RBGN REVISTA BRASILEIRA DE GESTÃO DE NEGÓCIOS
REVIEW OF BUSINESS MANAGEMENT
© FECAP

ISSN 1806-4892

Empirical research on Innovation in Family Business: literature review and proposal of an integrative framework

Antonio Padilla-Meléndez
Associate Business Administration Professor. Universidad de Málaga (Spain).

Julio Dieguez-Soto
Associate Finance and Accounting Professor. Universidad de Málaga (Spain)

Aurora Garrido-Moreno
Associate Business Administration Professor. Universidad de Málaga (Spain)

Responsible editor: João Maurício Gama Boaventura, Dr.
Evaluation process: Double Blind Review

ABSTRACT

Objective – The objective of this paper is to present the results of a systematic literature review concerning empirical research about innovation in the Family Business (FB).

Design/methodology/approach – A comprehensive literature review based on an in-depth analysis of 59 empirical studies was carried out.

Findings – The revision presents an integrative framework, identifying main determinants and dimensions of innovation; and summarizes main research avenues and existing gaps, in order to guide future research.

Practical implications – The paper summarizes main research progress concerning innovation in the Family Business worldwide. Consequently, it allows for better decisions by the managers of these firms.

Originality/value – The study of innovation in the Family Business has emerged as a prolific research field over recent years, but current knowledge of how these firms innovate is as yet fragmented and incomplete. Consequently, there has been demand for further research concerning this field.

Keywords – Family business; innovation; ownership structure; family involvement.

Received on
February 10, 2014
Approved on
June 17, 2015

1. Antonio Padilla-Meléndez
Doctor in Business Administration.
Universidad de Málaga (Spain)
[APM@UMA.ES]

2. Julio Dieguez-Soto
Doctor in Business Administration.
Universidad de Málaga (Spain)
[jdieguez@uma.es]

3. Aurora Garrido-Moreno
Doctor in Business Administration.
Universidad de Málaga (Spain)
[agarridom@uma.es]

Review of Business Management

DOI:10.7819/rbgn.v17i56.1915

1 INTRODUCTION

Family Business or Family Firm (FB) is an important business form in all countries (Chang, Wu, & Wong, 2010), representing the predominant form of business organization around the world (Sharma, Chrisman, & Gersick, 2012). The study of FB has been considered a differentiated field within management (González-Ferrero, Guzmán-Vásquez, Pombo-Vejarano, & Trujillo-Dávila, 2011). Consequently, FB research has been growing over the last decade, according to several recent studies (e.g. Benavides-Velasco, Quintana-García, & Guzmán-Parra, 2013; Kraus, Harms, & Fink, 2011; Litz, Pearson, & Litchfield, 2012; Siebels & Zu Knyphausen-Aufseß, 2012). Likewise, over the last few years, practitioners and researchers have realized the importance of innovation, as an essential source of competitive advantage (Dess & Picken, 2000). Based on Crossan and Apaydin (2010), we consider innovation as including both technological and non-technological (commercial, administrative…) innovation, allowing us to follow a comprehensive focus when conducting our research.

There is enough theoretical evidence to state that innovation could be different in FBs and non FBs, such as, for example, the FBs' unique and distinctive behavior, the exceptional bundle of resources and capabilities that FBs hold or the very involvement of the family.

Firstly, FBs have a unique and distinctive behavior, which the scientific community usually attributes to its essence, a vision developed by a dominant controlled coalition that is sustainable across generations (Chua, Chrisman, & Sharma, 1999).

Secondly, family-influenced firms are different because they own a unique bundle of resources and capabilities resulting from interactions between the family unit, the business entity, and the individual family members, and they are also particularly distinct because they share socio-emotional wealth (Gomez-Mejia, Haynes, Nunez-Nickel, Jacobson, & Moyano-Fuentes, 2007). For instance, FBs are usually long-term oriented (Muñoz-Bullón & Sánchez-Bueno, 2012), which encourages them to engage in innovative investments and promotes willingness to take risks (Chen & Hsu, 2009). However, protecting family welfare, ensuring firm longevity or maintaining control (Chen & Hsu, 2009) may also provoke a risk of adverse behavior among FBs (Martí, Menéndez-Requejo, & Rottke, 2013).

Thirdly, family involvement is very likely to affect innovation, highlighting the relevance of investigating innovation among FBs. For example, when family members are heavily involved, non-family qualified employees may be put aside in key decisions or simply won't be hired, depriving the business of rich sources of ideas for innovation (Zahra, 2005).

The main research question in our paper refers to a fact: it is widely known that innovation is a crucial element in every company – but is innovation different for FBs and non-family businesses (NFBs)? According to literature, we would answer "yes, they are distinct." However, and surprisingly, there is no comprehensive research of the determinants, dimensions, processes, and types of innovation, in sum, covering the whole spectrum of innovation in a FB context. Most of the papers have focused exclusively on specific facets or determinants of innovation, but academic research on the topic remains disconnected. This fragmentation prevents us from seeing the whole picture of the phenomenon and impedes consolidation of the field.

Besides, the published literature reviews on this topic are scarce. Recently, De Massis, Frattini, and Lichtenthaler (2013) reviewed and systematized the extant literature, but focusing exclusively on the analysis of technological innovation in FBs, without considering other types of innovation. In addition, they developed a framework for organizing existing research on the topic, including three major steps in the innovation process (inputs-activities-outputs), but they did not go deeper as to the different nature of the inputs and activities involved in this process.

Consequently, little is known about the consequences of family involvement in the determinants and dimensions of innovation and their relations. Despite the great relevance of the topic, the practice of innovating in a FB context remains as yet largely unknown to practitioners and scholars. This research gap has been recognized by previous studies (i.e., Casillas & Acedo, 2007; Wright & Kellermanns, 2011) and, therefore, more research in the field has been mentioned as necessary.

The specific goal of this study, referring to the mentioned research question, is to analyze in depth, and from a general and broad perspective, the state of the art of empirical research about innovation in FBs, following a comprehensive focus. In our opinion, if FB researchers want to have a general picture of what we already know and what is missing in our understanding of innovation in FBs, they need an integrative multi-dimensional framework capable of capturing each aspect of innovation in FBs, in a broader and more exhaustive way. This study offers two relevant contributions. First, it provides an integrative vision of the state of the research of innovation in a FB context. To organize the existing literature, we develop an integrative conceptual framework including both determinants and dimensions of innovation, based on a highly cited work in the field (Crossan & Apaydin, 2010). Second, by summarizing existing research, we identify and describe the main research avenues in the field, highlighting the most addressed topics in previous studies and the emergent research lines, and proposing research gaps based on them. This is particularly useful to guide future studies on the topic, which may contribute substantially to the development of the field, especially in geographical areas such as Latin America, where there is a lack of studies on innovation in FBs. The structure of the paper is as follows. We begin by summarizing the main theoretical foundation of the research (concepts of innovation and FBS, the most recent research of innovation on FBs and the Brazilian literature on this topic). Next, we describe the method and main results (analyzing determinants and dimensions of innovations). We then detail the observed and proposed research lines, along with detected research gaps for every research line. Finally, we close the paper with conclusions and limitations.

2 THEORETICAL FOUNDATIONS

2.1 Innovation

Over the last few years, practitioners and researchers have realized the importance of innovation, as an essential source of competitive advantage (Dess & Picken, 2000); this has been revealed by business practices and several academic papers (for a review, see Crossan & Apaydin, 2010). Innovation is an idea, a practice or an object that is perceived as new by an individual or unit of adoption (Rogers 1983), developed as a way of responding to a change in the environment or a way of influencing it (Nohria & Gulati 1996). It constitutes a way to change the organization (Damanpour, 1991), it can have as output either new ways of doing things or new products, services, or techniques (Porter, 1990) and it has been considered an important factor for entrepreneurship (Schumpeter, 1934). In literature, a number of dimensions for analyzing innovation have emerged, such as the types of innovation, the stages that organizations follow to adopt innovations, and the factors that affect or may affect innovation in a specific organization (Rogers, 1983). According to Crossan and Apaydin (2010), innovation can be defined as production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. It is both a process and an outcome (p. 1155).

2.2 Family business definition

Previous literature has attempted to identify the intrinsic qualities and fundamental nature of FBs and capture them through theoretical definitions. Thus, the essence of a FB is a vision developed by a dominant coalition controlled by members of the same family or a small number of families, and that sustainable across generations of the family or families (Chua *et al.*, 1999). Family-influenced firms differ from other firms in that they own a unique bundle of resources and capabilities resulting from interactions between the family unit, the business entity and the individual family members, which is known as “familiness” (Habbershon & Williams, 1999; Habbershon, Williams, & Macmillan, 2003). Furthermore, FBs are also distinct because they share socio-emotional wealth (Gomez-Mejia *et al.*, 2007).

Prior research has also transformed these theoretical definitions into operational definitions to conduct empirical studies. Some authors have based their definitions on objective criteria, such as the percentage of family ownership or the number of family members occupying management or board positions (Dyer, 2006), while others have defined a firm as an FB based on subjective aspects, such as whether a respondent believes the firm is an FB (Smith, 2007). Moreover, some scholars believe that an FB is defined by its inter-generational ownership dispersion (Kellermanns, Eddleston, Sarathy, & Murphy, 2012), while others have used intention to transfer ownership to the next generation as a definition criterion (Litz, 1995). Finally, authors have also employed family involvement to define FB, a broad term that includes family ownership, management, governance and trans-generational continuity of succession (Handler, 1989), since the existence of components makes the essence possible (Chua *et al.*, 1999).

2.3 Innovation and FB

The concept of FB innovation has been defined as the intentional generation or introduction of novel processes, and/or products resulting from the autonomous and interactive efforts of members of an FB. However, the reunion of FB and innovation has not been such a well-researched topic, since each one individually and a comprehensive outlook for the repercussion of family influence on dimensions and determinants of innovation and their connections are lacking.

Nevertheless, and before starting to describe the method carried out to attain in-depth knowledge of the state of the research on innovation in a FB context by 2012, we will review the most significant articles on this topic, published more recently in international references sources, and will also examine Brazilian literature on the topic.

2.3.1 *Latest literature on innovation in FB*

As mentioned, our revision analyzes in detail articles published by December 2012; in this section, we study the evolution of research in this specific topic, from this first date to the present, in order to capture the latest trend. Although we will follow an extensive multidimensional framework to classify and synthesize the main research lines in the subject (Crossan & Apaydin, 2010), in order to be concise, in this epigraph we propose a more general framework to identify two major currents within innovation research, distinguishing innovation inputs and innovation outputs and research innovations in family and non-family versus innovations among family firms.

