various countries.

Data were collected through the following procedure. In the preliminary stage, we ran a preliminary analysis considering all the 2178 listed companies on the stock exchange markets of the above mentioned countries. The survey was limited to EU countries since they adopt the 'International Financial Reporting Standards' (IFRS), which makes the collected data comparable due to common compulsory accounting principles. Then we selected for further analysis only those companies which satisfied four conditions. We focused on the item 'Trademark' in the financial statements of the

companies. This is a class of intangible assets accounted for as net book value of brand names owned by the company. Intangible assets are defined by IAS 38 as "*an identifiable non-monetary asset without physical substance. An asset is a resource that is controlled by the entity as a result of past events (for example, purchase or self-creation) and from which future economic benefits (inflows of cash or other assets) are expected*". The value of a trademark is measured as the '*costs incurred initially to acquire or internally generate an intangible asset and those incurred subsequently to add to, replace part of, or service'* (IAS 38, p. 18). Externally sourced trademarks include all acquired trademarks – but not internally developed ones – making no difference between the different ways of acquisition (separate acquisition or business combinations). According to International Financial Reporting Standards (IFRS), listed organizations are obliged to provide data regarding intangibles, but they are free to show – or not – the composition of this pool of resources, which may embrace also other assets such as patents or copyrights. This circumstance led us to consider only financial statements, which provide information that allowed us to identify the value of 'Trademarks' in an unambiguous way, meaning clearly separated from other types of intangibles. Our data refer to flow values, meaning the value of the trademarks acquired or internally generated in the year. Second, we accepted the annual report only if it showed a clear-cut distinction between 'Internally-generated Trademarks' and 'Externally-generated Trademarks'. This process is consistent with prior literature on intangible resources (Garcia-Muina and Navas-Lopez, 2007; Kristandl and Bontis., 2007). Third, the company headquarter must be in the same country as the stock exchange. Finally – as a fourth condition – we have accepted only companies which allowed us to collect accurate information concerning family presence in the business as described in the next section.

This rigorous sampling procedure left a database consisting of 178 firms without missing values which satisfy simultaneously all four criteria. At this stage, we analyzed four annual reports in four successive years (2008, 2009, 2010, 2011) for each of these organizations to collect all the data needed for the panel regression analysis.

Table 1 and 2 report information regarding the sample composition in terms of industries and countries (see column 1). This composition is consistent with the full group of 2178 companies listed in the above mentioned stock exchanges. Column 2 shows how the family ownership varies across countries and industries. The average share owned by the family in our sample is 17.7%, whilst among the considered countries this mean is significantly lower in UK (9.6%). Considering a threshold equal to 10% for family ownership, family firms are 49.9% of our sample (this value significantly varies across countries: it is 45.9% in UK, and 58.65% elsewhere). These evidences are consistent with earlier surveys in the field (e.g. Anderson and Reeb, 2003b; Perez-Gonzalez, 2006).

TABLE 1 ABOUT HERE

TABLE 2 ABOUT HERE

Measures

Table 3 shows the variables used for the panel regression procedure. The dependent variable is 'Foreign sales Intensity' (FI), here measured as the ratio of overseas sales to total sales. We could thus take into account also overseas sales made by foreign affiliates, and not just export from the home country (Calof, 1994; Shoham, 1998). These values come from the analyzed annual reports.

TABLE 3 ABOUT HERE

The main explanatory variable is the orientation of the firm towards externally generated trademarks. Here this variable is labeled *'Trademark Acquisition Intensity' (TAI)* and it is measured as the net book value of externally-generated trademarks at the balance sheet date in year ‘t’ divided by the net book value of internally-generated plus externally-generated trademarks in the same year. These are flow values – not stocks – again as reported by the company in the section regarding

intangible assets in official financial reports. As a ratio, this variable ranges between 0 and 1. A low value of TAI suggests a reliance on internal development of trademarks, while companies with high ratios buy in substantial proportions of their portfolio of brands.

