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Politecnico
di Bari

Department of Mechanics, Mathematics and Management
MECHANICAL AND MANAGEMENT ENGINEERING

Ph.D. Program

**SSD: ING-IND/35–BUSINESS AND
MANAGEMENT ENGINEERING**

Final Dissertation

**Understanding the Drivers of
Entrepreneurship and Innovation in
Family Firms across Generations**

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Course XXXVI, 01/11/2020 - 31/10/2023



LIBERATORIA PER L'ARCHIVIAZIONE DELLA TESI DI DOTTORATO

Al Magnifico Rettore
del Politecnico di Bari

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ed essendo stato ammesso a sostenere l'esame finale con la prevista discussione della tesi dal titolo:

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Table of contents

Introduction	4
Opening up the black box of Family Entrepreneurship across Generations: a Systematic Literature Review	11
1. Introduction	11
2. Methodology	15
3. Findings	19
3.1 Categorising the family-related factors	19
3.2 Linking family-related factors and entrepreneurial activities across generations	23
3.2.1 Evidence referring to mode of organising	24
3.2.2 Evidence referring to degree of relatedness	35
4. Discussion, future research directions, and conclusions	42
4.1 General lines of inquiry for future research	43
4.2 Discussion and future research directions regarding mode of organising	46
4.3 Discussion and future research directions regarding degree of relatedness	48
4.4 Conclusions	50
Family Firms and Digital Product Innovation: A Construal Level Perspective	51
Abstract	51
1. Introduction	52
2. Theoretical Framework and Hypotheses Development	56
2.1 Digital (Product) Innovation in Family Firms	56
2.2 Construal Level Theory	59
2.3 Construal Level Theory to Explain DPI in Family Firms	60
2.4 Generation in Control and DPI	62
2.5 Family CEO and DPI	64
2.6 The Moderating Role of TMT Size	66
3. Methods	68
3.1 Sample and Data Collection	68
3.2 Variables	70
3.3 Model Specification	72
4. Findings	72
4.1 Robustness Tests	75
5. Discussion, Future Research Directions, and Conclusions	77
5.1 Theoretical Contributions	77
5.2 Implications for Practice	81
5.3 Limitations and Future Research	82

5.4 Conclusions	83
A Knowledge-based Perspective on Transgenerational Entrepreneurship: Unveiling Knowledge Dynamics across Generations in Family Firms	84
Abstract	84
1. Introduction	85
2. Theoretical framework	88
2.1 Transgenerational entrepreneurship	88
2.2 Knowledge management in family businesses and EFs across generations	90
3. Methodology	93
3.1 Research setting	94
3.2 Data collection	98
3.3 Data analysis	100
4. Findings.....	101
4.1 Second generation’s technical knowledge	103
4.2 Third generation’s business knowledge	105
4.3 Trust among generations and role separation.....	109
5. Discussion	112
5.1 Theoretical contributions	113
5.2 Implications for practice	115
5.3 Limitations and future research directions	116
5.4 Conclusions	117
Conclusions	118
References	124
Appendix A – Descriptive statistics of the articles included in the review.....	144
Appendix B – Real cases clarifying the two dimensions of the review framework	146
Examples of internal and external entrepreneurial activities	146
Examples of related and unrelated entrepreneurial activities.....	146
Appendix C – Interview protocol.....	147

Introduction

Family firms can be defined as businesses governed and/or managed with the intention of pursuing the vision of the business held by the members of the controlling family in a way that is sustainable across generations (Chua et al., 1999). Accordingly, it is evident that one of the main goals of family owners and managers consists of ensuring transgenerational control, thus implying that the family firm needs to survive and prosper across generations (Zellweger et al., 2012a). In line with this goal, prior research on family firms has devoted particular attention and considerable efforts to understanding how to ensure continuity and a smooth succession, intended as the process in which the control of the business is transferred from the previous generation to the next one (e.g., Handler, 1994; Le Breton–Miller et al., 2004; Lee et al., 2003).

However, scholars have more recently acknowledged that a successful transfer of ownership and/or management from one generation to the next does not generate entrepreneurial value per se and might not be sufficient for entrepreneurial families¹ and their firms to thrive across generations (Habbershon et al., 2010; Jaskiewicz et al., 2015). Indeed, although such transfer is an inevitable process and may be considered a short-term success for the entrepreneurial family, the competitive advantage built by the previous generation will inevitably erode in the long run if the next generation is not able to develop new entrepreneurial initiatives (Nordqvist & Melin, 2010). In other words, entrepreneurial families must continuously pursue new potentially risky business opportunities to keep building value and increase family wealth (Le Breton-Miller and Miller, 2018; Steier et al., 2015).

This more recent perspective has also placed entrepreneurial families at the center of the debate rather than the family firms, highlighting that entrepreneurial families might be involved in more entrepreneurial activities simultaneously and over time (De Massis et al., 2021b;

¹ I refer to an entrepreneurial family as a social unit composed of different members of a family that owns and/or manages one or more family businesses and intends to continue behaving entrepreneurially over time (Discua Cruz et al., 2021)

Howorth et al., 2010; Rosa et al., 2014), thus requiring researchers to consider their whole entrepreneurial portfolio rather than the single business to assess entrepreneurial success (Discua Cruz et al., 2021; Riar et al., 2022). In addition, the shift in focus from the family business to the entrepreneurial families emphasizes the role of family-related factors in explaining the pursuit of new entrepreneurial activities across generations (Aldrich & Cliff, 2003; Bettinelli et al., 2017; Rosa et al., 2014). Specifically, family-related factors refer to the characteristics, attributes, and behaviors of families and family members, both at the group and the individual level. Finally, what makes entrepreneurial families and family firms particularly interesting to study is their idiosyncratic decision-making process with respect to innovation and entrepreneurial activities (De Massis et al., 2013; Strike et al., 2015), which stems from the fact that they follow not only profit objectives, but also more particularistic family-centered goals (Chrisman et al., 2012). For instance, some scholars contend that family owners are more risk averse (Kraiczy et al., 2015) and less prone to sustain R&D activities (Block, 2012; Chrisman & Patel, 2012), hence hindering innovation. Conversely, other scholars highlight that family owners' long-term orientation puts family firms in a better position to pursue innovation and entrepreneurial initiatives (Gu et al., 2019; Le Breton-Miller & Miller, 2006).

Despite research on the topic is growing, our understanding of what makes some families more entrepreneurial than others and how they are able to nurture entrepreneurship across generations is still limited, thus generating a vibrant debate at the intersection of the family business and entrepreneurship research (Combs et al., 2021; Jaskiewicz et al., 2015). This topic is relevant not only from an academic standpoint, but also from a practical one. Indeed, family firms account for two-thirds of all businesses worldwide, generate approximately 70–90% of annual global GDP, and create 50–80% of jobs in the majority of countries (Family Firm Institute, 2017; De Massis et al., 2018). Given this dominant position and central contribution to any global economy, understanding the drivers of entrepreneurship and innovation in family

firms across generations is crucial to help them survive in the competitive landscape so that they keep generating the abovementioned positive consequences for society as a whole.