A first recurrent topic in literature on innovation in family firms is the influence of family involvement in R&D investments. Although studies are largely consistent pointing out a negative relationship between family involvement and expenses in R&D, literature has continued to add further theoretical and empirical evidence. For instance, Schmid, Achleitner, Ampenberger, and Kaserer (2014) found that R&D intensity is higher in firms that are actively managed by the family, while the impact of family control (via voting rights) is negative, but mostly not significant. A novel contribution to this debate is offered by Kotlar, Fang, De Massis, and Frattini (2014), who showed that the importance of profitability and control goals follows a sequential logic in family firms, so much so that family firms react more strongly to increasing supplier bargaining power when their profitability reference marks have been reached.

A second recurrent topic is whether family involvement has an impact on innovation outputs. Previous studies continue finding mixed empirical evidence regarding the effect of family influence on innovation output (Classen, Carree, Gils, Peters, 2014; De Massis, Frattini, Pizzurno, & Cassia, 2015; Matzler, Veider, Hautz, & Stadler, 2015) and different related aspects are under study. For example, Block, Miller, Jaskiewicz, and Spiegel (2013) analyzed the effect of family firm density on regional innovation output. Meanwhile, Kraiczy, Hack, and Kellermanns (2014) explored how the organizational context (i.e., ownership by top management team [TMT] family members and generation in charge of the family firm) of family firms interacts with CEO risk-taking propensity in affecting new product portfolio innovativeness, showing that CEO risk-taking propensity has a positive effect on new product portfolio innovativeness. Likewise, Clausen and Pohjola (2013) have examined whether and to what extent breakthrough and incremental product innovation is persistent at the firm level, and Shan and Jolly (2013) showed that different technological innovation capabilities have a positive impact on product innovation, beginning with the linkage capability, moving to the production capability, and ending with the investment capability.

Lastly, other authors found that family participation in management and governance has a negative impact on innovation input and a positive influence on innovation output, suggesting that family members are risk averse and reluctant to invest in innovation, but at the same time do so more effectively (Matzler *et al.*, 2015).

Besides the former recurrent research stream, there is another one distinguishing innovations in family and non-family versus innovations among family firms. In this regard, Classen *et al.* (2014) provided an exploratory analysis of differences between family and non-family firms in innovation investment, product and process innovation outcomes, and labor productivity. Price, Stoica, and Boncella (2013) examined the relationship between innovation and knowledge in family versus non-family businesses with regard to performance. Furthermore, Chrisman, Chua, De Massis, Frattini, and Wright (2014a) presented a framework of how family involvement influences innovation management based on ability (discretion to act) and willingness (disposition to act), two drivers that distinguish family firms from non-family firms and lead to heterogeneity among family firms. Finally, Chrisman, Fang, Kotlar, and De Massis (2014b) explained how heterogeneity in the family referring to emphasis on command, continuity, community, and connections requires that the multifaceted and potentially nonlinear nature of family influence be considered when analyzing strategic decisions concerning family firm innovation.

2.3.2 *Brazilian literature on innovation and FB*

FBs are an important source of economic development and growth in Brazil. Some authors highlight how approximately 75% of companies are managed by families in this country (Lara de Oliveira, Albuquerque, & Pereira, 2012). Therefore, they are recognized as relevant economic agents, since FB, in Brazil, are responsible for almost 50% of gross domestic product and 60% of jobs (Nóbrega & Hoffmann, 2014).

Going deeper into the current situation of Brazilian FB, they have to face certain challenges, nowadays, that result from globalization. Given the extremely competitive environment they are facing, innovation emerges as a basic condition for long term success, and the development of new products and services for the market becomes an strategic imperative (Gonçalves, 2000). In order to survive in the current competitive environment, FBs need to be more flexible and adaptable to environmental demands, as well as to develop entrepreneurial characteristics (Nóbrega & Hoffmann, 2014). However, despite the strategic relevance of innovation activities in FB in Brazil, research on the topic remains scarce. We have identified recent studies that analyze the phenomenon of innovation in Brazilian companies, focusing on aspects such as innovation management, innovative practices or innovation in services (Biancolino, Maccari, & Pereira, 2013; Nagano, Stefanovitz, & Vick, 2014; Resende & Guimarães, 2012). Nevertheless, none of them examined those concepts specifically in a FB context.

In order to identify the level of progress of research on FB in Brazil, we have analyzed several literature reviews published on the subject. Moraes, Barone, and Pinto (2011) carried out analysis of scientific production on the subject, covering all articles published in journals between 1961 and 2009. They conclude that it is a young field of research (most of the articles were published from 2008 on), with great potential for development. However, regarding the topics most discussed in literature, innovation is not even mentioned in this review. Likewise, Borges, Lescura, and Oliveira (2012) analyzed Brazilian scientific production on FB, assessing articles published between 1997 and 2009, in order to examine the current status of the field. Results indicate that FB is an emerging field in the Brazilian academic scenario, progressing over recent years, particularly in terms of an increase in published papers. In this literature review, Borges *et al.* (2012) highlighted the analysis of innovation and entrepreneurship in a FB context as a relevant research topic that needs to be addressed in the near future, in a Brazilian context.

Consequently, we can state that research on innovation in FB is still beginning in Brazil (Nóbrega & Hoffmann, 2014). In fact, we identified one single recently published article (Borges et al., 2014) that empirically analyzes the phenomenon. The purpose of this paper is to understand how innovative practices are established within family businesses, and they carried out a case study in a family firm from the *cachaça* industry in the Brazilian state of Minas Gerais. Results demonstrated how the company developed innovative practices, maintaining a balance between disruptive innovations, such as the creation of new products, new productive methods, exploration of new business opportunities, and incremental innovations in existing firm activities. They conclude that innovation, as an entrepreneurial action, allows innovative family businesses to be established, which is a potential theoretical category to be explored in the field of FB research (Borges, Lima, & Andrade, 2014). Therefore, research on innovation in the context of FB is appearing as an emerging line of research which should be developed in the future, given the strategic importance of the sector in Brazil.

3 METHODS

In order to produce a reliable knowledge inventory (Tranfield, Denyer, & Smart, 2003), we followed a systematic review approach. We divided the review process into three parts (Crossan & Apaydin, 2010; Keupp, Palmié, & Gassmann, 2012): data collection, data analysis and synthesis.

Regarding *data collection*, we collected the information using the following databases: *ISI Web of Knowledge*, *Emerald*, *Ebsco*, *Proquest (ABI)*, *Science Direct*, *Scopus* and *Wiley*. We ran several searches in the abstracts and citations of the papers, looking for refereed papers published by December 2012. We limited the search to peer-reviewed journal articles, omitting books, book chapters and other non-refereed publications, because articles in academic journals can be regarded as validated knowledge and likely to have a major impact on the field (Ordanini, Rubera, & Defillippi, 2008). We used as search terms several items referring to FB (i.e., ownership structure, family firm, family business) and firm innovation (i.e., innovation, innovativeness).

Next, we looked for different combinations of both types of items in the entire content of the papers. Subsequently, to avoid leaving important papers out of the analysis and to minimize bias against relevant articles published recently, and although they should have already been included, we browsed the tables of contents of the most relevant journals referring to research in FB (thirteen journals, from a bibliographic list from a recent comprehensive literature review on FB research carried out by Benavides-Velasco *et al.* (2013). In addition, in order to be more rigorous in the searches, we also browsed the contents of some relevant FBs specialized refereed journals, which had already been included in previous searches: *Family Business Review, Journal of Family Business Strategy* and *Journal of Family Business Management*. An initial sample of 335 papers was identified. Firstly, based on the abstracts and keyword analysis, we performed an initial filter. We observed that 215 papers did not really address the topic of innovation in FB, since they did not include the already mentioned terms, neither in the title nor in the abstract. Subsequently, we analyzed a refined sample of 120 papers that was also depurated following an additional filter. In this filtering phase, we eliminated several papers because they were non-empirical (i.e. Carney & Gedajlovic, 2003) or because their central topic or focus was not the analysis of the phenomena of innovation in a family business context. We analyzed in-depth the final selected papers and agreed (after a war room exercise, including full cross-reading of the papers and agreement by at least two of the three authors), that only 58 of them specifically dealt with innovation in FB. Additionally, a forthcoming paper available online (De Massis, Frattini, Pizzurno, & Cassia, 2015) was also included because of its relevance to research. Finally, we also checked that all studies analyzed in a recent literature review about technological innovation (De Massis *et al.*, 2013) were included in our work. Accordingly, 59 papers made up the final sample used for the study.

Data analysis: This depurated sample included 59 empirical studies analyzing the topic of innovation in FB. Similar to Bird, Welsch, Astrachan, and Pistrui (2002), we read all the papers in order to determine the main topics, research questions, methods used, sample, used variables and key results. As a result, Table 1 was built.

TABLE 1 – Method used, industry studied and country of origin in analyzed papers

Method	Type	Number	Papers (%)
Quantitative	Primary Data	31	52.54%
	Secondary Data	15	25.42%
Qualitative		13	22.03%
Total		59	100.00%
Industry		**Number**	**Papers (%)**
Multi-industry		32	54.24%
Manufacturing		11	18.64%
High-tech industries		5	8.47%
Food and/or beverage		3	5.08%
Electronic		2	3.39%
Not available		6	10.17%
Total		59	100.00%
Countries		**Number**	**Papers (%)**
United States		14	17.72%
Spain		9	11.39%
Italy		8	10.13%
Germany		7	8.86%
Taiwan		5	6.33%
The Netherlands		5	6.33%
United Kingdom		5	6.33%
Belgium		4	5.06%
Sweden		3	3.80%
France		3	3.80%
Switzerland		3	3.80%
Australia		2	2.50%
Austria		2	2.53%
Denmark		2	2.53%
Finland		2	2.53%
Korea		2	2.53%
Canada		1	1.27%
Greece		1	1.27%
Norway		1	1.27%
Total		79	
		(Eight papers included a multi-country sample).	100.00%

Data synthesis: This part of the analysis is the primary value-added product of a review, since it produces new knowledge based on thorough data collection and careful analysis. As mentioned, in order to classify and synthesize the main research lines in the subject, we followed the multidimensional framework of innovation proposed by Crossan and Apaydin (2010). Similar to Stewart (2008) and Benavides-Velasco *et al.* (2013), we followed a variant of co-word analysis, as qualitative method. Using content analysis, three researchers read each of the 59 papers, and independently classified them in the main categories of determinants and dimensions of innovation. We built a spreadsheet with all the codes. Next, the individual assessments were compared and synthesized, and in case of disagreement, the issue was discussed and resolved with the agreement of at least two of the three researchers. As a result, all 59 papers were sorted depending on what particular determinants and/or dimensions addressed.