The moderating variable '*Dominant Family Ownership' (DFO)* is equal to the share (%) of the family owning the highest share, to consider the effect of a family in a dominant position. We already discussed from a theoretical standpoint why we used this variable instead of a combination of ownership and management control, as frequently happens in family business research. Here we add further motives from a methodological view. The management component is more subject to the institutional aspects of the country (Aguilera and Crespi-Cladera, 2016) and therefore is not appropriate in our cross-country research setting. Moreover, a combination would not allow to isolate interactions and implications of the two different influences (Liang *et al.*, 2014; Singla *et al.*, 2014). Importantly, a large body of contributions in the field operationalizes the construct of family firm by considering an ownership threshold: above a given percentage of ownership the company is considered as controlled by the family. The choice of this threshold is a matter of discussion (Chrisman et al., 2004; Siebels and Knyphausen-Aufsess, 2012). Some authors (Gomez-Mejia et al., 2003) argue that an ownership of 5% is sufficient to exercise substantial influence. La Porta, Lopez-de-Silanes & Shleifer (1999) use the more conservative threshold of 10%. Anderson and Reeb (2003b) propose a stake of 20% or greater. This threshold is also dependent on several aspects, including country-specific factors (Dunn, 1996; Faccio and Lang, 2002). To sum up, an accepted discrete threshold is still lacking. Other scholars combine different dichotomous determinants in a multidimensional variable (Klein *et al.*, 2005b), but also this option attracted criticism (Siebels and Knyphausen-Aufsess, 2012).

In our research, therefore, we operationalize the ‘Dominant Family Ownership’ (DFO) as a continuous variable. Literature highlights the need for continuous, instead of discrete, variables (Kotlar *et al*., 2014; Miralles-Marcelo *et al*., 2014; Siebels and Knyphausen-Aufsess, 2012) and the focus on the moderating effect of DFO suggests to reduce the use of multidimensional variables

(Bissonnette *et al.*, 1990). Family ownership as conceptualized and operationalized in this study has been fruitfully used in several other studies (e.g. Ahlers *et al.*, 2017; Miller *et al.*, 2014; Tsao *et al.*, 2015; Westhead *et al.*, 2001; Zahra, 2012). Family ownership consists of the participation in the company stakes by family members or through family holding funds, private family companies and public companies (with clear family ownership). Moreover, newspapers and the company history were always reviewed with the objective of identifying changes of the firm ownership in time. This information was collected using FactSet and Orbis databases, the firm's financial records and several newspapers, magazines and company websites.

Finally, we consider some control variables. At the company level, we used: Age of the firm, Size of the firm, and Return on Investment as appropriate profitability measure considering that investment in trademarks is a core of this study. Furthermore, we adopted some control variables related to the family presence: Number of Families involved in the ownership structure, and Presence of Family in the Board of the Company. Furthermore, we use a dummy variable (BA) to reveal if Trademarks have been acquired through a business acquisition – acquisition of the whole company - to establish a difference compared to the case when the company buys the asset as taken alone. This information was collected thanks to: Database FactSet and Orbis, Annual Reports, Company websites (see Table 3 for further details). Finally, we consider time dummies.

Table 4 presents the means and standard deviations for the above mentioned variables, as well as the bivariate Pearson correlation coefficients. The dependent variable – FI (Foreign sales Intensity) – is fairly balanced, covering the entire range from 0% to 100% and showing low skewness (mean=53,5%). The correlations between variables are low, hence the likelihood of multicollinearity problems in the panel regression analysis is low.

TABLE 4 ABOUT HERE

FINDINGS

Table 5 shows the outcome of the panel regression analysis (fixed effect). The Model 1 includes the control variables only. None of the control variables is significant, except for ROI which is associated with international sales (FI), in line with core international business theory that argues for a positive relationship between the performance of the firm (measured by a variety of indicators such as e.g. ROI) and its degree of multinationality (Contractor *et al*., 2003).

Model 2 explores the first research hypothesis and investigates if the orientation towards externally generated trademarks – as measured by TAI – is associated to FI. The coefficient of TAI is significant (p-value<0.05) and remains stable over models. The first research proposition is thus accepted: our findings suggest that the acquisition of trademarks is associated with fostering foreign sales intensity, though the magnitude of this effect appears to be moderate at this stage of analysis.