This thesis aims to address these gaps in three main phases. First, by conducting a systematic literature review, this thesis aims to organize and systemize the extant knowledge on the role of family-related factors in shaping potential new entrepreneurial activities, including innovation, that entrepreneurial families decide to pursue across generations. Next, I focus on specific family-related factors and specific entrepreneurial activities. In the second phase, through a quantitative analysis, I seek to explore how different generations in control of the business and the presence of a family CEO may impact digital innovation in family firms. In this way, by considering these two well-established sources of heterogeneity among family firms in the literature, this thesis attempts to address the growing calls for acknowledging family firms' heterogeneity when studying their innovation performance (Chua et al., 2012; Daspit et al., 2021). In the third phase, through a qualitative study, I seek to advance our understanding of how entrepreneurial families are able to stay entrepreneurial across generations, focusing on the role of a particular family-related factor, the knowledge acquired by the next generation family members. By shedding light on this process, this thesis aims to contribute to the transgenerational entrepreneurship literature (Habbershon et al., 2010; Jaskiewicz et al., 2015). The three phases described above also matches the three chapter of this thesis.

More specifically, in the first chapter, titled *Opening up the black box of Family Entrepreneurship across Generations: A systematic literature review*, I conducted a systematic literature review with the aim of gaining a better understanding of the family-related factors that shape the pursuit of new entrepreneurial activities across generations. Following the systematic literature review methodology (Tranfield et al., 2003), I developed a protocol that led me to include in the review 90 journal articles that analyze (quantitatively, qualitatively, or theoretically) the relationships between family-related factors and the pursuit of entrepreneurial activities involving multiple generations. To systemize and organize the findings, I first

inductively identified seven main categories of family-related factors, namely (i) generational development, (ii) intergenerational dynamics, (iii) next generation characteristics, (iv) incumbent generation characteristics, (v) family resources, (vi) family values, and (vii) family control. Next, I developed a narrative synthesis of the relationships between these factors and the different types of entrepreneurial activities. Specifically, building on prior literature (Brumana et al., 2017; Prügl and Spitzley, 2021; Riar et al., 2021), findings are presented differentiating entrepreneurial activities according to two dimensions: mode of organizing and degree of relatedness. The mode of organizing reflects the locus of exploitation of the opportunity (Wiklund and Shepherd, 2008), which might be internal or external to the current family businesses. The degree of relatedness reflects whether a new entrepreneurial activity remains within or goes beyond the industry boundaries of the existing family businesses and, in turn, can be related or unrelated (Brumana et al., 2017; Sorrentino and Williams, 1995). In sum, I highlight how each of the seven categories of family-related factors influence the launch of internal vs. external entrepreneurial activities, as well as related vs. unrelated. Overall, this review responds to the call for greater attention to entrepreneurial families than just family businesses (Habbershon et al., 2010; Zellweger et al., 2012b) and provides a unique categorization of family-related factors underlying new entrepreneurial initiatives. Finally, I use the literature review as a springboard to outline opportunities for future research. Next, guided by the gaps identified in the literature review, in the second and the third chapters I focus on specific categories of family-related factors and investigate how these factors influence (digital) innovation and entrepreneurial activities more broadly. Specifically, in the second chapter I considered generational development and family control, while in the third chapter next generation characteristics and family resources.

In the second chapter, titled *Family Firms and Digital Product Innovation: A Construal Level Perspective*, I investigated the topic of digital product innovation (DPI) in family firms. DPI is critical to the survival of firms, especially those operating in traditional industrial-age

industries, as it allows them to develop novel value creation and appropriation pathways (Nambisan, 2017; George et al., 2021). Despite its relevance, achieving digital innovation is still one of the biggest and riskiest managerial challenges (Appio et al., 2021; Vial et al., 2019), in which a firm's digital innovation behavior and performances usually vary depending on its governance and decision-making processes (Svahn et al., 2017; Liu et al., 2023; Li et al., 2018). In this sense, the idiosyncratic governance structure and decision-making processes of family firms provide a relevant context to study the digital transformation phenomenon and its potential outcomes (Liu et al., 2023; Prügl & Spitzley, 2021; Soluk & Kammerlander, 2021), such as DPI. However, we still lack knowledge on how family involvement in ownership and/or management affects DPI as prior studies have focused on family firms' digital transformation (Soluk & Kammerlander, 2021) and digital business model innovation (Soluk, 2022; Soluk et al., 2021; Xie et al., 2022). Even more importantly, these studies have treated family firms as a monolithic group. As a result, we especially lack a deeper understanding of the differences between family firms with regard to DPI. I address these research gaps in two steps. First, by drawing on family firm product innovation research (De Massis et al., 2015; Duran et al., 2016) and extending the conjectures on the digital business model innovation of family firms (Soluk et al., 2021; Xie et al., 2022), I develop a baseline hypothesis arguing that family firms will (also) outperform their non-family counterparts in DPI. Second, focusing only on family firms, I explore their heterogeneity by drawing on construal level theory (Trope & Liberman, 2010), and considering family firms controlled by different generations and with the presence, or not, of a family CEO. In line with the prediction of construal level theory, I contend that the presence of later family generations in control fosters DPI in family firms, whereas the presence of a family CEO negatively affects DPI. Finally, we examine the potential moderating role of top management team (TMT) size in the above relationships. Indeed, TMT members play a key role in strategic decision-making, such as engaging in DPI. Specifically, we argue that the greater diversity of perspectives in a larger TMT (Certo et al., 2006) will attenuate both the direct

effects of later generations and a family CEO on DPI by negatively moderating the positive effect of later generations, and positively moderating the negative effect of a family CEO. To test these hypotheses, I collected data to build a unique longitudinal dataset of 364 family and non-family firms from the automotive and industrial engineering sectors, observed over the period 2013–2020. Starting from the NRG Metrics database, from which I collected the family-related variables, I then collected patents from Questel Orbit Intelligence FamPat database to measure DPI and, finally, I collected financial data from Orbis (Bureau van Dijk) that served as control variables. The regression analysis supports all the hypotheses, except for the positive moderating effect of TMT size on the relationship between family CEO and DPI.

In the third chapter, titled *A Knowledge-based Perspective on Transgenerational Entrepreneurship: Unveiling Knowledge Dynamics across Generations in Family Firms*, I studied the role of knowledge in transgenerational entrepreneurship, which has been defined as the processes through which a family uses and develops entrepreneurial mindsets, family influenced capabilities, and resources to create new streams of entrepreneurial, financial, and social value across generations (Habbershon et al., 2010). Prior studies have investigated different facets of transgenerational entrepreneurship such as family entrepreneurial orientations (Zellweger et al., 2012b), innovation motives (Diaz-Moriana et al., 2020), venturing motives (Riar et al., 2022) and practices (Ramírez-Pasillas et al., 2021), business model evolution (Clinton et al., 2018), and cultural contexts (Basco et al., 2019; Eze et al., 2021). However, prior research has devoted little attention to the role that knowledge, as a resource, can play in transgenerational entrepreneurship, namely what knowledge is required within the entrepreneurial family across generations and how it is acquired to sustain business development and spur new entrepreneurial activities. In particular, scholars mainly focused on knowledge sharing (e.g., Botero et al., 2021) and the few studies that have investigated knowledge acquisition have focused on knowledge sources external to the entrepreneurial family (Randolph et al., 2019), such as employees or other firms (Casprini et al., 2017), hence overlooking the role

of next generations, who may acquire different knowledge and contribute to new entrepreneurial activities (Ge & Campopiano, 2021; Woodfield & Husted, 2017). Therefore, to address these research gaps, I conducted an in-depth case study on an Italian family business, namely Rivera SpA, operating in the wine industry. The entrepreneurial family who controls Rivera SpA remained entrepreneurial and kept growing their business across generations. Through an inductive analysis of primary and secondary data, I found that the acquisition of different types of knowledge is needed to support new entrepreneurial activities during the earlier generations. Specifically, it is important that the second generation acquires technical knowledge related to the industry in which the entrepreneurial family operates, such as raw materials, products, processes, and technologies that are industry-specific (enological knowledge in this case). Conversely, the third generation needs to acquire broader business knowledge, that is more independent from the industry context, such as management or marketing skills and experience. Nevertheless, not everything needs to change across generations. Indeed, I also found two common contingency factors during both succession processes, i.e., trust among generations and role separation. These factors enabled the next generations to exploit the knowledge acquired to pursue new entrepreneurial opportunities.