4 RESULTS: ANALYSIS OF DETERMINANTS AND DIMENSIONS OF INNOVATION

Most of the papers used quantitative methodologies, more than half of the papers included a multi-industry sample, manufacturing was the most studied industry, and their geographical focus was mainly the US, followed by Spain and Italy. Concerning the journals where the papers were published (see Table 2), the analyzed papers were published in 34 different journals. There has been a growing interest in the topic, with an increasing number of papers since 2009, possibly comparing it with the (high) growth of FB articles in general (Benavides-Velasco *et al.*, 2013). We observed that relatively little attention has been devoted to industries considered individually, except manufacturing or high-technology industries, where technological innovation studies predominate (De Massis *et al.*, 2013). Moreover, a relative lack of qualitative studies on innovation in FBs is revealed, and analysis of this topic has not been addressed in regions such as Africa, America – except the US and Canada –, Eastern Europe and Asia – except Taiwan and Korea.

TABLE 2 – Source journals of papers

Journal name	Number of papers	%	% Accumulated
Family Business Review	10	16.95%	16.95%
Journal of Family Business Strategy	4	6.78%	23.73%
Small Business Economics	4	6.78%	30.51%
Journal of Small Business Management	3	5.08%	35.59%
Academy of Management Journal	2	3.39%	38.98%
Corporate Governance: An International Review	2	3.39%	42.37%
Entrepreneurship & Regional Development	2	3.39%	45.76%
Entrepreneurship Theory and Practice	2	3.39%	49.15%
International Journal of Entrepreneurial Behaviour & Research	2	3.39%	52.54%
International Journal of Entrepreneurship and Innovation Management	2	3.39%	55.93%
Journal of Business Ethics	2	3.39%	59.32%
Research Policy	2	3.39%	62.71%
22 Journals with one 1 paper (*)	22		100.0%
Total	59	100.0%	

Note: (*) See the References section, where the analyzed papers are marked with an asterisk (*).

In order to organize existing research on the topic, we developed a conceptual framework based on Crossan and Apaydin (2010), and initially considered the following as main determinants of innovation: leadership, managerial levers, and business processes. Then, we added additional variables in order to adapt this framework to a FBs context, including environment as determinant (Keupp *et al.*, 2012), ownership (Anderson, Duru, & Reeb, 2012), and generation (Kellermanns *et al.*, 2012) as leadership subcategories. As dimensions, we considered innovation as a process and innovation as an outcome. We used this framework for carrying out the co-word analysis (See Figure 1 and Table 3).

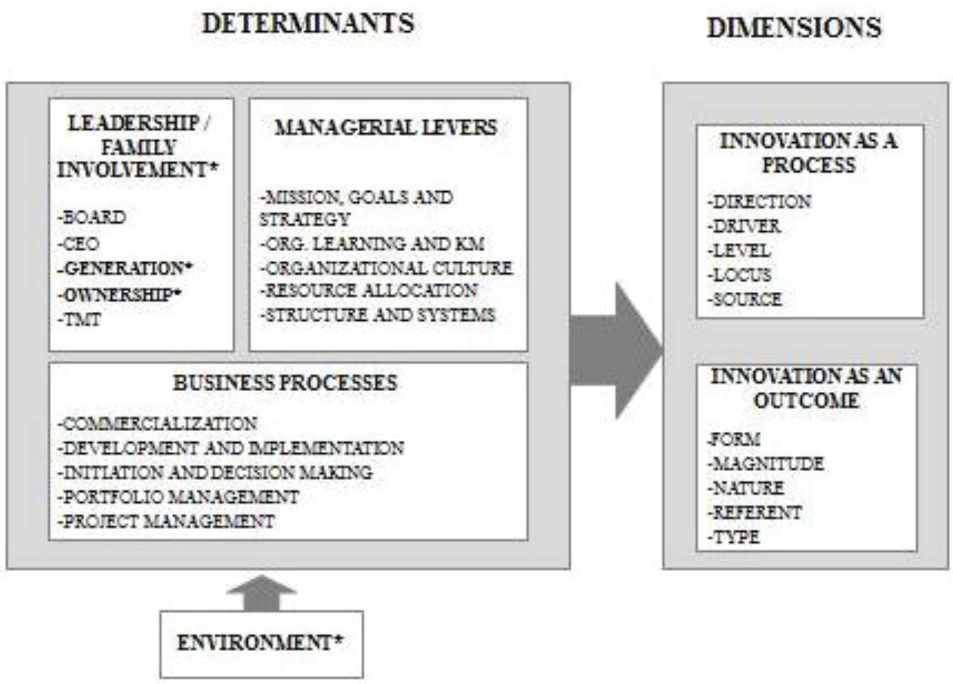


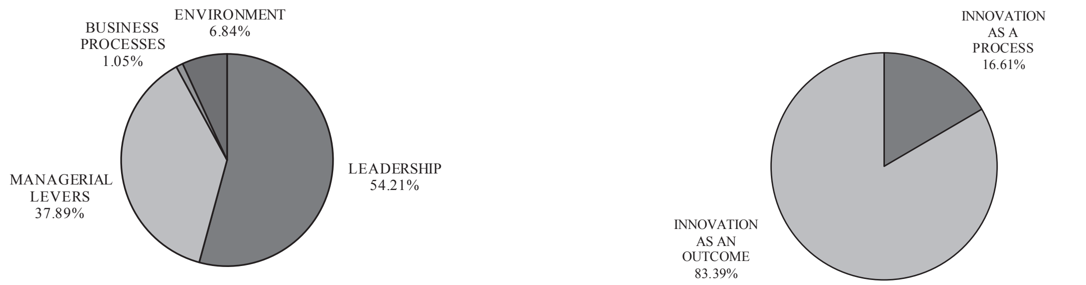
FIGURE 1 – Framework used for studying innovation research in FB
*New categories added by the authors
Source: Adapted from Crossan and Apaydin (2010).

Most of the papers included aspects referring to leadership and managerial levers, while environment and specially business processes have been hardly studied (see Table 3). Regarding the dimensions, most of the papers considered innovation as an outcome, being the sub dimensions more considered the following ones: form (product), type (technical) and referent (firm) (see Figure 2). Innovation as a process appears as a less addressed topic. Only 16.6% of the analyzed papers followed a process perspective; direction, source, and driver were the least studied subdimensions. Therefore, we can state that this field has not been well addressed in FB literature. This is coherent with the findings of Keupp *et al.* (2012) that found, after a systematic review, that performance implications of innovations, not the process itself, have received most of the research attention. Similarly, it has coincidences with De Massis *et al.* (2013) in that, in their recent literature review on technological innovation in FB, they observed that studies specifically addressing innovation processes were scarce.

TABLE 3 – Multi-dimensional framework of analyzed papers (co-word analysis)

				Number	Subtotal	Total determinants/ dimensions	% Total area	% Determ + Dimen	% Category
Determinants	Leadership		CEO	22					11.58%
			TMT	17					8.95%
			Board	14					7.37%
			Ownership	38					20.00%
			Generation	12	103	190	54.21%	38.70%	6.32%
	Managerial levers		Mission, goals and strategy	15					7.89%
			Resource allocation	10					5.26%
			Organizational culture	20					10.53%
			Structure and Systems	13					6.84%
			Organizational learning and Knowledge Management	14	72		37,.89%		7.37%
	Business processes		Initiation and decision making	0					0.00%
			Development and implementation	0					0.00%
			Portfolio management	0					0.00%
			Project Management	2					1.05%
			Commercialization	0	2		1.05%		0.00%
	Environment			13	13		6.84%		6.84%
Dimensions	Innovation as a process	Level	Individual	5					10.00%
			Group	3					6.00%
			Firm	14					28.00%
		Driver	Resources	2					4.00%
			Market opportunity	5					10.00%
		Direction	Top-down	1					2.00%
			Bottom-up	0					0.00%
		Source	Invention	3					6.00%
			Adoption	3					6.00%
		Locus	Firm	10					20.00%
			Network	4	50	301	16.61%	61.30%	8.00%
	Innovation as an outcome	Form	Product	45					17.93%
			Service	33					13.15%
			Process	28					11.16%
			Business Model	2					0.80%
		Magnitude	Incremental	13					5.18%
			Radical	12					4.78%
		Referent	Firm	24					9.56%
			Market	10					3.98%
			Industry	7					2.79%
		Type	Administrative	9					3.59%
			Technical	35					13.94%
		Nature	Tacit	10					3.98%
			Explicit	23	251		83.39%		9.16%
	Total			491	491				

Note: The total in this table reflects the number of times that the dimensions and categories were studied by the whole sample of papers.



Determinants of innovation: main categories

Dimensions of innovation: main categories

Figure 2 – Classification of papers by category

Following Figure 2, we will explain in this section how different determinants and dimensions have been studied in literature, offering a summary of the main factors considered in these categories that can be useful to researchers in the topic. Firstly, the influence of family involvement on *leadership*, and, as a result, on innovation has been identified as a significant research avenue. In Figure 3, we offer a comprehensive summary of the main factors addressed in previous studies, organized in the four former components. Secondly, regarding *managerial levers*, they include organizational and contextual factors, connecting leadership intentions and organizational results, are vital to enable innovation, since the organization's propensity to innovate is a sort of dynamic capability that resides in managerial levers. In this line of research, the following different categories were found (see Figure 4 and 5): mission, goals and strategy, resource allocation, structure and systems, organizational learning and knowledge management tools, and culture. Thirdly, *business processes* refer broadly to how organizations turn inputs into outputs (Crossan & Apaydin, 2010). According to our analysis, this meta-construct is arguably the least addressed in innovation research in FB. Only two studies (Grundström, Öberg, & Rönnbäck, 2012; Pittino & Visintin 2009) were identified focusing partially on these categories.

Fourth, FB scholars have analyzed how firm innovation is affected by the features of the sector/industry (*environment*) in which the firm is located, such as tangibility of the sector, industry concentration or industry growth (see Figure 6).