The number of families ('NFAM') does not directly affect international performance, so we test in Model 3 if dominant family ownership (DFO) alters the relationship between TAI and FI in its form and/or strength, as suggested with our hypothesis 2. The coefficients of both TAI and 'TAI_DFO' are statistically significant in this step of the regression study. P-values are equal to 0.007 (TAI) and 0.089 (TAI_DFO) respectively. The former coefficient is positive (0.0778), while the latter is negative (-0.161). Hence, the research hypothesis 2 is supported: the presence of a Family with high percentage of shares (DFO) negatively moderates the association between the company orientation towards externally generated trademarks (TAI) and Foreign sales Intensity (FI). The joint effect of the coefficients TAI and TAI_DFO taken together is also significant according to linear restriction tests (Prob > F =0.0257). This outcome remains stable also by removing DFO (TAI= .081, p-value<0.05 ; TAI_DFO= -.174 p-value<0.1), thus confirming the reliability of the finding. This emphasizes the role of family ownership as contingent variable affecting company investments, and not as directly associated with international performance. Therefore, findings show the moderating

effect of dominant family ownership over the trademark acquisition effect, but not *vice versa*: when looking at DFO, just an interaction effect is noticed (Lumpkin and Dess, 1996).

We also tested a pooled OLS regression (see Table 6), adding dummy variables for country and industry. Once again the moderating effect of DFO over TAI in affecting FI is verified. Here the coefficient of TAI is no longer significant when taken alone, supporting the importance of the dominant family ownership as a moderator that switches on/off the effect of investing in externally developed trademarks. Mean VIFs – between 4.65 and 4.85 - offer a further confirmation that correlations among variables are a minor issue. As expected, VIF are rather high for country dummies, whilst values for other variables are very low: omitting countries and industries, the highest is reported for Firm Size (between 1.94 in Model 1 and 1.98 in Model 3).

TABLE 5 ABOUT HERE

TABLE 6 ABOUT HERE

Figure 1 supports a better interpretation of our outcomes, in particular of the moderating effect where TAI is positive and TAI_DFO is negative. The graph draws the estimated function in three cases, given the coefficients as reported in table 5:

I. *'Non Family Firms'*, where the DFO is equal to zero;
II. *'Family Business – Medium Ownership',* where DFO is set at 0.197, meaning the DFO average;
III. *'One Family in a Dominant Position'*, where DFO is set at 0.695, meaning the average (0.197) plus two times the standard deviation (0.249).

FIGURE 1 ABOUT HERE

When the Family Ownership is zero or moderate (functions I & II) the organization benefits from a strategy based on a high proportion of acquired trademarks in its brand portfolio. In fact, the slope of lines I and II is positive, though the higher the family ownership the lower the positive association with international performance. *Vice versa*, in the case of high shares owned by the family in a dominant position (function III) the marginal effect of trademark acquisitions is negative. The turning point is at DFO=48.1%, very close to the level which guarantees the majority stake and therefore a solid control of the company. Below this threshold, the impact of acquired trademarks is positive, whilst above it is negative. The fact that this threshold is more than twice the mean (19.7%) means that dominant family ownership mitigates the positive effect of trademark sourcing, but it must be rather high to generate a negative effect. However, overall less family is more according to our findings. More precisely, we empirically show an association between the above mentioned variables, whilst we remit the analysis of causal relationships to further studies.