Chapter 1

Opening up the black box of Family Entrepreneurship across Generations: a Systematic Literature Review

Abstract

What makes some families more entrepreneurial than others? How are they able to nurture entrepreneurship across generations? These are fundamental questions for family business and entrepreneurship research. In particular, the multigenerational dimension of entrepreneurial families and the new family logics that emerge as the family grows may lead to different types of entrepreneurial activities. To shed light on these questions, I conduct a systematic literature review of 90 peer-reviewed articles focusing on the characteristics and behaviours of entrepreneurial families, family members, and their business activities. Specifically, I first identify and categorise the family-related factors characterising entrepreneurial families across generations. Second, I link the identified factors to different types of entrepreneurial activities pursued as the generations advance, distinguishing two dimensions: mode of organising (internal vs. external), and degree of relatedness (related vs. unrelated). Finally, I highlight the main gaps in the literature and provide a future research agenda.

Keywords: entrepreneurial families, family business, family firms, family-related factors

1. Introduction

The questions around what makes some families more entrepreneurial than others and how they are able to nurture entrepreneurship across generations are still debated at the intersection of family business and entrepreneurship research (Combs et al., 2021; Jaskiewicz et al., 2015). One

reason behind the ongoing debate is that most studies focus on the family business as the unit of analysis (Habbershon et al., 2010), thereby overlooking that a family might build a portfolio of entrepreneurial activities, namely creating or acquiring numerous ventures over time and controlling them simultaneously (De Massis et al., 2021b; Howorth et al., 2010; Rosa et al., 2014). Moreover, the presence of multigenerational family members goes often unnoticed when explaining current and future entrepreneurial activities despite strongly helping to answer the above-mentioned questions (Cherchem, 2017; Clinton et al., 2021; Michael-Tsabari et al., 2014). In particular, as the family grows, new family logics emerge that may lead to different types of entrepreneurial activities across generations (Combs et al., 2021; Jaskiewicz et al., 2016b). For instance, next generation family members may provide fresh ideas, new skills and network relationships (Sieger et al., 2011), or launch new ventures to meet the greater financial demands of a growing family (Minola et al., 2016). Multigenerational involvement is particularly relevant in family SMEs pursuing new entrepreneurial activities, especially when considering the higher resource constraints they face, and hence tending to rely more on the resources and capital that the whole family can provide (Memili et al., 2015). In addition, the intention for transgenerational family control is more relevant in family SMEs than in larger family firms (Chrisman et al., 2012).

To account for these aspects and place families at the center of the debate, scholars have recently focused on the role of families in entrepreneurship (Vladasel et al., 2021), proposing concepts such as family habitual entrepreneurship (Rosa et al., 2014), business families (Le Breton-Miller & Miller, 2018), families in business (Discua Cruz et al., 2013), enterprising families (Minola et al., 2016), and entrepreneurial families (Nordqvist & Melin, 2010). Nevertheless, the differences among these concepts are not significant (Discua Cruz et al., 2021), and all agree that families are not only “the oxygen that feeds the fire of entrepreneurship” (Rogoff & Heck, 2003, p. 559), but also the engine of entrepreneurial activities across generations (Zellweger et al., 2012b). Considering that the concept of

entrepreneurial families is one of the oldest, most widely adopted, and still used in recent studies (Riar et al., 2021), I refer to entrepreneurial families (EFs), defined as social units composed of different members of a family intending to continue behaving entrepreneurially over time (Discua Cruz et al., 2021; Nordqvist & Melin, 2010).

The shift in focus from family business to the EFs emphasizes the role of family-related factors in explaining the pursuit of new entrepreneurial activities across generations (Aldrich & Cliff, 2003; Bettinelli et al., 2017; Rosa et al., 2014). Despite that generations are considered a constitutive element of the family business field (Magrelli et al., 2022), our understanding of how family-related factors shape family business phenomena across generations is still limited. Specifically, family-related factors can be defined as the characteristics and behaviors of families and family members, both at the group level (e.g., family values, family resources, intergenerational dynamics, communication patterns) (Chirico & Salvato, 2016; Diaz-Moriana et al., 2020; Erdogan et al., 2020), and at the individual level (e.g., work experience, personality traits) (Chalus-Sauvannet et al., 2016; Pittino et al., 2018).

To gain knowledge of the family-related factors that shape the pursuit of new entrepreneurial activities of EFs across generations, research in the field is flourishing, albeit in a fragmented way. For instance, attempts to identify key family-related factors are scant (Bettinelli et al., 2017). Also, scholars adopted different theoretical perspectives to understand this phenomenon such as transgenerational entrepreneurship (Habbershon et al., 2010), enduring entrepreneurship (Jaskiewicz et al., 2016a), imprinting theory (Kammerlander et al., 2015), and corporate family entrepreneurship (Sciascia & Bettinelli, 2015). Empirical results do not provide a clear picture either, showing that commitment to entrepreneurship may decrease or increase across generations (Cruz & Nordqvist, 2012; Jaskiewicz et al., 2015). Consequently, prior research has generated unconnected pieces of knowledge that limit the current understanding of family-related factors and their relationship with the different entrepreneurial activities EFs pursue across generations. Recent literature reviews, although extremely valuable, have not fully

addressed these issues, focusing on a specific type of entrepreneurial activity (e.g., innovation) in large vs. small family businesses, overlooking the intergenerational and multigenerational dynamics, and/or lacking a formal characterization of family-related factors (Bettinelli et al., 2017; Calabrò et al., 2019; Williams et al., 2018). Therefore, to advance the field, I organize and synthesize the extant body of knowledge into a comprehensive picture (Fan et al., 2022) that allows highlighting promising paths for future research. With this in mind, I conducted a systematic literature review (Tranfield et al., 2003) with three main objectives: (i) identifying the family-related factors underlying the pursuit of new entrepreneurial activities of EFs across generations; (ii) linking the identified factors to different types of entrepreneurial activities EFs pursue across generations; and (iii) providing a future research agenda.

Given the different types of entrepreneurial activities that family-related factors can spur, I define a guiding framework to organize and synthesize extant studies according to these distinct activities. Building on the literature (Brumana et al., 2017; Prügl & Spitzley, 2021; Riar et al., 2021), I distinguish the entrepreneurial activities that EFs pursue across generations along two dimensions: (i) mode of organizing; and (ii) degree of relatedness. The mode of organizing reflects the locus of exploitation of the opportunity (Wiklund & Shepherd, 2008), which might be internal or external to the current family businesses. The degree of relatedness reflects the proximity between the current family businesses and new entrepreneurial activities in terms of resources deployed, skills required, and products offered (Brumana et al., 2017; Sorrentino & Williams, 1995). To put it differently, relatedness reveals whether a new entrepreneurial activity remains within or goes beyond the industry boundaries of the existing family businesses and, in turn, can be related or unrelated (Sorrentino & Williams, 1995).