Fifth, regarding dimensions of innovation, as was previously mentioned, studies addressing innovation as a process were scarce; its outcome dimension is the most studied field. Papers considering *innovation as a process* answer the question "how" innovation is deployed or implemented (for instance, Dibrell & Moeller, 2011). By contrast, papers regarding *innovation as an outcome* answer the question "what" and "what kind of outputs" do innovation generate (for instance, Beck, Janssens, Debruyne, & Lommelen, 2011). It includes different subcategories; *level* and *locus* are the most studied by literature (see Table 3). Based on the described existing evidence, we will explain below the main research lines on the topic that has been identified and proposed.

Management Level (CEO)

- Age and gender (Cruz & Nordquist, 2010)
- Chairperson (Block, 2012)
- Descendant (Anderson et al., 2012)
- Education/Experience (Classen, Van Gils, Bammens, & Carree, 2012; Hausman, 2005)
- Family member (Cassia, De Massis, & Pizzurno, 2011; Cassia, De Massis, & Pizzurno, 2012; Casillas & Moreno, 2010; Casillas, Moreno, & Barbero, 2011; Chen & Hsu, 2009; Chin, Chen, Kleinman, & Lee, 2009; Chrisman & Patel, 2012; Classen et al., 2012; Gurrieri, 2008; Kellermarns et al., 2012; Lichtenthaler & Muethel, 2012; Sirmon, Arregle, Hitt, & Webb, 2008; Short, Payne, Brigham, Lumpkin, & Broberg, 2009; Uhlaner, Berent-Brawn, Jeurissen, & Wit, 2012)
- Foreign CEO (Battisti & Iona, 2009)
- Innovation attitude (Donckels & Fröhlich, 1991)
- Lone Founder (Block, 2012; Zahra, 2005)
- Manage Conflict (Hausman, 2005)
- Profesional (Anderson et al., 2012)
- Share Control (Hausman, 2005)
- Spousal CEO (Niehm, Tyner, Fitgerald, & Shelley, 2010)
- Tenure (Block, 2012; Zahra, 2005)

Management Level (TMT)

- Education/Experience (Classen et al., 2012; Hausman, 2005)
- Family member (Casillas & Moreno, 2010; Cassia et al., 2012; Chrisman & Patel, 2012; Classen et al., 2012; De Massis et al., 2015; Gurrieri, 2008; Huang, Ding, & Kao, 2009; Kellermanns et al., 2012; Lichtenthaler & Muethel, 2012; Short et al., 2009; Uhlaner et al., 2012)
- Foreign managers (Battisti & Iona, 2009)
- Innovation attitude (Donckels & Fröhlich, 1991)
- Manage Conflict (Hausman, 2005)
- Non-family member (Casillas et al., 2011)
- Share Control (Hausman, 2005)
- Specialization (Pittino & Visintin, 2009)
- Spousal manager (Niehm et al., 2010)

Ownership Component

Individual related:

- Demographic characteristics (Yildirim & Saygin, 2011)
- Entrepreneur characteristics (sex age qualifications) (Gurrieri, 2008; Pittino & Visintin, 2009)
- Family Ownership (Anderson et al., 2012; Battisti & Iona, 2009; Bergfeld & Weber, 2011; Block, 2012; Cassia et al., 2012; Chen & Hsu, 2009; Chrisman & Patel, 2012; Classen et al., 2012; De Cleyn & Braet, 2012; De Massis et al., 2012b; Dibrell & Moeller, 2011; Gudmundson, Tower, & Hartman, 2003; Hsu & Chang, 2011; Kraus, Pohjola, & Koponen, 2012; Llach & Nordquist, 2010; Llach, Marqués, Bikfalvi, & Simon, 2012; McAdam, Reid, & Mitchell, 2010; Munari, Oriani, & Sobrero, 2010; Muñoz-Bullón & Sánchez-Bueno, 2011; Pittino & Visintin, 2009; Sirmon et al., 2008; Short et al., 2009; Uhlaner et al., 2012; Zahra, 2005; Zellweger, Nason, & Nordqvist, 2012)
- Individual ownership (Tribo, Berrone, Surroca, 2007)
- Insider-Outsider ownership (Choi, Park, & Hong, 2012; Pittino & Visintin, 2009)
- Leadership style (Yildirim & Saygin, 2011)
- Lone Founder Ownership (Block, 2012; Zahra, 2005)
- Own-led firms (Czarnitzki & Kraft, 2004)
- Spousal ownership (Niehm et al., 2010)

Other:

- Concentrated-dispersed ownership (Baysinger et al., 1991; Cassia et al., 2011; Choi et al., 2012; Czarnitzki & Kraft, 2009; Pittino & Visintin, 2009; Westhead, 1997)
- Domestic-Foreign institutional ownership (Kim et al., 2008)
- Financial institutions ownership (Munari et al., 2010; Kim et al., 2008)
- Foreign ownership (Battisti & Iona, 2009; Choi et al., 2012)
- Government ownership (Choi et al., 2012; Munari et al., 2010)
- Institutional ownership (Block, 2012; Chang et al., 2010; Choi et al., 2012; De Cleyn & Braet, 2012; Tribo et al., 2007)
- Miscellaneous ownership (Munari et al., 2010)
- Preference of public incentives (Yildirim & Saygin, 2011)
- Supershares (Block, 2012)
- Venture capitalist (De Cleyn & Braet, 2012)

Governance Level (Board)

- CEO chairperson (Block, 2012)
- Family directors of Board (Casillas & Moreno, 2010; Chang et al., 2010; Chin et al., 2009; Chrisman & Patel, 2012; McAdam et al., 2010; Muñoz-Bullón & Sánchez-Bueno, 2011; Short et al., 2009)
- Family president (Chin et al., 2009)
- Inside-outside directors (Baysinger, Kosnik, & Turk, 1991; Chen & Hsu, 2009; De Cleyn & Braet, 2012; Gurrieri, 2008; Uhlaner et al., 2012)
- Number of directorships (De Cleyn & Braet, 2012)
- Size of the board of directors (De Cleyn & Braet, 2012)
- Spousal director (Niehm et al., 2010)

Generation

- Generation in control (Beck et al., 2011)
- Generational stage (Casillas et al., 2011; Cruz & Nordquist, 2010; Galve-Górriz & Salas-Fumás, 2011; Pittino & Visintin, 2009; Zellweger et al., 2012)
- Involvement of the family's next generation Casillas et al., 2011)
- Number of generations involved in the business (Hsu & Chang, 2011; Kellermanns et al., 2012; Pittino & Visintin, 2009; Uhlaner et al., 2012; Weismeier-Sammer, 2011; Zahra, 2005)
- Succesion to family members or to external parties (Grundström et al., 2012)

Figure 3 – Leadership

Mission goals and strategy

- Defender Innovator/prospector analyzer and reactor strategy (McCann, Leon-Guerrero, & Haley, 2001)
- Entrepreneurial orientation (Casillas & Moreno, 2010; Chirico & Nordqvist, 2010; Naldi, Nordqvist, Sjöberg, & Wiklund, 2007; Short et al., 2009; Zellweger & Sieger, 2010; Zellweger et al., 2012)
- Innovation goals match strategic objectives: conservative attitude (Cassia et al., 2012; Donckels & Fröhlich, 1991); survival or long-term corporate orientation (Bergfeld & Weber, 2011; Cassia et al., 2011; Cassia et al., 2012; Westhead, 1997); reputation (Westhead, 1997); transgenerational value (Cassia et al., 2011; Chirico & Nordqvist, 2010; Zellweger et al., 2012); paternalism (Chirico & Nordqvist, 2010); corporate social responsibility (Wagner, 2010); willingness to change (Zellweger et al., 2012; Weismeier-Sammer, 2011)
- Service-dominant focus (Dibrell & Moeller, 2011)
- Stewardship culture (Dibrell & Moeller, 2011)

Resource allocation

- Debt in RandD financing (Czarnitzki & Kraft, 2009)
- External financing Long-term financial orientation (Westhead, 1997)
- Financial slack (Grundström et al., 2012; Kim et al., 2008)
- Graduates dedicated full time to RandD (Galve-Górriz & Salas-Fumás, 2011)
- Growth intentions (Grundström et al., 2012)
- Innovation outcome (incremental focus in new frames…) (Grundström et al., 2012)
- Number of Persons dedicated full time to RandD (Galve-Górriz & Salas-Fumás, 2011)
- Perceived financial Benefits (Uhlaner et al., 2012)
- Performance aspiration gaps (gaps between aspirations and performance) (Chrisman & Patel, 2012)
- Persons with Vocational Training dedicated full time to RandD (Galve-Górriz & Salas-Fumás, 2011)
- RandD activities (Czarnitzki & Kraft, 2004)
- RandD investment (Sirmon et al., 2008)
- Radical vs. incremental Open vs. closed approach (De Massis et al., in press)

Structure and Systems

- Age (Battisti & Iona, 2009; Czarnitzki & Kraft, 2009; Duréndez, Madrid-Guijarro, & García-Pérez-De-Lema, 2011)
- Capital Intensity (Czarnitzki & Kraft, 2009)
- Centralization and formalization (Craig & Moores, 2006; De Massis et al., in press)
- Characteristics of the firm (Inherited Introduced organisational changes…) (Gurrieri, 2008)
- Computer use (Niehm et al., 2010)
- Employment (Battisti & Iona, 2009; Niehm et al., 2010)
- Establishment: Whether the establishment is a single independent establishment (Battisti & Iona, 2009)
- Export-import orientation (Czarnitzki & Kraft, 2009; Sirmon et al., 2008)
- Firm lifecycle (Craig & Dibrell, 2006)
- Imitability (Sirmon et al., 2008)
- Internet and technology strategies (Niehm et al., 2010)
- Management control systems (Duréndez et al., 2011; Kraus et al., 2012)
- Management structures (Kraus et al., 2012)
- Size effect (Craig & Dibrell, 2006; Czarnitzki & Kraft, 2004; Duréndez et al., 2011; Galve-Górriz & Salas-Fumás, 2011)
- Types of customers (Gudmundson et al., 2003)

Figure 4 – Managerial levers (I)