Finally, we tested for possible endogeneity issues. We firstly ran a two-stage least squares regression (2SLS). Ownership structure and family ownership have been recognized as exogenous (Klein *et al.*, 2005a; Mak and Li, 2001), so the following procedure focuses on the variable TAI. We used Intangible Intensity (INT) as instrumental variable to trait externally acquired trademarks (TAI). Intangible Intensity (INT) is measured as the total intangibles assets divided by turnover and has been identified as a good instrument to that purpose. With regards to TAI, INT is a potential predictor since it may be assumed as a proxy for absorptive capacity when external resources are internalized, as well as for the organizational capability of management of intangibles (Cohen and Levinthal, 1990). In other words, companies which are familiar with intangibles should show a higher readiness in exploring externally developed resources such as trademarks (Zahra and Nielsen, 2002b). INT embraces both internally and externally developed assets – differently to TAI which focuses on acquired trademarks only – and consists of *all* intangible assets possessed by the firm, including: patents, copyright, customer base, etc. The methodology adopted to gather this data is identical to the one used for TAI. The Pearson correlation among TAI and INT is statistically significant (0.3137; p-

value<0.01), whilst there is no significant association between the dependent variable FI and INT (0.0558; p-value>0.10), thus supporting that INT is a valid instrument. We also used an additional instrumental variable by multiplying the baseline instrumental variable (INT) with the moderating variable (FO), as suggested by Angrist and Pischke (2008) when the regression embeds moderating effects.

Given this instrumental variable, we use two-stage least squares regressions (see Table 7, model '1') to study endogeneity in our research model when predicting the dependent variable, namely the Foreign Sales Intensity (FI). The outcome of the first-stage regression confirms this procedure is reliable according to Stock and Yogo's tests: the Minimum Eigenvalue statistic (31.13) by far exceeds all the critical values (never higher than 7.03), so we assume the instrument is not weak. Table 7 – model '1' - shows the 2SLS analysis and confirms that the interaction among TAI and DFO in influencing FI is a robust finding, since both TAI and TAI_DFO coefficients are still significant.

TABLE 7 ABOUT HERE

Also, considering we have a small-T large-N panel, we tested the System GMM estimator as reported in Model '2a' and '2b' (Table 7). Model 2a shows the System GMM estimator by using the same instrumental variables – INT, and INT*DFO – we employed in the 2SLS study. Model 2b uses the lags of TAI. Outcomes are again satisfying, and supported by the Hansen test as well as by tests for serial correlation (Wintoki *et al.*, 2012). Unfortunately, the serial correlation test of second order cannot be calculated in Model 2b because of the limited number of years in our panel (four).

Robustness Checks

We ran several robustness checks to confirm the reliability of our findings. We focused on analysis of Fixed Effects estimator since the use of random effects would mean that the individual effect is uncorrelated with explanatory variables, though this is inconsistent with our theoretical framework

and with the nature of variables. Nevertheless we report the outcomes of the random effects study in Appendix ‘A’ to show, on a positive note, that the coefficients of independent variables TAI, DFO and TAI_DFO are very similar to those obtained in the fixed effects regression (see table 5) in terms of both quality and quantity.

At the end of the previous section, we had identified the value of 48.1% as the threshold of shares above which the family gains influence which makes investments in external trademarks counterproductive. So we tested DFO as dummy variable equal to 1 above that threshold and equal to zero elsewhere (see Appendix ‘B’). Findings remain fully confirmed. The reliability of our outcomes is also confirmed when using the frequently adopted threshold of 10% (La Porta, Lopez-de-Silanes & Shleifer, 1999).

DISCUSSION AND CONCLUSIONS

Through the exploration of the interplay among three forms of openness - i.e. openness towards external resources, openness of the ownership structure, international openness - this study extends knowledge received from strategic management and the technology acquisition stream to the international arena. More specifically, we add knowledge on the role of trademarks as drivers of international performance. We also investigate the role of family ownership as a moderator of the trademark acquisition – international performance relationship. We empirically investigate these dynamics through a longitudinal analysis relying on a cross-industry sample consisting of European listed companies.

Trademark acquisition, and especially trademark acquisition in family firms, is a highly relevant topic to international business. On one hand, the orientation of the firm towards externally generated assets is more and more a critical factor of success for growth and international expansion (Fletcher and Harris, 2012; Park, 2011; Schiffbauer *et al.*, 2017; Wang *et al.*, 2013). On the other, the identification with trademarks and associated brand reputation is recognized as one of the key traits

of family businesses (Craig *et al.*, 2008; Micelotta and Raynard, 2011) though literature is very limited and inconclusive in this regard.