Following the systematic literature review principles (Tranfield et al., 2003), I selected 90 relevant articles. Through analyzing the content of these articles, I inductively identified seven main categories of family-related factors. I then explored and distinguished the relationships

between these factors and new entrepreneurial activities according to the two aforementioned dimensions. Finally, I identified gaps in the literature that afford novel lines of inquiry.

Compared to prior literature reviews, I focus on multigenerational EFs and highlight the critical role of family-related factors in launching new entrepreneurial activities across generations (Aldrich et al., 2021; Chrisman et al., 2003; Zellweger et al., 2012b). As such, I provide a unique categorization of these factors to enhance current understanding of the link between family-related factors and different entrepreneurial activities across generations, thus contributing to the growing body of knowledge at the nexus of the entrepreneurship and family business literature streams (Habbershon et al., 2010; Jaskiewicz et al., 2015; Miller et al., 2016; Minola et al., 2020; Randerson et al., 2015). Finally, I use the literature review as a springboard to outline opportunities for future research.

2. Methodology

Figure 1 provides a graphical representation of my aims and the proposed framework based on the mode of organizing and degree of relatedness dimensions to systemize the findings. I use this framework to guide our literature review.

In view of my specific and well-defined aim and given that developing theory is not my main goal, a systematic literature review is deemed the most appropriate methodology (Fan et al., 2022). Therefore, I collected and analyzed the relevant literature following the systematic literature review principles (Tranfield et al., 2003), and below describe in detail the review protocol I adopted to ensure my study is “rigorous, transparent and replicable” (Fan et al., 2022).

1. To start, I selected two sets of keywords. The first encompasses the family dimension, hence including: “entrepreneurial famil*”, “enterprising famil*”, “business famil*”, “family firm*”, “family business*”, “family enterpris*”, “family-controlled”, “family-owned”, and “family-managed”. The second encompasses the generational dimension, thus including: “multigenerational”, “intergenerational”, “transgenerational”, “intragenerational”,

“generation*”, and “succession”. I then combined the two sets of keywords to create the following search string: [(“entrepreneurial famil*” OR “enterprising famil*” OR “business famil*” OR “family firm*” OR “family business*” OR “family enterpris*” OR “family-controlled” OR “family-owned” OR “family-managed”) AND (“multigenerational” OR “intergenerational” OR “transgenerational” OR “intragenerational” OR “generation*” OR “succession”)].

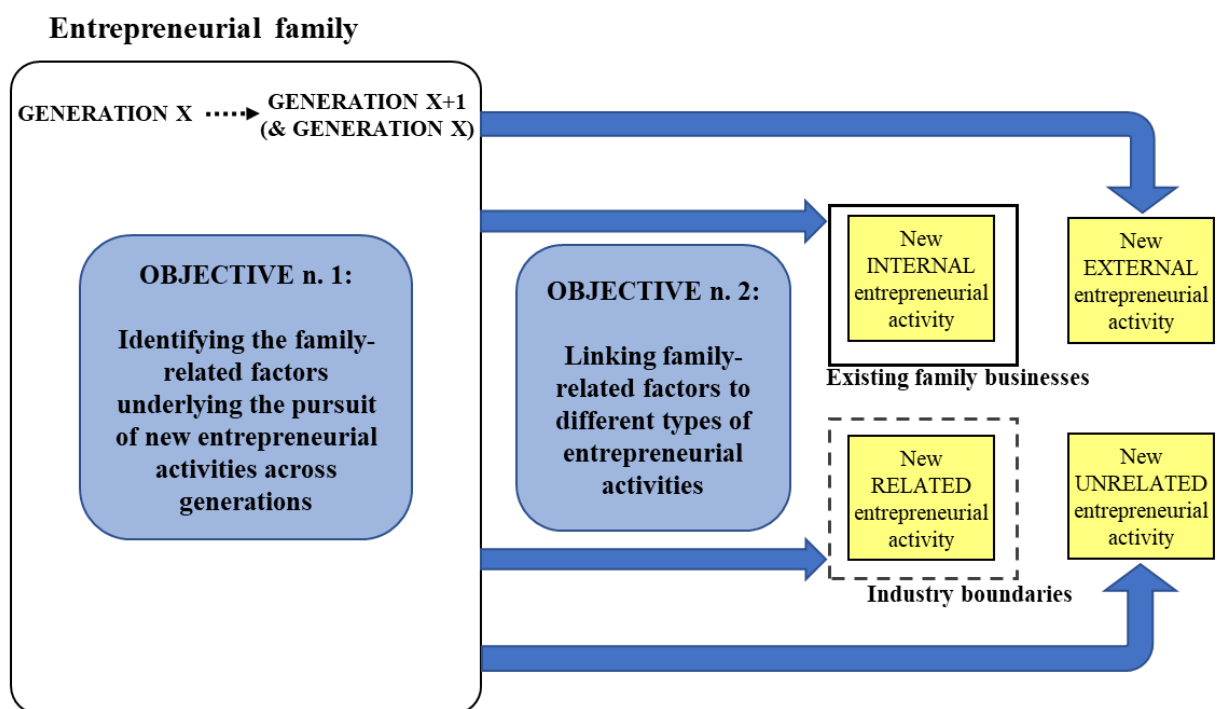


Figure 1. Guiding framework of the systematic review, and explanation of the objectives: Identifying family-related factors and linking them to the different types of entrepreneurial activities EFs may pursue across generations.

2. As Scopus is the largest citation database of peer-reviewed articles (Magistretti et al., 2021; Randhawa et al., 2016), I used this search string to search for titles, abstracts, and author-provided keywords in November 2021, without setting any specific time limit, resulting in 2078 records.
3. Before proceeding with the content analysis, I predefined a set of inclusion and exclusion criteria (see Table 1) to avoid the inclusion of articles not relevant to the topic under investigation in terms of quality and fit (Fan et al., 2022). Regarding quality, I only included

articles published in peer-reviewed impact factor assigned journals (James et al., 2013; Keupp et al., 2012). Concerning fit, the articles had to explicitly analyze (quantitatively, qualitatively, or theoretically) the relationship(s) between family-related factor(s) and the pursuit of entrepreneurial activities involving multiple generations.

4. After excluding all articles published in journals without an impact factor, 705 articles remained. Then, I read the title and abstract of each of these articles against the set of conceptual inclusion/exclusion criteria and assessed whether it fit my review aims and scope. Thereafter, I reviewed the results, paying particular attention to articles deemed to not fully meet all criteria (Combs et al., 2010). This step led me to the exclusion of 580 papers and the inclusion of 75 papers, while being uncertain about the relevance of the remaining 50 papers. One key reason was the lack of specification in the abstract of the kind of performance analyzed (Kellermanns & Eddleston, 2007; Xu et al., 2015). In the case of entrepreneurial performance, such as innovation and internationalization, they fell within the scope of the review, and in the case of financial performance, they did not.

Table 1. Inclusion and exclusion criteria

No.	Criteria	Reason for inclusion
1	Theoretical papers	These articles are included because they provide the basis for summarizing and integrating the empirical evidence.
2	Quantitative and qualitative empirical studies	These articles are included because they provide empirical evidence, which is the main interest of this review.
3	Research focus	Relationship(s) between family-related factor(s) and the emergence of entrepreneurial activities involving multiple generations.
No.	Criteria	Reason for exclusion
1	Publication type	Books, book chapters, conference proceedings, theses, review articles, editorials, and articles not written in English. Articles published in journals with no impact factor.
2	Research focus	Articles focusing on the succession process only as the transfer of ownership and management. Articles concerning entrepreneurial orientation without clarifying the specific entrepreneurial activity pursued. Articles that limit their analysis to firm-level factors (e.g., R&D investments, professionalization) as antecedents of entrepreneurial activities.