Organizational learning and KM

- Behavioural strategic controls (Hsu & Chang, 2011)
- Conflict management (Cassia et al., 2011)
- Critical incidents (expansion succession…) (McAdam et al., 2010)
- Cross-functional team vs. functional organization (De Massis et al., in press)
- Customer support (Westhead, 1997)
- Degree of "progression" of human resources issues and appropriateness of staffing (Cassia et al., 2012)
- Group dynamics conflicts and economic rationality of decision-making processes (Cassia et al., 2012)
- High level of communication and sharing of information among family members (Cassia et al., 2011)
- Importance of external technological partnerships (Pittino & Visintin, 2009)
- Inclination to be visible among key stakeholders and the community (Cassia et al., 2012)
- Level of monitoring efforts and agency costs (Cassia et al., 2012)
- Motivation cohesiveness and commitment of workforce (Cassia et al., 2012)
- Network effects (Hausman, 2005)
- New organization of work (Kraus et al., 2012)
- "Openness" to social capital/networks and external environment (Cassia et al., 2012)
- Professionalization and objectivity (Cassia et al., 2011)
- Relations with external partners (Kraus et al., 2012)
- Scope of information and timeliness of information (Craig & Moores, 2006)
- Social capital (Chamber of Commerce registration Relations with local banks…) (Gurrieri, 2008)
- Socio-economic Network (cooperation subcontracting collaboration (Donckels & Fröhlich, 1991)
- Specifications of responsibilities the content of commands and of information flows (Kraus et al., 2012)
- Strategic planning (Weismeier-Sammer, 2011)
- Transformative Leadership (Yildirim & Saygin, 2011)

Organizational culture

- Absorptive capacity/entrepreneurial capacity (Gurrieri, 2008)
- Adhocracy culture (Duréndez et al., 2011)
- Autonomy (Casillas & Moreno, 2010; De Massis et al., in press; Short et al., 2009; Zellweger et al., 2012)
- "Closure" attitude towards the external environment (Cassia et al., 2011)
- Competitive aggressiveness (Casillas & Moreno, 2010; Short et al., 2009; Zellweger & Sieger, 2012)
- Corporate Social Performance (Wagner, 2010)
- Dynamic capabilities (Chirico & Nordqvist, 2010)
- Family experience and culture (Uhlaner et al., 2012)
- Formality of strategizing (Zellweger et al., 2012)
- Hyerarchical culture innovative culture (Duréndez et al., 2011)
- Innovativeness (Casillas & Moreno, 2010; Cassia et al., 2012; Duréndez et al., 2011; Naldi et al., 2007; Short et al., 2009; Zellweger & Sieger, 2012; Zellweger et al., 2012)
- Long-term corporate orientation (Bergfeld & Weber, 2011; Cassia et al., 2011)
- Market culture (Duréndez et al., 2011)
- Morale and motivation: job satisfaction (Donckels & Fröhlich, 1991) and employee empowerment (Gudmundson et al., 2003)
- Organizational climate: technology concerns (Westhead, 1997); organizational support (Gudmundson et al., 2003)
- Proactiveness (Casillas & Moreno, 2010; Cassia et al., 2012; Grundström et al., 2012; Kellermanns et al., 2012; Naldi et al., 2007; Short et al., 2009; Uhlaner et al., 2012; Zellweger & Sieger, 2012; Zellweger et al., 2012)
- Resource focus (Zellweger et al., 2012)
- Risk-taking culture (Casillas & Moreno, 2010; Cassia et al., 2011; Cassia et al., 2012; De Massis et al., in press); Donckels & Fröhlich, 1991; Short et al., 2009; Zellweger & Sieger, 2012; Zellweger et al., 2012)
- Service-dominant focus (Dibrell & Moeller, 2011)
- Shared family values high motivation cohesiveness and commitment of the employees (Cassia et al., 2011)
- Stability versus growth (Zellweger et al., 2012)
- Stewardship culture (Dibrell & Moeller, 2011)
- Time orientation (short or long term) (Cassia et al. 2012)
- To expand the "entrepreneurial dream" over generations (Cassia et al. 2011)

Figure 5 – Managerial levers (II)

Environment
- Business location (Niehm et al., 2010)
- Community support (Niehm et al., 2010)
- Constraints (Craig & Moores, 2006)
- Country (Czarnitzki & Kraft, 2004; Donckels & Fröhlich, 1991)
- Environmental dynamism (Cruz & Nordqvist, 2010; Westhead, 1997)
- Environmental hostility (Westhead, 1997)
- Environmental management (Wagner, 2010)
- Importance of environment scanning activities (Pittino & Visintin, 2009)
- Industry (Craig & Dibrell, 2006; Czarnitzki & Kraft, 2004; Westhead, 1997)
- Industry concentration (Hausman, 2005)
- Industry growth (Cruz & Nordqvist, 2010)
- Natural environment (Craig & Dibrell, 2006)
- Perceived environmental uncertainty (Craig & Moores, 2006)
- Pressure of competition (Battisti & Iona, 2009; Craig & Moores, 2006; Czarnitzki & Kraft, 2004)
- Tangibility of sector (Uhlaner et al., 2012)
- Technological opportunities (Cruz & Nordqvist, 2010; Weismeier-Sammer, 2011)
- Type/size of community (Niehm et al., 2010)

FIGURE 6 – Environment

5 EXISTING AND EMERGENT RESEARCH LINES AND GAPS

Based on the analysis carried out, several research lines arose when examining in-depth how family involvement affected determinants and dimensions of innovations, and/or their relations (see Figure 7). In this line of thought, seven existing and emergent main research lines were identified: direct effect of family involvement on managerial levers (Research Line 1, RL1), direct effect of family involvement on business processes (RL2), direct influence of family involvement on both dimensions of innovation: innovation as an outcome (RL3) and innovation as a process (RL4), and, finally, moderating effect of family involvement on the relations between determinants (RL5), between determinants and dimensions (RL6), and between dimensions of innovation (RL7).

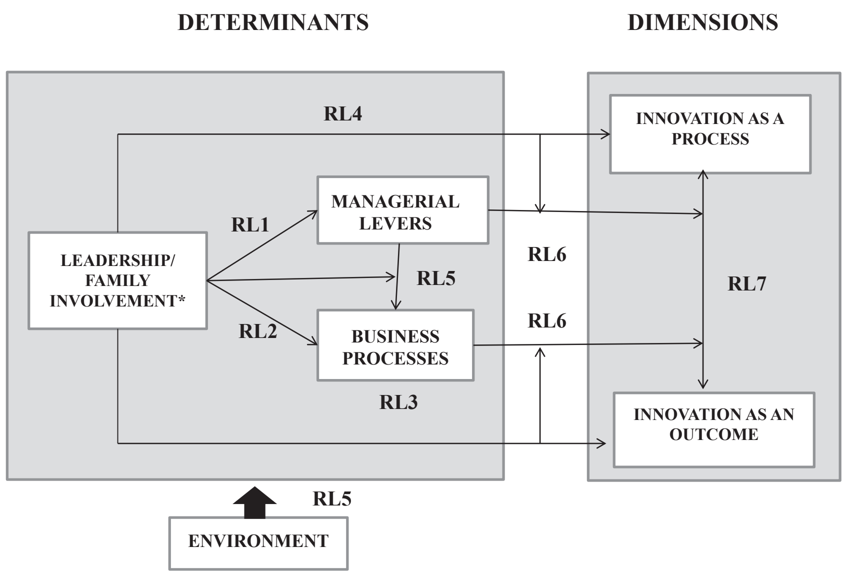


FIGURE 7 – Main research lines

Based on the analysis carried out, we identified several research gaps that arise from controversial previous results or topics where empirical research is lacking. Nevertheless, these research gaps do not intend to be exhaustive, but to serve as specific illustrations embedded in our proposed framework.

Regarding the direct effect of Family Involvement on Managerial Levers (RL1), family involvement may affect directly the way managerial levers are carried out, and the long-term perspectives of FBs may be one of the main causes. On one hand, FBs are usually long-term oriented, because their main aims are keeping heritage and transferring the firm to next generations (Muñoz-Bullón & Sánchez-Bueno, 2011). Long-term perspective encourages FB to engage in innovative investments, preventing an underinvestment problem with R&D (Chen & Hsu, 2009). This specific feature makes families strive to secure their long-term wealth by applying radical and progressive innovation, in order to diversify the orientation of their holdings (Bergfel & Weber, 2011). However, risk adverse behavior blocks costly activities such as R&D investments. The rationale behind this is that protecting family welfare, ensuring firm longevity or maintaining control (Chen & Hsu, 2009) provokes a risk adverse behavior among FBs. On the other hand, in literature, there is as yet no agreement as to the entrepreneurial tendencies of FBs, one of the possible aspects taken into account at firm managerial levers. Thus, for example, understanding whether and how long term perspective makes FBs firm different from NFBs regarding different aspects of entrepreneurial orientation might be an interesting avenue for future research: *Research Gap 1 (RG1): How does long-term orientation influence FBs' risk adverse behavior (entrepreneurial orientation) as a determinant of innovation?*

About the direct effect of Family Involvement on Business Processes (RL2), family involvement may directly influence the way business processes are conducted, and the resource-based view can shed light on this. Unique types of human, social, marketing, physical and financial capital help FBs better identify and understand the challenges and opportunities that the company faces. FBs usually promote relations with employees, competitors, suppliers, customers, and/or research centers (social capital), looking for complementary resources in knowledge, technology or people, in order to increase their competitiveness through higher innovativeness and to settle in new markets (Llach & Nordqvist, 2010). However, when family members are heavily involved, non-family qualified employees may be put aside in key decisions or simply they will not be hired, depriving the business of a rich source of ideas for innovation (Zahra, 2005).