Our findings firstly show that orientation towards brand portfolios with a high portion of acquired trademarks – over those that are internally developed – is positively associated with international performance. This is in line with literature which underlines the importance of brand acquisitions for expansion into and penetration of markets abroad (Child and Rodrigues, 2005), and the literature which stresses the need for a wide as well as diversified international brand architecture (Townsend *et al.*, 2009). However, the magnitude of this relationship is moderate. We argue and demonstrate that family ownership has merit in explaining this evidence: it can boost, limit or – in particular situations - even make the acquisition of external assets counterproductive. Concentrated ownership in the hands of one family leads to a negative association between international performance and acquired trademarks. Strong families tend to see external trademarks as a threat to the internally developed brand(s), often related to family names and intertwined with firm history (Arregle *et al.*, 2007; De Massis *et al.*, 2013; Mazzola *et al.*, 2008; Miller and Le Breton-Miller, 2005; Parmentier, 2011). They usethe strong position in the company ownership as way to safeguard the legacy brand(s), thus mitigating the positive effects of complementary assets developed through the integration with externally developed trademarks (Hautz *et al.*, 2013; Kontinen and Ojala, 2011; Munoz-Bullon and Sanchez-Bueno, 2012). In the case of very high stakes owned by the dominant family – over 48.1%, according to our findings – the acquisition of external trademark generates a negative effect on internationalization. The very high share may point to the fact that in public firms, our firm setting, 'negative' family influence and control plays out only at very high levels. This evidence however highlights even more that dominant families (through strong control) are likely to prefer internally developed brands. On the other hand, the power of ownership as a driver of family influence declines when the shares owned by the family are relatively low (Aguilera and Crespi-Cladera, 2016; Harris and Ogbonna, 2007).

A continuous metric for family ownership allowed us to overcome the complex issue of setting a threshold for the definition of a family business – which is sensitive to a number of factors, including country-specific conditions – and calculate the turning point after which the above mentioned relationship becomes negative. This turning point is at 48.1% of shares owned by one family, basically when the degree of ownership guarantees the majority stake, and far above the average of dominant family ownership noticed in our sample (DFO=19.7%). In other words, the shares possessed by the leading family weakens the positive effect of trademark sourcing, though it turns to a negative impact only in case of high levels of ownership. Overall in our study less family is more: the positive association between orientation towards trademark acquisitions on foreign sales intensity is pronounced when dominant family ownership is low, and it decreases as this variable grows.

This study offers significant theoretical contributions in three respects. We link the stream of research on sourcing and integrating external intangible assets (e.g. Kotlar *et al.*, 2013; Tsai and Wang, 2008) to the international business domain (Granstrand *et al.*, 1992; Wang *et al.*, 2013). Moreover, we extend provisions of the intangibles acquisitions stream to family business and to non-technological intangibles, namely the trademark. The simultaneous focus on these aspects fills a research gap and highlights the need for cross-fertilization among fields of research. Family firms may be confronted by a trade-off between their traditionally more closed business and governance system (i.e. concentrated ownership) and the need to open their business model, by acquiring external intangibles, to approach and succeed in international markets. Relatedly, we add to family business research, in particular the streams on the influence of corporate governance structure and missions and objectives on international decision-making as identified by Casillas and Moreno-Menéndez (2017).

Furthermore, the adoption of a continuous metric for family influence contributes to the debate from a methodological standpoint since it permits to appraise heterogeneity of family business, considering the latter as a matter of degree instead of a dichotomy (Chua *et al.*, 2012). For instance, the graph in the above figure 1 distinguishes three types: non family firms, firms moderately influenced by family/families, and firms owned by one family in a strong position.