5. In this step, I read the full text of the 75 articles for confirmation of their inclusion, and to resolve my doubts about the remaining 50. This assessment of the full-text reading led me to

confirm the previously included 75 articles and add 13 from the uncertain papers, thus yielding a sample of 88 articles.

6. The subsequent hand search and citation tracking (Adams et al., 2016; Nabi et al., 2017) led me to include two more articles that mention a developmental perspective to refer to multigenerational dynamics. I checked that no other papers were missed by conducting a new search on Scopus combining the set of keywords related to the family dimension (point 1) and the keyword “developmental”. Other than the two articles included, the search yielded 54 results, which did not meet the inclusion criteria. Hence, the final sample includes 90 articles (marked with an asterisk in the reference list).
7. Thereafter, I deeply analyzed each of the 90 articles to map the core themes using an excel data extraction sheet (Rashman et al., 2009) reporting the descriptive elements of each article (e.g., authors, theoretical perspective, methodology) and key findings (i.e., type of entrepreneurial activities and family-related factors linked to these).
8. To organize, compare, and organically present the findings, I first needed to categorize the family-related factors, since multiple terms are used to refer to the same concept, such as transgenerational succession intention, desire for transgenerational control, and transgenerational orientation. To do so, I adopted an inductive approach (Shepherd et al., 2015), whereby I identified and noted terms referring to family-related factors in each article in accordance with my definition. Then, I identified commonalities among the terms and categorize such terms around common themes (i.e., categories of family-related factors). Thereafter, I met several times with my supervisors to show them the categories and discuss their comprehensiveness (Wood & McKelvie, 2015). This iterative process required multiple rounds of reviewing, after which I defined seven main categories (Cortes & Herrmann, 2021; Williams et al., 2018). Finally, looking at the type of entrepreneurial activities examined in the sample articles, I associated each article with one or more dimensions (i.e., mode of organizing and degree of relatedness) according to my framework (Ravasi &

Stigliani, 2012). The detailed descriptive statistics of the sample articles are reported in Appendix A.

3. Findings

In the following sections, based on the content analysis of the sample articles, I first present a categorization of the identified family-related factors and then a narrative synthesis of the relationships between these factors and the entrepreneurial activities according to the two dimensions, i.e., internal vs. external, and related vs. unrelated.

3.1 Categorizing the family-related factors

As indicated, family-related factors refer to the characteristics, attributes, and behaviors of families and family members, both at the group and the individual level. This definition guided the identification of seven main categories of family-related factors according to our methodology (see Section 2). Below, we present the identified family-related factors for each category. Table 2 summarizes these findings.

Generational development refers to the family generational stage (first, second, or further generations) in which the new entrepreneurial activity takes place (Strike et al., 2015; Werner et al., 2018), and/or to multigenerational involvement (i.e., whether different generations are simultaneously involved in business development) (Alayo et al., 2019; Calabrò et al., 2016). This factor is widely considered in many studies that investigate how EFs act entrepreneurially, as it influences the family needs (e.g., financial demands), dynamics (e.g., inclusion of in-laws), and in turn, entrepreneurial behavior (Aldrich & Cliff, 2003; Cherchem, 2017; Minola et al., 2016).

Intergenerational dynamics add to generational development, providing information about the relationships and interactions among generations, thus mainly explaining the process through which the entrepreneurial spirit flows across generations. Examples include the

mechanisms underlying the incumbent-successor relationship (Shi et al., 2019), the management of conflictual (De Clercq & Belausteguigoitia, 2015) vs. harmonious relationships (Calabrò et al., 2016), and the transfer of stories and narratives about the family as a means of spurring new entrepreneurial activities (Barbera et al., 2018; Kammerlander et al., 2015). However, these processes are far from understood (Jaskiewicz et al., 2015), as underlined by the recent transgenerational entrepreneurship construct (Habbershon et al., 2010).

Table 2. Categorization of the family-related factors

Category	Description	Relevance	Key items	Key references
Generational development	Evolution and growth of the EF over time	It influences the family needs, dynamics, and entrepreneurial behavior	Generational stage, multigenerational involvement	Fernández & Nieto, 2005; Kellermanns & Eddleston, 2006; Kellermanns et al., 2008
Intergenerational dynamics	Relationships and interactions in which more than one generation is involved	They represent the roots of the process through which the entrepreneurial spirit is transferred across generations	Supportive or conflictual relationship between generations, sharing stories about the family's past across generations, imprinting traditions and values	Miller et al., 2003; Ramírez-Pasillas et al., 2021; Riar et al., 2021
Next generation characteristics	Characteristics and attributes of next generation's family members	They assume distinctive nuances in the context of EFs that can lead to different entrepreneurial behaviors	Personality traits, education, work experience	Carr & Sequeira, 2007; Chalus-Sauvannet et al., 2016; Pittino et al., 2018
Incumbent generation characteristics	Characteristics and attributes of the incumbent-generation's family members	Predecessors have the power to influence the decision-making process and entrepreneurial outcomes in family businesses	CEO's founder-status, incumbent-CEO tenure, post-succession predecessor's involvement	Brumana et al., 2017; Mitchell et al., 2009; Querbach et al., 2020
Family resources	Unique bundle of idiosyncratic resources generated from the intersection of the family and the businesses	They can be leveraged and provide an advantage when EFs engage in novel entrepreneurial activities	Family financial and advisory support, human capital, social capital, reputation	Chirico & Salvato, 2016; Nason et al., 2019; Sieger et al., 2011
Family values	Distinctive elements of a family transferred across generations, such as norms, attitudes, and beliefs	They tend to drive decisions, actions, and entrepreneurial behavior in EFs	Moral values, family traditions, family entrepreneurial legacy, emotional attachment to the firm, long-term orientation	Chirico & Nordqvist, 2010; Jaskiewicz et al., 2015; Zellweger et al., 2012b
Family control	Exerted through ownership and/or management	It enables the pursuit of the dominant coalition's vision	Family ownership, family management-TMT ratio	De Massis et al., 2021a; Kraiczky et al., 2015; Strike et al., 2015

Next generation characteristics include the attributes of members of the next generations, such as personality traits (Schröder et al., 2011), education (Au et al., 2013), and work

experience (Chalus-Sauvannet et al., 2016). These characteristics have been extensively studied and are considered relevant antecedents of entrepreneurial behavior at the individual level (Wiklund & Shepherd, 2008). In particular, in the family business literature, some of these characteristics may be evaluated not only in terms of their level (more vs. less education or work experience) but also for their strategic relevance. Indeed, some traits may be purposively and strategically built by prior generations to bring benefits to the overall family's entrepreneurial activities. For instance, education might concern "areas that are strategically relevant to the family firm's potential future entrepreneurial opportunities" (Jaskiewicz et al., 2015, p. 30), while work experience may follow a pre-designed career path outside and within the family business (Au et al., 2013).

Incumbent generation characteristics, in opposition to the previous category, encompasses the characteristics and attributes of the incumbent generation family members, especially the family-CEO. These are particularly salient, since predecessors, with their respective and particular traits, are known to influence the decision-making process and entrepreneurial outcomes in family businesses (Querbach et al., 2020). Examples are predecessor-CEO age and tenure (Kellermanns et al., 2008), her/his founder-status (Yang et al., 2020), and the predecessor's continued post-succession involvement in business activities (Mitchell et al., 2009).