Other studies reveal that FBs tend to be less dependent on environment-culture and socio-economic networks than NFBs (Donckels & Frolich, 1991) and have less propensity to innovation, creativity and change (De Massis *et al.*, 2013). FBs have a portfolio of innovation projects, as do any other type of organization. However, we do not know whether FBs tend to initiate innovation by generation or by adoption, or whether they prefer to develop new products or processes or adopt innovation from the outside. Then, if we adopt a resource-based view perspective, it would be interesting to study: *RG2: Do unique characteristics of family involvement affect adoption or generation of innovations?*

The direct effect of Family Involvement on Innovation as an Outcome (RL3) means that family involvement may have a direct effect on innovation outcomes, and the number and type of generations engaged can play a pivotal role in it. Zahra (2005) suggests that FBs have a more innovation-oriented culture when later generations are involved in the management of the firm. In later generations, more family members tend to participate in decision-making and professionalism is enhanced, which is beneficial for a firm's innovation (Beck *et al.*, 2011). Zellweger & Sieger (2012) proposed that generational changes can increase the level of internal and external innovativeness in FBs, and their interviews detected high levels of internal and "invisible" innovations such as exploiting existing solutions and the improvement of management systems and governance structures. On the other hand, generational ownership dispersion does not favor innovative attitude because family conflicts arise. It means that as the family becomes larger and the ownership is more dispersed among multiple generations, family conflicts can arise easily (Block, 2012; Kellermanns *et al.*, 2012). This atmosphere does not promote an innovative attitude. Consequently, based on these contradictory results, it would be interesting to provide some evidence about the real effect of the generation in charge on the magnitude of the innovation outcomes of the firm. (*RG3): How can family generational aspects determine the incremental or radical character of innovation?*

Concerning the direct effect of Family Involvement on Innovation as a Process (RL4), family involvement might affect directly the innovation process. FBs' unique characteristics such as altruism, loyalty and trust, can foster family bond (Chang *et al.*, 2010), promote a willingness to take risks (Chen & Hsu, 2009) and provide the flexible support necessary to exploit a firm's innovativeness successfully (Kellermanns *et al.,* 2012). However, some of these values might have the opposite effect, for instance, altruism may constrain the firm capability of selecting and evaluating valuable innovation projects (Chang *et al.*, 2010). In fact, altruism can provoke problems of self-control (Block, 2012), assigning strategic roles to family members rather than to the most capable manager (Morck & Yeung, 2003). Likewise, FB members have to decide how the innovation process starts and develops.

Family members communicate more efficiently and share more information (Tagiuri & Davis, 1996), which ease the participation of the whole organization in the generation of innovation, supporting a bottom-up process. However, the concentration of ownership, control, and management that usually characterizes FBs and the typical lack of access to skilled human resources could concentrate decisions in few people, opting for a top-down process. Considering that no serious effort has been done to clarify this question, it would be an interesting research topic to examine if altruism or nepotism plays an important role to explain the direction of innovation. *RG4: How and to what extent do altruism and nepotism influence the direction of innovation processes (top-down, bottom-up)?*

About the moderating effect of family involvement on the relations between determinants (RL5) and on the relations between determinants and dimensions (RL6), family involvement may exert also a moderating role in the relations between determinants and between determinants and innovations, and agency theory can help to explain these influences.

From an agency perspective, we could argue that dominant family shareholders may expropriate minority non-family ones for their own interest (Block, 2012; Chang *et al.*, 2010). Family members may take assets out of the businesses they own, and are reluctant to turn great portions of financial slack into R&D investments (Kim, Kim, & Lee, 2008). That situation may cause, for instance, favoring high dividends over R&D investments (Muñoz-Bullón & Sánchez-Bueno, 2011). In this line, there is little doubt that family members might pursue their own private interests, and conflicts of interest between the family and the business may appear. However, when family members serve as firms' senior managers, asymmetric information and moral hazard situations can be avoided.

Neither manager has better information about innovation policy than owners do (asymmetric information), nor managers are only interested in short-term performance (moral hazard). This characteristic aligns preferences for a growth and risk-taking strategy between the family and the firm. Some researchers have stated that CEOs' decisions about environment might be decisive in the entrepreneurial orientation of the firm, based on the premise that the environment has an important influence on a firm's entrepreneurial orientation (Dess, Lumpkin, & Covin, 1997).

Consequently, it could be useful to examine if the effect of the environment (determinant) on certain aspects of the organizational culture (determinant) could be influenced by the organizational authority exerted by the family in control: *RG5: How and to what extent do different degrees of family involvement influence the relationship between environment and organizational culture (risk taking culture, etc.)?* Another interesting topic is the existing relationship between company's resource allocation (considered as a managerial lever, determinant, in our framework) and effective innovation. Jensen (1986) suggested that free cash-flow allows firms to invest in dubious projects, so too much financial slack may make them more complacent and less forced to engage in innovation projects. Consequently, considering agency costs, it seems necessary to further explore this: *RG6: How and to what extent do different degrees of family involvement influence the relationship between lack of resources and products, services and processes innovation?*

Finally, about the moderating effect of family involvement on the relationship between dimensions, family involvement may also have a moderating role in the relations between dimensions of innovation. Behavioral theory may clarify this effect. According to this theory, family members prioritize decisions in order to protect socio-emotional wealth, although they can be not suitable from an economic point of view (Chrisman & Patel, 2012). Therefore, it is no clear what the expected behavior of FBs will be when they face risky decisions, such as those ones referring to the desired magnitude of innovations or the direction of the innovation processes. On one hand, risky investments with long-term payoffs may threat the current socio-emotional wealth, and this might increase risk aversion of family members, promoting top-down and incremental innovations. On the other hand, risky decisions may increase or preserve socio-emotional wealth, and consequently, bottom-up and radical innovations may be seen as necessary by family members (Chrisman & Patel, 2012). Consequently, it would be interesting to study: *RG7: How does socio-emotional wealth impact the relationship between direction of innovation (top-down/bottom-up) and magnitude of innovation process (incremental/radical)?*

6 CONCLUSIONS

FBs represent a significant social and economic institution at a worldwide level, and research on the field has recently undergone a period of rapid development (Gedajlovic, Carney, Chrisman, & Kellermanns, 2012). However, despite the growing maturity of FB research, the field is fragmented and there is no clear evidence about the consequences of family involvement in terms of innovation. By conducting this study, we have consolidated extant empirical research on innovation in FBs, by proposing an integrative framework reflecting connections between determinants and dimensions. Based on it, we have identified the main research avenues on the field and the current and emergent research lines and gaps. The present study advances knowledge about innovation in a FB context, and offers two relevant contributions.

Firstly, this paper provides an integrative vision of the state of the research on the field. We conducted a systematic review of all empirical studies about the topic published in refereed journals, following three phases: data collection, data analysis and synthesis. The depurated sample included 59 empirical studies analyzing the topic of innovation in FBs from 37 different journals. This detailed analysis of the extant literature has revealed that there has been a growing interest in the field in recent years. Next, inspired by the work of Crossan and Apaydin (2010), which was widely cited in the literature, we developed an integrative framework (determinants-dimensions) for organizing research on innovation in FBs. This framework includes two dimensions of innovation, as an outcome and as a process, and integrates diverse determinants that may enable innovation within these companies (leadership/family involvement, managerial level, business processes, and environment). It also incorporates the connection between dimensions and determinants. Based on this integrative framework, we classified and synthesized empirical research in the subject conducting a co-word analysis of the papers. We observed that past research has mainly addressed the study of innovation in FBs quantitatively, and most of the studies focused on manufacturing industries and examined the topic mainly in the US and European countries. Regarding the determinants of innovation, we observed that business processes and environment were the less analyzed ones in previous studies. The same holds for the study of innovation as a process, as this dimension of innovation has received little attention in the prior literature.

Secondly, based on the detailed framework and relating determinants and dimensions, we identified the main existing and emergent research avenues on innovation in FBs. This analysis allows us to map existing knowledge exhaustively, following a more comprehensive perspective and offering the academic community a general vision of this particular field. Tacking stock of this specific literature, we summarize some of the most relevant findings of the analyzed studies and point out the most addressed fields and identified topics where there is still no clear evidence, because empirical research is lacking. We identified seven research lines: direct effect of family involvement on managerial levers (RL1), direct effect of family involvement on business processes (RL2), direct influence of family involvement in both dimensions of innovation: innovation as an outcome (RL3) and innovation as a process (RL4), moderating effect of family involvement on the relations between determinants (RL5), between determinants and dimensions (RL6), and between dimensions of innovation (RL7). In addition, several research gaps emerged from controversial previous research results or not addressed topics. They can be useful to guide future studies on the field and conform a future research agenda. The conducted analysis may contribute substantially to the development of the field, since it would be a valuable tool for researchers. By highlighting existing knowledge gaps, this study may help to solve inconsistencies and give academic community a general vision of this particular field. Until now, published papers had a narrow focus as they focused on specific angles of innovation. This study contributes to the literature by organizing existing literature and clarifying what are the research needs on innovation in FBs. Moreover, it has a comprehensive focus, offering additional evidence to previous published literature reviews, which focus exclusively on one aspect of innovation, as the one mentioned of De Massis *et al.* (2013).

7 MANAGERIAL RELEVANCE

This paper will have an important impact on the practice of management, particularly of FBs. Overall, this study contributes to practice by showing where there are empirical proofs about the positive and negative impact of family influence regarding innovation. By doing this, it helps practitioners by offering them a more holistic perspective on the process of managing innovation. The results of the identified seven research lines have clear consequences on the management processes of FBs that could be summarized in two main ideas for managers. Firstly, managing innovation differs between FBs and NFBs. There has been made clear in the literature the direct effect of family involvement on managerial levers, on business processes, and on both dimensions of innovation: innovation as an outcome and innovation as a process. Secondly, the innovation itself is affected by the fact of managing it in FBs, and there is a moderating effect of family involvement on the relations between determinants and dimensions. In sum, this study leads to a clearer picture of the phenomenon of innovation in a FBs context, and contributes to the academia and industry by identifying relevant research lines on the topic and providing an agenda for future research.

Furthermore, by synthesizing relevant conclusions about innovation in FBs, this study helps FBs' managers and practitioners in their decision-taking processes.

Finally, at least two limitations could be mentioned as main limitations of the study. Firstly, since the research process finished in December 2012, some relevant papers published recently may exist and have not been included in the analysis. However, the most representative studies referring to innovation in FBs are included, since the main research databases were searched extensively by this date and the most relevant journals on the topic were also browsed. Secondly, we based our analysis on a conceptual framework regarding innovation that is biased toward the firm level, so the individual and industry-level were less considered. This perspective should be analyzed in more detail by future studies. Lastly, given that past and current research has been exceedingly focused on Western developed countries, future studies should conduct investigations in different social and geographic contexts, so as to increase the validity of the past findings and to find dissimilarities among different regions.

REFERENCES

Anderson, R. C., Duru, A., & Reeb, D. M. (2012). Investment policy in family controlled firms. *Journal of Banking & Finance, 36*(6), 1744-1758. (*)

Battisti, G., & Iona, A. (2009). The intra-firm diffusion of complementary innovations: Evidence from the adoption of management practices by British establishments. *Research Policy, 38*(8), 1326-1339. (*)

Baysinger, B. D., Kosnik, R. D., & Turk, T. A. (1991). Effects of board and ownership structure on corporate R&D strategy. *Academy of Management Journal, 34*(1), 205-214. (*)

Beck, L., Janssens, W., Debruyne, M., & Lommelen, T. (2011). A study of the relationships between generation, market orientation, and innovation in family firms. *Family Business Review, 24*(3), 252-272. (*)

Benavides-Velasco, C. A., Quintana-García, C., & Guzmán-Parra, V. F. (2013). Trends in family business research. *Small Business Economics, 40*(1), 41-57.