Our contribution has also implications for practitioners. It provides owners and managers with a better understanding of the different effects of brand acquisition under varying ownership structures, and thus provides support for the firm's investment decisions. When ownership is concentrated, family firms may be better advised to leverage on their existing brands or to create internally new brands based on strong, already established brand and firm values. Alternatively, as diversification through trademark acquisition may require additional - external - resources, family firms are called to ‘open’ their firms and enable coordination and synergies to build up a stronger international brand architecture (Anderson and Reeb, 2003a; Gomez-Mejia *et al.*, 2010). Our work thus may be useful to create awareness in family firms with regard to their limited capability to leverage acquired trademarks for international expansion. In a second instance, it may show ways to overcome the limits - 'opening' the firm towards external advice and/or external finance may be a winning strategy to achieve international performance.

The study has some limitations, which also provide opportunities for future research. First, our sample is biased towards relatively large-size firms. Further work might concentrate on smaller family businesses to extend the validity of empirical findings. Moreover, our empirical evidences address the association between acquired trademark and foreign sales intensity, whilst more inquires aimed at establishing some causal relationships are needed. Further studies should investigate the effects of different types of brands, for instance taking into account the difference between national and foreign brands. Moreover, our survey considers only brands which were accounted for as trademarks reported in financial statements and so excludes the informal and tacit side of reputation and recognition. At the same time, this approach allows to develop a quantitative analysis based on objective and comparable accounting data. A promising future research avenue is also to look deeper into the ownership structure and types. Relational owners, such as families, and transactional owners have different strategic interest and are important actors in strategic-decision making processes.

APPENDIX ‘A’ HERE

APPENDIX ‘B’ HERE

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Table 1. Composition of the Sample (a): Country and Family Ownership

Country	**Sample composition in terms of Country**		**Dominant Family Ownership**	
	Mean (%)	Sd.Dev.	Mean (%)	Sd.Dev.
United Kingdom	41.6%	0.4932	9.6%	0.191
Germany	23.9%	0.4266	23.2%	0.240
France	23.6%	0.4249	29.2%	0.286
Italy	9.6%	0.2941	30.6%	0.246
Spain	1.4%	0.1178	27.5%	0.220

Table 2. Composition of the Sample (a): Industry and Family Ownership

Industry	**Sample composition in terms of Industry**		**Dominant Family Ownership**	
	Mean (%)	Sd.Dev.	Mean (%)	Sd.Dev.
Industrial Goods and Services	37.4%	0.4841	17.8%	0.272
Technology	24.6%	0.4309	19.2%	0.227
HealthCare	12.8%	0.3341	21.3%	0.250
Media	7.6%	0.2649	14.7%	0.192
Automotive	5.6%	0.2304	34.8%	0.265
Consumer Goods	5.2%	0.2221	30.5%	0.242
TelCo	4.6%	0.2104	20.6%	0.191
Others	2.2%	0.1483	2.3%	0.028

Table 3: Definitions of the Variables

Variable	Variable name	Description	Source	Units
AGE	Age of the Firm	ln (Number of years passed since the year of firm establishment $_{\text{year 't'}}$)	Annual Report; public information;	number
SIZE	Firm size	Ln (Turnover $_{\text{year 't'}}$)	Annual Report;	number
ROI	Return On Investment	ROI as reported in the annual report of the company in year 't'	Annual Report;	number
BA	Business Acquisition	=1 if the Trademark has been acquired through a business acquisition =0 otherwise	Annual Report;	binary
NFAM	Number of Families involved in the Ownership Structure	Number of Families owning shares of the company (at year 't')	Databases FactSet and Orbis	number
BOARD	Presence of Family in the Board of the Company	Number of Dominant Family Members in the board / Total Members of the Board (at year 't')	Databases FactSet and Orbis	ratio
DFO	Dominant Family Ownership	Share (%) of the company owned by the family with the highest share (at year 't')	Databases FactSet and Orbis; financial records; newspapers, company websites;	ratio
TAI	Trademark Acquisition Intensity	(Externally generated Trademark' / 'Total generated Trademark') $_{\text{year 't'}}$	Annual Report;	ratio
FI	Foreign sales Intensity	Foreign sales $_{\text{year 't'}}$ / Total sales $_{\text{year 't'}}$	Annual Report;	ratio