Family resources that EFs build, develop, and provide to next generations may be used to launch novel entrepreneurial activities (Sirmon & Hitt, 2003). Financial resources play a pivotal role in this sense (Wiedeler & Kammerlander, 2019). Family human capital and social capital facilitate access to and the internalization of external knowledge, helping build the EF's portfolio (Chirico & Salvato, 2016; Sieger et al., 2011). Broadly speaking, this category also includes familiness, i.e., the unique bundle of family-influenced resources and capabilities generated from the intersection of the family and the business (Habbershon & Williams, 1999).

Notably, these idiosyncratic family-influenced resources can lead to distinctive strategies and entrepreneurial behaviors (Lumpkin et al., 2011; Mitchell et al., 2009).

Family values constitute a family's distinctive elements across generations. Indeed, the family is the strongest social institution in terms of instigating and passing on values, norms, and attitudes to its members (Berger & Luckmann, 1967; Nordqvist & Melin, 2010). As such, this category focuses on the family values that drive decisions, actions, and entrepreneurial behavior in EFs (Eze et al., 2021). Examples are family culture (Chirico & Nordqvist, 2010), traditions (Erdogan et al., 2020), cohesion (Rondi et al., 2019), and religion (Eze et al., 2021). Other values relate to the desire to survive and prosper across generations, such as family dynastic motives (Gu et al., 2019), transgenerational orientation (Strike et al., 2015), and entrepreneurial legacy (Jaskiewicz et al., 2015). These values nurture the desire of younger family members to engage in new entrepreneurial activities (Beckert, 2016). Finally, another important set of values relates to the family's socioemotional wealth (for a review, see Berrone et al., 2012), such as emotional attachment (Filser et al., 2018) and family identification with the business (Prügl & Spitzley, 2021).

Family control represents the extent to which the family exerts control over the business through ownership and/or management. Specifically, family ownership and management shape and are used to pursue the entrepreneurial vision held by a family in a manner that is potentially sustainable across generations (Chua et al., 1999). The effects and influence of family control are investigated by comparing family and non-family firms (Cucculelli et al., 2016) or considering the heterogeneity within family businesses, looking at the extent of family control among diverse family firms (Kraiczy et al., 2015) or the ownership dispersion among family members (Tan & Fock, 2001).

3.2 Linking family-related factors and entrepreneurial activities across generations

Different family-related factors may spur diverse entrepreneurial activities across generations. Specifically, I distinguish these activities according to two dimensions, i.e., mode of organizing and degree of relatedness.

Mode of organizing reflects the locus of exploitation of the opportunity (Wiklund & Shepherd, 2008), which may be internal or external to the current family businesses. Internal means that the opportunity is exploited within the organizational context in which the entrepreneurial opportunity is discovered. Examples are the development of innovative products (Kraiczy et al., 2015), internal venturing in terms of the creation of a new division (Gu et al., 2019), internationalization (Fernández & Nieto, 2005), strategic renewal (Sievinen et al., 2020a), and acquisition of other businesses (Strike et al., 2015). Instead, external opportunity exploitation reflects the creation of a new organization (e.g., external venturing) (Ramírez-Pasillas et al., 2021; Riar et al., 2021).

Degree of relatedness refers to the proximity between the new entrepreneurial activity and the family's core businesses in terms of resources deployed, skills required, and products offered (Brumana et al., 2017; Sorrentino & Williams, 1995). Accordingly, a new entrepreneurial activity may be related or unrelated based on how close the new business is to an EF's current activities (Sorrentino & Williams, 1995). For instance, a related entrepreneurial activity entails the deployment of similar resources and/or product/sector offerings (Brumana et al., 2017) and is motivated by economies of scope (Sakhartov, 2017). Instead, an unrelated entrepreneurial activity goes beyond the industry boundaries of the existing family businesses, is characterized by the acquisition of new skills, and is usually driven by long-term risk reduction motives (Neffke & Henning, 2013)².

² Appendix B provides some real cases to further clarify the two dimensions of our framework.

I choose these dimensions for multiple reasons, in line with previous studies. First, when launching a new entrepreneurial activity, the level of organizational autonomy and the degree of strategic proximity are two main strategic decisions to be taken (Craig et al., 2015). Second, the literature recognizes the relevance of these dimensions for EFs' portfolio expansion (Brumana et al., 2017; Riar et al., 2021; Rosa et al., 2014). Third, the strategic choices of mode of organizing and degree of relatedness may be explained by some family-related factors linked to the multigenerational dimension of EFs. For example, EFs may decide to create a new independent organization to prevent potential conflicts among family members, simplify future succession planning, or "offer new generations the opportunity to get managerial experience without exposing the family's main source of wealth and without damaging the family reputation associated with the main business" (Cruz & Justo, 2017, p. 575). Furthermore, an EF that wants to satisfy its desire for control may prefer to engage in a related entrepreneurial activity (with respect to its businesses) (Gu et al., 2019), while an EF that wants to accommodate the interests of the younger generations (Barbera et al., 2018) or diversify the risk and preserve family wealth across generations (Miller et al., 2010) may choose to go beyond current entrepreneurial activities.

Below, I synthesize the most relevant findings of the sample articles in terms of the links between the identified family-related factors and the pursuit of different types of new entrepreneurial activities. In so doing, I distinguish the findings according to mode of organizing (internal vs. external entrepreneurial activities) and degree of relatedness (related vs. unrelated entrepreneurial activities). Tables 3 and 4 offer a schematic and more comprehensive analysis of the relationships discussed, and include all the references.

3.2.1 Evidence referring to mode of organizing

Generational development. Studies considering the family generational stage do not provide a clear answer as to whether the first generation is more entrepreneurial than subsequent

generations or vice-versa. Some studies argue that founders make decisions faster, show a higher level of market-oriented behavior, and want to sustain a healthy business worthy of transgenerational succession. As such, first generations are innovative (Kraiczy et al., 2015), internationally oriented (Mariotti et al., 2021), and likely to engage in diversified acquisitions (Schierstedt et al., 2020). A different view contends that subsequent generations have greater social capital developed over time, reduced emotional attachment to the business and products, and better preparation and qualification compared to founders. These resources and skills lead later generations to promote innovation (Chirico & Salvato, 2016) and internationalization (Strike et al., 2015). Minola et al. (2016) argue that EFs in later generations are more likely to engage in internal corporate venturing, as they are less risk averse due to a lower overlap between the family and business resources, and they make use of internal corporate venturing as an appropriate way to integrate in-laws.

Only two studies investigate the family generational stage with respect to external activities, but they disagree. According to Gu et al. (2019), second and subsequent generations tend to pursue more diversified external venturing activities because this will ensure smoother succession, allowing younger members to refine their managerial skills, and enhancing the family's long-term wealth (Gu et al., 2019). Conversely, Okoroafo (1999) argues that first generations are more entrepreneurial when considering external ventures, specifically in the form of international joint ventures, mainly driven by the willingness to increase the reliability of foreign sourcing or export activities.

Multigenerational involvement can be also viewed as a double-edged sword. On one side, it may offer a greater variety of perspectives in the decision-making process that help overcome rigidity and foster internal entrepreneurial activities in terms of innovation and internationalization (Calabrò et al., 2016). On the other side, the variety of perspectives offered by multiple generations can generate conflicts and the inability to make decisions and act (Alayo et al., 2019).