Bergfeld, M. M. H., & Weber, F. M. (2011). Dynasties of innovation: highly performing German family firms and the owners' role for innovation. *International Journal of Entrepreneurship and Innovation Management*, *13*(1), 80-94. (*)

Biancolino, C. A., Maccari, E. A., & Pereira, M. F. (2013). Innovation as a tool for generating value in the IT services sector. *RBGN - Revista Brasileira de Gestão de Negócios, 15*(48), 410-426.

Bird, B., Welsch, H., Astrachan, J. H., & Pistrui, D. (2002). Family business research: The evolution of an academic field. *Family Business Review, 15*(4), 337-350.

Block, J., 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*(2), 180-199.

Block, J. H. (2012). R&D investments in family and founder firms: An agency perspective. *Journal of Business Venturing, 27*(2), 248-265. (*)

Borges, A. F., Lescura, C., & Oliveira, J. L. (2012). O campo de pesquisas sobre empresas familiares no Brasil: Análise da produção científica no período 1997-2009. *Organizações & Sociedade, 19*(61), 315-332.

Borges, A. L., Lima, J. B., & Andrade, D. M. (2014). Práticas de inovação em empresa familiar: Estudo de caso. *RPCA - Revista Pensamento Contemporâneo em Administraçao, 8*(3), 37-54.

Carney, M., & Gedajlovic, E. (2003). Strategic innovation and the administrative heritage of east asian family business groups. *Asia Pacific Journal of Management, 20*(1), 5-26.

Casillas, J. C., & Acedo, F. (2007). Evolution of the intellectual structure of family business literature: A bibliometric study of FBR. *Family Business Review, 20*(2), 141-162.

Casillas, J. C., & Moreno, A. M. (2010). The relationship between entrepreneurial orientation and growth: The moderating role of family involvement. *Entrepreneurship & Regional Development, 22*(3-4), 265-291. (*)

Casillas, J. C., Moreno, A. M., & Barbero, J. L. (2011). Entrepreneurial orientation of family firms: Family and environmental dimensions. *Journal of Family Business Strategy, 2*(2), 90-100. (*)

Cassia, L., De Massis, A., & Pizzurno, E. (2011). An exploratory investigation on NPD in small family businesses from Northern Italy. *International Journal of Business, Management and Social Sciences, 2*(2), 1-14. (*)

Cassia, L., De Massis, A., & Pizzurno, E. (2012). Strategic innovation and new product development in family firms: An empirically grounded theoretical framework. *International Journal of Entrepreneurial Behaviour & Research, 18*(2), 198-232. (*)

Chang, S., Wu, W., & Wong, Y. (2010). Family control and stock market reactions to innovation announcements. *British Journal of Management, 21*(1), 152-170. (*)

Chen, H. L., & Hsu, W. T. (2009). Family ownership, board independence, and R&D investment. *Family Business Review, 22*(4), 347-362. (*)

Chin, C. L., Chen,Y. J., Kleinman, G., & Lee, P. (2009). Corporate ownership structure and innovation: Evidence from Taiwan's electronics industry. *Journal of Accounting, Auditing & Finance, 24*(1), 145-175. (*)

Chirico, F., & Nordqvist, M. (2010). Dynamic capabilities and transgenerational value creation in family firms: The role of organizational culture. *International Small Business Journal, 28*(5), 487-504. (*)

Choi, S. B., Park, B. I., & Hong, P. (2012). Does ownership structure matter for firm technological innovation performance? The case of Korean firms. *Corporate Governance: An International Review, 20*(3), 267-288. (*)

Chrisman, J. J., Chua, J. H., De Massis, A., Frattini, F., & Wright, M. (2014a). The ability and willingness paradox in family firm innovation. *Journal of Product Innovation Management, 32*(3), 310-318.

Chrisman, J .J., Fang, H., Kotlar, J., & De Massis, A. (2014b) A note on family influence and the adoption of discontinuous technologies in family firms. *Journal of Product Innovation Management, 32*(3), 384-388.

Chrisman, J. J., & Patel, P. C. (2012). Variations in R&D investments of family and nonfamily firms: Behavioral agency and myopic loss aversion perspectives. *Academy of Management Journal, 44*(4), 976-997. (*)

Chua, J. H., Chrisman, J. J., & Sharma, P. (1999). Defining the family business by behaviour. *Entrepreneurship Theory and Practice, 23*(4), 19-39.

Classen, N., Carree, M., Gils, A., & Peters, B. (2014). Innovation in family and non-family SMEs: An exploratory analysis. *Small Business Economics, 42*(3), 595-609.

Classen, N., Van Gils, A., Bammens, Y., & Carree, M. A. (2012). Accessing resources from innovation partners: The search breadth of family SMEs. *Journal of Small Business Management, 50*(2), 191-215. (*)

Clausen, T. H., & Pohjola, M. (2013). Persistence of product innovation: comparing breakthrough and incremental product innovation. *Technology Analysis & Strategic Management, 25*(4), 369-385.

Craig, J., & Dibrell, C. (2006). The natural environment, innovation, and firm performance: A comparative study. *Family Business Review, 19*(4), 275-288. (*)

Craig, J., & Moores, K. (2006). A 10-year longitudinal investigation of strategy, systems, and environment on innovation in family firms. *Family Business Review, 19*(1), 1-10. (*)

Crossan, M. M., & Apaydin, M. (2010). A multi-dimensional framework of organizational innovation: A systematic review of the literature. *Journal of Management Studies, 47*(6), 1154-1191.

Cruz, C., & Nordqvist, M. (2012). Entrepreneurial orientation in family firms: A generational perspective. *Small Business Economics, 38*(1), 33-49. (*)

Czarnitzki, D., & Kraft, K. (2004). Firm leadership and innovative performance: Evidence from seven EU countries. *Small Business Economics, 22*(5), 325-332. (*)

Czarnitzki, D., & Kraft, K. (2009). Capital control, debt financing and innovative activity. *Journal of Economic Behavior and Organization, 71*(2), 372-383. (*)

Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, *34*(3), 555-590.

De Cleyn, S. H., & Braet, J. (2012). Do board composition and investor type influence innovativeness in SMEs? *International Entrepreneurial Management Journal, 8*(3), 285-308. (*)

De Massis, A., Frattini, F., & Lichtenthaler, U. (2013). Research on technological innovation in family firms: Present debates and future directions. *Family Business Review, 26*(1), 10-31.

De Massis, A., Frattini, F., Pizzurno, E., & Cassia, L. (2015). Product innovation in family Vs. non-family firms: An exploratory analysis. *Journal of Small Business Management,* 53(1), 1-36. (*)

Dess, G. G., Lumpkin, G. T., & Covin, J. G. (1997). Entrepreneurial strategy making and firm performance: Tests of contingency and configurational models. *Strategic Management Journal, 18*(9), 677-695.

Dess, G. G., & Picken, J. C. (2000). Changing roles: Leadership in the 21st century. *Organizational Dynamics, 28*(3), 18-34.

Dibrell, C., & Moeller, M. (2011). The impact of a service-dominant focus strategy and stewardship culture on organizational innovativeness in family-owned businesses. *Journal of Family Business Strategy, 2*(1), 43-51. (*)

Donckels, R., & Fröhlich, E. (1991). Are family businesses really different? European experiences from STRATOS. *Family Business Review, 4*(2), 149-160. (*)

Duréndez, A., Madrid-Guijarro, A., & García-Pérez-De-Lema, D. (2011). Innovative culture, management control systems and performance in small and medium-sized Spanish family firms. *Innovar, 21*(40), 137-153. (*)

Dyer, W. J. (2006). Examining the "Family Effect" on firm performance. *Family Business Review, 19*(4), 253-273.

Galve-Górriz, C., & Salas-Fumás, V. (2011). Growth strategies, professionalization, ownership structure and performance across generations of a family firm. *African Journal of Business Management, 5*(9), 3589-3604. (*)

Gedajlovic, E., Carney, M., Chrisman, J. J., & Kellermanns, F. W. (2012). The adolescence of family firm research: Taking stock and planning for the future. *Journal of Management, 38*(4), 1010-1037.

Gomez-Mejia, L. R., Haynes, K. T., Nunez-Nickel, M., Jacobson, K. J. L., & Moyano-Fuentes, J. (2007). Socio-emotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills. *Administrative Science Quarterly, 52*(1), 106-137.

Gonçalves, J. R. S. C. (2000). As empresas familiares no Brasil. *RAE - Revista de Administração de Empresas, 7*(1), 7-12.

González-Ferrero, M., Guzmán-Vásquez, A., Pombo-Vejarano, C., & Trujillo-Dávila, M. A. (2011). Revisión de la literatura de empresas familiares: Una perspectiva financiera. *Academia, Revista Latinoamericana de Administración*, *47*, 18-42.

Grundström, C., Öberg, C., & Rönnbäck, A. R. (2012). Family-owned manufacturing SMEs and innovativeness: A comparison between within-family successions and external takeovers. *Family Business Strategy, 3*(3), 162-173. (*)

Gudmundson, D., Tower, C. B., & Hartman, E. A. (2003). Innovation in small businesses: Culture and ownership structure do matter. *Journal of Developmental Entrepreneurship, 8*(1), 1-18. (*)

Gurrieri, A. R. (2008). Knowledge network dissemination in a family-firm sector. *The Journal of Socio-Economics, 37*(6), 2380-2389. (*)

Habbershon, T. G., & Williams, M. (1999). A resource-based framework for assessing the strategic advantages of family firms. *Family Business Review, 12*(1), 1-25.

Habbershon, T. G., Williams, M., & Macmillan, I. (2003). A Unified systems perspective of family firm performance. *Journal of Business Venturing, 18*(4), 441-448.

Handler, W. (1989). Methodological issues and considerations in studying family businesses. *Family Business Review, 2*(3), 257-276.

Hausman, A. (2005). Innovativeness among small businesses: Theory and propositions for future research. *Industrial Marketing Management, 34*(8), 773-782. (*)

Hsu, L., & Chang, H. (2011). The role of behavioral strategic controls in family firm innovation. *Industry and Innovation, 18*(7), 709-727. (*)

Huang, Y., Ding, H., & Kao, M. (2009). Salient stakeholder voices: Family business and green innovation adoption. *Journal of Management and Organization, 15*(3), 309-326. (*)

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review, 76*(2), 323-329.