Table 4: Means, Standard Deviations and Correlation Coefficients

	Mean	St.dev.	Min	Max	FSI	AGE	SIZE	ROI	BA
FSI	0.535	0.352	0.000	1.000					
AGE	3.717	0.770	2.197	5.384	0.213***				
SIZE	19.166	2.678	8.710	30.467	0.240***	0.534***			
ROI	0.075	0.156	-0.660	1.129	0.081**	0.263***	0.347***		
BA	0.183	0.387	0	1	0.095**	-0.030	-0.020	-0.020	
NFAM	1.062	1.289	0	7	-0.060	0.046	-0.040	0.039	-0.050
BOARD	0.203	0.201	0.000	0.636	-0.020	0.083**	-0.020	0.039	-0.090***
DFO	0.197	0.249	0.000	1.000	0.022	0.064*	0.042	0.035	-0.160***
TAI	0.407	0.466	0.000	1.000	0.055	0.099***	0.183***	0.103***	0.077**

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table 5. Panel Regression Analysis - Fixed Effects.

Dep Var = FI	(1)	(2)	(3)
Y09	0.0343*	0.0330*	0.0314
	(0.0195)	(0.0194)	(0.0194)
Y10	0.0246	0.0220	0.0207
	(0.0243)	(0.0242)	(0.0242)
Y11	-0.00328	-0.00548	-0.00806
	(0.0298)	(0.0297)	(0.0297)
AGE	-0.0317	0.00460	0.0340
	(0.256)	(0.256)	(0.256)
SIZE	0.00159	0.000943	0.00140
	(0.00883)	(0.00881)	(0.00879)
ROI	0.215***	0.204***	0.199***
	(0.0705)	(0.0704)	(0.0704)
BA	0.0254	0.0234	0.0227
	(0.0229)	(0.0229)	(0.0228)
NFAM	0.00293	-0.00249	-0.00477
	(0.0339)	(0.0339)	(0.0338)
BOARD	0.00483	0.0428	0.0421
	(0.209)	(0.210)	(0.209)
DFO	-0.141	-0.148	-0.0613
	(0.136)	(0.136)	(0.145)
TAI		0.0492**	0.0778***
		(0.0233)	(0.0287)
TAI_DFO			-0.162*
			(0.0951)
Constant	0.612	0.471	0.343
	(0.930)	(0.929)	(0.931)
Observations	712	712	712
R-squared	0.03011	0.03841	0.04382
Number of ID	186	186	186

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6. Panel Regression Analysis – Pooled OLS

Dep Var = FI	(1)	(2)	(3)
Y09	0.0316	0.0316	0.0312
	(0.0349)	(0.0349)	(0.0348)
Y10	0.00802	0.00822	0.00971
	(0.0366)	(0.0367)	(0.0365)
Y11	0.00926	0.00959	0.0111
	(0.0358)	(0.0358)	(0.0357)
UK	0.284**	0.286***	0.289***
	(0.111)	(0.111)	(0.110)
GE	0.239**	0.243**	0.233**
	(0.110)	(0.111)	(0.110)
FR	0.133	0.135	0.133
	(0.109)	(0.109)	(0.109)
IT	0.235**	0.234**	0.248**
	(0.114)	(0.114)	(0.113)
Ind	-0.0984**	-0.0990**	-0.100**
	(0.0426)	(0.0427)	(0.0426)
Tech	-0.0120	-0.0122	-0.0230
	(0.0462)	(0.0462)	(0.0463)
HC	0.0716	0.0698	0.0660
	(0.0523)	(0.0526)	(0.0524)
Media	-0.193***	-0.196***	-0.204***
	(0.0577)	(0.0582)	(0.0581)
TelCo	-0.309***	-0.309***	-0.312***
	(0.0721)	(0.0721)	(0.0719)
AGE	0.0632***	0.0632***	0.0617***
	(0.0201)	(0.0201)	(0.0201)
SIZE	0.0325***	0.0321***	0.0320***
	(0.00636)	(0.00643)	(0.00641)
ROI	-0.0313	-0.0335	-0.0462
	(0.0894)	(0.0897)	(0.0896)
BA	0.0661*	0.0651*	0.0634*
	(0.0369)	(0.0371)	(0.0370)
NFAM	-0.00749	-0.00768	-0.00728
	(0.0131)	(0.0131)	(0.0131)
BOARD	-0.0770	-0.0742	-0.0948
	(0.0992)	(0.0996)	(0.0997)
DFO	0.125*	0.122*	0.253***
	(0.0658)	(0.0662)	(0.0863)
TAI		0.00986	0.0576*
		(0.0283)	(0.0348)
TAI_DFO			-0.257**
			(0.110)
Constant	-0.514***	-0.514***	-0.520***
	(0.177)	(0.177)	(0.177)
Observations	712	712	712
R-squared	0.16395	0.16410	0.17071