Table 3. The effect of family-related factors on internal and external entrepreneurial activities: (+) positive effect; (-) negative effect; (+/-) contrasting effect; abbreviations: Internal venturing (Int. Vent.), Strategic Renewal (Strat. Ren.), Internationalization (Internatio.)

	Internal Entrepreneurial Activities			External Entrepreneurial Activities			
	<i>Effect on entrepreneurial activities</i>	<i>Motivations</i>	<i>References</i>	<i>Effect on entrepreneurial activities</i>	<i>Motivations</i>	<i>References</i>	
Generational development	First generation	(+) Innovation (+) Internatio. (+) Acquisitions	(+) Faster decision-making, higher level of market-oriented behavior, willingness to sustain a healthy business worthy of transgenerational succession	Beck et al., 2011; Bobillo et al., 2013; Decker and Günther, 2017; Kraiczy et al., 2015; Mariotti et al., 2021; Okoroafo, 1999; Rau et al., 2019; Sánchez-Marín et al., 2020; Schierstedt et al., 2020; Werner et al., 2018	(+) External Venturing	(+) Willingness to increase the reliability of foreign sourcing or export activities Okoroafo, 1999	
	Subsequent generations	(+) Innovation (+) Int. Vent. (+) Internatio.	(+) Greater social capital, reduced emotional attachment, better preparation and qualification of successors compared to founders, less risk-aversion	Chirico and Salvato, 2016; Cucculelli et al., 2016; Dieleman, 2019; Fang et al., 2018; Fernández and Nieto, 2005; Gu et al., 2019; Hillebrand et al., 2020; Merino et al., 2015; Minola et al., 2016; Strike et al., 2015	(+) External Venturing	(+) Ensuring smoother succession (+) Enhancing the longevity of the family businesses Gu et al., 2019	
	Multigenerational involvement	(+/-) Innovation (+/-) Internatio. (+) Int. Vent.	(+) Variety of perspectives in the decision-making process may help overcome rigidity (-) Variety of perspectives can generate conflicts and the inability to make decisions and act	Alayo et al., 2019; Calabrò et al., 2016, 2021; De Clercq and Belausteguigoitia, 2015; Herrero, 2017; Kellermanns and Eddleston, 2006; Kellermanns et al., 2008; Kraiczy et al., 2014; Sanchez-Famoso et al., 2019; Scholes et al., 2021; Weismeier-Sammer, 2011			
Intergenerational dynamics	Supportive relationship between generations	(+) Innovation (+) Strat. Ren. (+) Internatio.	(+) Next generation's increased attitudinal commitment, transfer of knowledge between generations, pool of resources available	Baranyai and Kozma, 2019; Calabrò et al., 2016; Chalus-Sauvannet et al., 2016; Filser et al., 2018; Scuotto et al., 2017; Shi et al., 2019; Wiedeler and Kammerlander, 2019	(+) External Venturing	(+) Family entrepreneurial teams (+) Mentoring activities (+) Constructive communication Au et al., 2013; Clinton et al., 2021; Discua Cruz et al., 2012; Kenyon-Rouvinez, 2001; Prügl and Spitzley, 2021	
	Conflictual relationship between generations	(+/-) Innovation (+) Int. Vent. (+) Acquisitions	(+) Willingness for independence, conflict avoidance (-) Harder decision-making process, repelling younger family members	Chirico and Salvato, 2016; De Clercq and Belausteguigoitia, 2015; Hauck and Prügl, 2015; Miller et al., 2003; Riar et al., 2021; Wang and Zhang, 2021	(+) External Venturing	(+) Preservation of family harmony (+) Conflicts avoidance Riar et al., 2021	
	Sharing stories about the family's past across generations	(+/-) Innovation (+) Int. Vent. (+) Internatio.	(+) Focus of stories on the family as a whole (-) Focus of stories on the founder	Barbera et al., 2018; Jaskiewicz et al., 2015; Kammerlander et al., 2015			
	Imprinting traditions, values, cognitive heuristics	(+) Innovation (+) Int. Vent. (+) Internatio.	(+) Guidance for younger family members	Dou et al., 2021; Erdogan et al., 2020			
	Bi-directional knowledge sharing between generations	(+) Innovation (+) Int. Vent.	(+) Deep engagement of younger family members	Clinton et al., 2021; Woodfield and Husted, 2017			

Next generation characteristics	Next generation education	(+) Innovation (+) Int. Vent. (+) Strat. Ren. (+) Internatio. (+) Acquisitions	(+) Technical and business knowledge advantages	Chalus-Sauvannet et al., 2016; Combs et al., 2021; Fu and Si, 2018; Giner and Ruiz, 2020; Jaskiewicz et al., 2015; Miller et al., 2003; Powers and Zhao, 2019; Sardeshmukh and Corbett, 2011	(+) External Venturing	(+) Technical and business knowledge advantages	Au et al., 2013; Clinton et al., 2021; Combs et al., 2021; Giner and Ruiz, 2020; Hahn et al., 2021; Powers and Zhao, 2019
	Next generation work experience within the FB	(+) Innovation (+) Int. Vent. (+) Strat. Ren. (+) Acquisitions	(+) Greater knowledge of family businesses activities	Combs et al., 2021; Giner and Ruiz, 2020; Jaskiewicz et al., 2015; Powers and Zhao, 2019; Sardeshmukh and Corbett, 2011	(+) External Venturing	(+) Greater knowledge of family businesses activities	Carr and Sequeira, 2007; Combs et al., 2021; Giner and Ruiz, 2020; Hahn et al., 2021; Powers and Zhao, 2019
	Next generation work experience outside the FB	(+) Innovation (+) Int. Vent. (+) Strat. Ren. (+) Acquisitions	(+) Wider business knowledge (+) Exposure to different work environments	Chalus-Sauvannet et al., 2016; Combs et al., 2021; Miller et al., 2003; Powers and Zhao, 2019; Sardeshmukh and Corbett, 2011	(+) External Venturing	(+) Wider business knowledge (+) Exposure to different work environments	Au et al., 2013; Clinton et al., 2021; Combs et al., 2021; Pittino et al., 2018; Powers and Zhao, 2019
	Next generations personality traits	(+) Innovation (+) Int. Vent. (+) Internatio.	(+) Commitment to the FB (especially Internatio.) (+) Managerial predisposition (especially Int. Vent) (+) Leadership (+) Professional aspiration (especially Int. Vent.)	Mitchell et al., 2019; Riar et al., 2021; Shi et al., 2019; Tan and Fock, 2001; Wiedeler and Kammerlander, 2019;	(+) External Venturing	(+) Willingness to exert independent leadership (+) Desire to qualify as successor (+) High personal ambitions (+) Openness for new experiences	Carr and Sequeira, 2007; Lorandini, 2015; Pittino et al., 2018; Ramírez-Pasillas et al., 2021; Riar et al., 2021; Schröder et al., 2011; Zheng and Wan, 2020
Incumbent generation characteristics	CEO founder-status	(-) Internatio.	(-) Fear of losing control	Yang et al., 2020			
	Predecessor's post-succession involvement	(-) Innovation (-) Int. Vent. (-) Strat. Ren.	(-) Confusion in the power structure (especially innovation) (-) Successor's reduced discretion	Grundström et al., 2012; Mitchell et al., 2019; Querbach et al., 2020			
	Incumbent generation personality traits				(+) External Venturing	(+) Willingness to emancipate from the family (+) Willingness to facilitate succession	Riar et al., 2021
Family resources	Family financial support	(+) Innovation (+) Int. Vent.	(+) Easier and faster access to financial resources	Combs et al., 2021; Giner and Ruiz, 2020; Riar et al., 2021; Wiedeler and Kammerlander, 2019	(+) External Venturing	(+) Easier and faster access to financial resources	Au et al., 2013; Jones et al., 2013; Pittino et al., 2018
	Human capital				(+) External Venturing	(+) Advice from other family members (+) Technical and business knowledge advantages	Ramírez-Pasillas et al., 2021; Riar et al., 2021; Sieger et al., 2011
	Social capital	(+) Innovation (+) Int. Vent.	(+) Better information flows and knowledge internalization within the family	Chirico and Nordqvist, 2010; Chirico and Salvato, 2016; Dieleman, 2019; Nason et al., 2019; Sanchez-Famoso et al., 2019; Shi et al., 2019	(+) External Venturing	(+) Social network advantages	Giner and Ruiz, 2020; Randolph et al., 2017; Sieger et al., 2011