Kellermanns, F., Eddleston, K., Sarathy, R., & Murphy, F. (2012). Innovativeness in family firms: a family influence perspective. *Small Business Economics, 38*(1), 85-101. (*)

Keupp, M. M., Palmié, M., & Gassmann, O. (2012). The strategic management of innovation: A systematic review and paths for future research. *International Journal of Management Reviews, 14*(4), 367-390.

Kim, H., Kim, H., & Lee, P. M. (2008). Ownership structure and the relationship between financial slack and R&D investments: Evidence from Korean firms. *Organization Science, 19*(3), 404-418. (*)

Kotlar, J., Fang, H., De Massis, A., & Frattini, F. (2014). Profitability goals, control goals, and the R&D investment decisions of family and nonfamily firms. *Journal of Product Innovation Management, 31*(6), 1128-1145.

Kraiczy, N., Hack, A., & Kellermanns, F. (2014). New product portfolio performance in family firms. *Journal of Business Research, 67*(6), 1065-1073.

Kraus, S., Harms, R., & Fink, M. (2011). Family firm research: Sketching a research field. *International Journal of Entrepreneurship and Innovation Management, 13*(1), 32-47.

Kraus, S., Pohjola, M., & Koponen, A. (2012). Innovation in family firms: An empirical analysis linking organizational and managerial innovation to corporate success. *Review of Managerial Science, 6*(3), 265-286. (*)

Lara De Oliveira, J., Albuquerque, A. L., & Pereira, R. D. (2012). Governança, successão e prossionalização em uma empresa familiar: (Re) arrajando o lugar da família multigeracional. *RBGN - Revista Brasileira de Gestao de Negocios, 14*(43), 176-192.

Lichtenthaler, U., & Muethel, M. (2012). The impact of family involvement on dynamic innovation capabilities: Evidence from German manufacturing firms. *Entrepreneurship Theory and Practice, 36*(6), 1235-1253. (*)

Litz, R. (1995). The family business: Toward definitional clarity. *Family Business Review, 8*(2), 100-104.

Litz, R., Pearson, A. W., & Litchfield, S. (2012). Charting the future of family business research: Perspectives from the field. *Family Business Review, 25*(1), 16-32.

Llach, J., Marqués, P., Bikfalvi, A., & Simon, A. (2012). The innovativeness of family firms through the economic cycle. *Journal of Family Business Management, 2*(2), 96-109. (*)

Llach, J., & Nordqvist, M. (2010). Innovation in family and non-family businesses: A resource perspective. *International Journal of Entrepreneurial Venturing, 2*(3-4), 381-399. (*)

Martí, J., Menéndez-Requejo, S., & Rottke, O. M. (2013). The impact of venture capital on family businesses: Evidence from Spain. *Journal of World Business, 48*(3), 420-430.

Matzler, K., Veider, V., Hautz, J., & Stadler, C. (2015). The impact of family ownership, management, and governance on innovation. *Journal of Product Innovation Management, 32*(3), 319-333.

Mcadam, R., Reid, R., & Mitchell, N. (2010). Longitudinal development of innovation implementation in family-based SMEs: The effects of critical incidents. *International Journal of Entrepreneurial Behaviour and Research, 16*(5), 437-456. (*)

Mccann, J. E., Leon-Guerrero, A. Y., & Haley, J. D. (2001). Strategic goals and practices of innovative family businesses. *Journal of Small Business Management, 39*(1), 50-59. (*)

Moraes, A. C. T., Fº., Barone, F. M., & Pinto, M. O. (2011). A produção científica em empresas familiares: Um enfoque conceitual. *Revista de Administração Pública, 45*(6), 1971-1991.

Morck, R., & Yeung, B. (2003). Agency problems in large family business groups. *Entrepreneurship Theory and Practice, 27*(4), 367-382.

Munari, F., Oriani, R., & Sobrero, M. (2010 The effects of owner identity and external governance systems on R&D investments: A study of Western European firms. *Research Policy, 39*(8), 1093-1104. (*)

Muñoz-Bullón, F., & Sánchez-Bueno, M. J. (2011). The impact of family involvement on the R&D intensity of publicly traded firms. *Family Business Review, 24*(1), 62-70. (*)

Muñoz-Bullón, F., & Sánchez-Bueno, M. J. (2012). Do family ties shape the performance consequences of diversification? Evidence from the European Union. *Journal of World Business, 47*(3), 469-477.

Nagano, M. S., Stefanovitz, J. P., & Vick, T. E. (2014). Caracterização de processos e desafios de empresas industriais brasileiras na gestão da inovação. *RBGN - Revista Brasileira de Gestao de Negocios, 16*(51), 163-179.

Naldi, L., Nordqvist, M., Sjöberg, K., & Wiklund, J. (2007). Entrepreneurial orientation, risk taking, and performance in family firms. *Family Business Review, 20*(1), 33-47. (*)

Niehm, L. S., Tyner, K., Fitgerald, M. A., & Shelley, M. (2010). Technology adoption in small family-owned businesses: Accessibility, perceived advantage, and information technology literacy. *Journal of Family and Economic Issues, 31*(4), 498-515. (*)

Nóbrega, G. J., & Hoffmann, V. E. (2014). Family business and the creation of entrepreneurship through their internal resources. *RPCA - Revista Pensamento Contemporâneo em Administração, 8*(2), 92-105.

Nohria, N., & Gulati, R. (1996). Is slack good or bad for innovation? *Academy of Management Journal, 39*(5), 1245-1264.

Ordanini, A., Rubera, G., & Defillippi, R. (2008). The many moods of inter-organizational imitation: A critical review. *International Journal of Management Reviews, 10*(4), 375-398.

Pittino, D., & Visintin, F. (2009). Innovation and strategic types of family SMEs: A test and extension of Miles and Snow's configurational model. *Journal of Enterprising Culture, 17*(3), 257-295. (*)

Porter, M. (1990). *The competitive advantage of nations*. London, England: Macmillan.

Price, D. P., Stoica, M., & Boncella, R. J. (2013). The relationship between innovation, knowledge, and performance in family and non-family firms: An analysis of SMEs. *Journal of Innovation and Entrepreneurship, 2*(14), 1-20.

Resende, P. C., Jr.; Guimarães, T. A. (2012). Inovação em serviços: O estado da arte e uma proposta de agenda de pesquisa. *RBGN - Revista Brasileira de Gestao de Negocios, 14*(44), 293-313.

Rogers, E. (1983). *The Diffusion of Innovation* (3rd ed.). New York: The Free Press.

Schmid, T., Achleitner, A., Ampenberger, M., & Kaserer, C. (2014). Family firms and R & D behaviour: New evidence from a large-scale survey. *Research Policy, 43*(1), 233-244.

Schumpeter, J. A. (1934). *Theory of economic development*. Cambridge, MA: Harvard University Press.

Shan, J., & Jolly, D. R. (2013). Technological innovation capabilities, product strategy, and firm performance: The electronics industry in China. *Canadian Journal of Administrative Sciences, 30*(3), 159-172.

Sharma, S., Chrisman, J. J., & Gersick, K. E. (2012). 25 years of family business review: Reflections on the past and perspectives for the future. *Family Business Review, 25*(1), 5-15.

Short, J. C., Payne, G. T., Brigham, K. H., Lumpkin, G. T., & Broberg, J. C. (2009). Family firms and entrepreneurial orientation in publicly traded firms: A comparative analysis of the S&P 500. *Family Business Review, 2*(1), 9-24. (*)

Siebels, J., & Zu Knyphausen-Aufseß, D. (2012). A review of theory in family business research: The implications for corporate governance. *International Journal of Management Reviews, 14*(3), 280-304.

Sirmon, D. G., Arregle, J. L., Hitt, M. A., & Webb, J. W. (2008). The role of family influence in firms' strategic responses to threat of imitation. *Entrepreneurship Theory and Practice, 32*(6), 979-998. (*)

Smith, M. (2007). Real managerial differences between family and non-family firms, *International Journal of Entrepreneurial Behaviour and Research, 13*(5), 278-295.

Stewart, A. (2008). Who could best complement a team of family business researchers-scholars down the hall or in another building? *Family Business Review, 21*(4), 279-293.

Tagiuri, R., & Davis, J. A. (1996). Bivalent attributes of the family firm. *Family Business Review, 9*(2), 199-208.

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management, 14*(3), 207-222.

Tribo, J. A., Berrone, P., & Surroca, J. (2007). Do the type and number of blockholders influence R&D investments? New evidence from Spain. *Corporate Governance, 15*(5), 828-842. (*)

Uhlaner, L. M., Berent-Brawn, M. M., Jeurissen, R. J. M., & Wit, G. (2012). Beyond size: Predicting engagement in environmental management practices of Dutch SMEs. *Journal of Business Ethics, 109*(4), 411-429. (*)

Wagner, W. (2010). Corporate social performance and innovation with high social benefits: A quantitative analysis. *Journal of Business Ethics*, *94*(4), 581-594. (*)

Weismeier-Sammer, D. (2011). Entrepreneurial behavior in family firms: A replication study. *Journal of Family Business Strategy, 2*(3), 128-138. (*)

Westhead, P. (1997). Ambitions, external environment and strategic factor differences between family and non-family companies. *Entrepreneurship and Regional Development, 9*(2), 127-158. (*)

Wright, M., & Kellermanns, F. W. (2011). Family firms: A research agenda and publication guide. *Journal of Family Business Strategy, 2*(4), 187-198.

Yildirim, H., & Saygin, S. (2011). Effects of owners' leadership style on manufacturing family firms' entrepreneurial orientation in the emerging economies: An empirical investigation in Turkey. *European Journal of Economics, Finance and Administrative Sciences, 32*, 26-32. (*)

Zahra, S. A. (2005). Entrepreneurial risk taking in family firms. *Family Business Review, 18*(1), 23-40. (*)

Zellweger, T. M., Nason, R. S., & Nordqvist, M. (2012). From longevity of firms to transgenerational entrepreneurship of families: Introducing family entrepreneurial orientation. *Family Business Review, 25*(2), 136-155. (*)

Zellweger, T., & Sieger, P. (2012). Entrepreneurial orientation in long-lived firms. *Small Business Economics, 38*(1), 67-84. (*)

(*) References included in the list of 59 analyzed papers.