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

APPENDIX ‘A’ – RANDOM EFFECTS

	(1)	(2)	(3)
UK	0.251**	0.261**	0.263**
	(0.125)	(0.125)	(0.125)
GE	0.237*	0.254**	0.245**
	(0.125)	(0.126)	(0.125)
FR	0.133	0.141	0.139
	(0.123)	(0.123)	(0.123)
IT	0.238*	0.235*	0.245*
	(0.137)	(0.137)	(0.137)
Ind	-0.126*	-0.127*	-0.127*
	(0.0761)	(0.0763)	(0.0760)
Tech	-0.0386	-0.0377	-0.0440
	(0.0827)	(0.0829)	(0.0826)
HC	0.0231	0.0160	0.0160
	(0.0917)	(0.0919)	(0.0916)
Media	-0.209**	-0.218**	-0.223**
	(0.103)	(0.104)	(0.103)
TelCo	-0.309**	-0.304**	-0.306**
	(0.127)	(0.127)	(0.127)
AGE	0.0734**	0.0738**	0.0729**
	(0.0341)	(0.0341)	(0.0340)
SIZE	0.0140**	0.0129*	0.0133*
	(0.00707)	(0.00707)	(0.00705)
ROI	0.128**	0.121**	0.117*
	(0.0605)	(0.0604)	(0.0602)
BA	0.0352*	0.0329*	0.0330*
	(0.0201)	(0.0200)	(0.0200)
NFAM	-0.00284	-0.00515	-0.00581
	(0.0193)	(0.0194)	(0.0193)

BOARD	-0.0335	-0.0111	-0.0215
	(0.134)	(0.134)	(0.134)
DFO	0.0113	0.000959	0.102
	(0.0899)	(0.0900)	(0.101)
TAI		0.0466**	0.0809***
		(0.0220)	(0.0269)
TAI_DFO			-0.194**
			(0.0885)
Constant	-0.148	-0.154	-0.169
	(0.230)	(0.231)	(0.230)
Observations	712	712	712
Number of ID	186	186	186

Standard errors in parentheses

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

APPENDIX 'B' – 'DFO' AS DUMMY VARIABLE (FIXED EFFECTS)

	(1)	(2)	(3)
AGE	-0.0352	-0.0153	-0.000744
	(0.157)	(0.157)	(0.156)
SIZE	0.00220	0.00158	0.00192
	(0.00883)	(0.00881)	(0.00878)
ROI	0.171**	0.160**	0.152**
	(0.0679)	(0.0678)	(0.0677)
BA	0.0327	0.0302	0.0299
	(0.0207)	(0.0207)	(0.0206)
NFAM	0.00812	0.00277	0.000131
	(0.0339)	(0.0339)	(0.0338)
BOARD	-0.0626	-0.0285	-0.00825
	(0.202)	(0.202)	(0.202)
DFOdummy	-0.0598	-0.0587	-0.00831
	(0.0540)	(0.0538)	(0.0583)
TAI		0.0496**	0.0718***
		(0.0234)	(0.0253)
TAI_DFOdummy			-0.131**
			(0.0590)
Constant	0.620	0.538	0.469
	(0.590)	(0.589)	(0.588)
Observations	712	712	712
Number of ID	186	186	186

Standard errors in parentheses

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

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