Family values	Family-employees bond	(+/-) Innovation (+) Employees can provide innovative ideas (-) If bonds are too tight, employees may take their job for granted	Ingram et al., 2020; Powers and Zhao, 2019	(+) External Venturing	(+) Employees can provide entrepreneurial ideas	Powers and Zhao, 2019
	Family reputation	(+) Innovation (+) Help in increasing social capital	Grundström et al., 2012; Werner et al., 2018	(+) External Venturing	(+) Reduced liability of newness	Niedermeyer et al., 2010
	Family culture and moral values	(+) Innovation (+) Guidance for next generations family members in new entrepreneurial settings (+) Int. Vent. (+) Strat. Ren. (+) Internatio. (+) Acquisitions	Dou et al., 2021; Merino et al., 2015; Nason et al., 2019; Powers and Zhao, 2019; Rondi et al., 2021; Tan and Fock, 2001	(+) External Venturing	(+) Inspiration for the next generations	Discua Cruz et al., 2012; Jones et al., 2013; Kenyon-Rouvinez, 2001; Lorandini, 2015; Powers and Zhao, 2019; Zheng and Wan, 2020
	Willingness to change	(+) Innovation (+) Increased readiness to exploit new market opportunities (+) Int. Vent.	Kellermanns and Eddleston, 2006; Sievinen et al., 2020a; Weismeier-Sammer, 2011			
	Family inertia	(-) Innovation (-) Trapped in the past (-) Int. Vent. (-) Organizational rigidity (-) Internatio.	Chirico and Nordqvist, 2010; Gu et al., 2019; Mitchell et al., 2009			
	Family traditions	(+) Innovation (+) Sense of continuity with the past that provides confidence (+) Strat. Ren.	Diaz-Moriana et al., 2020; Erdogan et al., 2020; Rondi et al., 2019; Sievinen et al., 2020b			
	Family religion	(+) Innovation (+) Christian religion (+) Int. Vent. (-) Muslim religion (+) Strat. Ren.	Eze et al., 2021	(+/-) External Venturing	(+) Christian religion (-) Muslim religion	Eze et al., 2021
	Emotional attachment to the firm	(+/-) Innovation (+) Innovation as a path to the firm's survival (-) Inability to detach from the past	Chirico and Salvato, 2016; Dou et al., 2020; Filser et al., 2018; Hauck and Prügl, 2015; Riar et al., 2019	(-) External Venturing	(-) Fear of reduced control	Riar et al., 2021
	Transgenerational succession intention	(+/-) Innovation (+) Understanding the growing family's needs (especially Innovation and Int. Vent.) (+) Int. Vent. (-) Internatio (-) Fear that risky activities might endanger the business (especially Innovation and Internatio.)	Ingram et al., 2020; Randolph et al., 2017; Riar et al., 2021; Strike et al., 2015; Yang et al., 2020	(+/-) External Venturing	(+) Increased opportunities for next generations (+) Willingness to facilitate succession (-) Fear of reduced control	Gu et al., 2019; Riar et al., 2021
	Entrepreneurial legacy	(+) Innovation (+) Inspiration for the next generations (+) Int. Vent. (+) Internatio.	Barbera et al., 2018; Clinton et al., 2021; Combs et al., 2021; Diaz-Moriana et al., 2020; Jaskiewicz et al., 2015; Kammerlander et al., 2015	(+) External Venturing	(+) Inspiration for the next generations	Clinton et al., 2021; Ge et al., 2022; Salvato et al., 2010
	Family identification with the firm			(+/-) External Venturing	(+) Preserving the core business (-) Fear of reduced control and reputation loss	Michael-Tsabari et al., 2014; Niedermeyer et al., 2010; Prügl and Spitzley, 2021
	Family entrepreneurial orientation			(+) External Venturing	(+) Transgenerational value creation	Zellweger et al., 2012b

Family control	Family ownership	(+/-) Innovation (+) Increased long-term orientation (+/-) Internatio. (-) Limited resources and capabilities (+) Acquisitions (-) Risk-aversion	Bobillo et al., 2013; Decker and Günther, 2017; De Massis et al., 2021a; Dieleman, 2019; Fernández and Nieto, 2005; Herrero, 2017; Kraiczy et al., 2015; Mitter et al., 2014; Sanchez-Famoso et al., 2019; Schierstedt et al., 2020; Scholes et al., 2021; Strike et al., 2015; Yang et al., 2020	(-) External Venturing	(-) Risk aversion (-) Lack of managerial skills	Gu et al., 2019
	Family management	(+/-) Innovation (+) Increased long-term orientation (+/-) Internatio. (-) Risk aversion (+) Acquisitions (-) Lack of external perspectives	Alayo et al., 2019; Calabrò et al., 2021b; Cucculelli et al., 2016; Dieleman, 2019; Hillebrand et al., 2020; Kraiczy et al., 2014; Mitter et al., 2014; Sanchez-Famoso et al., 2019; Sánchez-Marín et al., 2020; Schierstedt et al., 2020	(-) External Venturing	(-) Risk aversion (-) Lack of managerial skills	Gu et al., 2019
	Family ownership dispersion	(+/-) Int. Vent. (+) Less perceived risk (+) Understanding the growing family's needs (-) Harder decision-making process	Gu et al., 2019; Minola et al., 2016; Tan and Fock, 2001	(-) External Venturing	(-) Harder decision-making process	Jones et al., 2013

Intergenerational dynamics. Supportive relationships between members of different generations are beneficial to launching both internal and external entrepreneurial activities. For example, by committing the next generations to the business and increasing knowledge transfer between generations, harmonious relationships can foster internationalization (Shi et al., 2019), innovation (Filser et al., 2018), and strategic renewal (Chalus-Sauvannet et al., 2016). Positive intergenerational relationships in terms of mentoring and constructive communication also favor the pursuit of new external entrepreneurial activities (Clinton et al., 2021; Prügl & Spitzley, 2021). Indeed, when launching an external venture, family members prefer to do so as a team, and as such, look for family partners with whom they have better relationships (Discua Cruz et al., 2012). By contrast, conflictual intergenerational relationships reduce innovation, as the decision-making process is more complicated (De Clercq & Belausteguigoitia, 2015), or can make bold innovation happen as a form of rebellion by subsequent generations, yet leading to failure in the long run (Miller et al., 2003). Still, conflictual relationships can also spur external venturing activities, since they are a way to preserve family harmony and avoid conflicts (Riar et al., 2021).

Stories and narratives about past entrepreneurial behavior handed down across generations are also powerful tools to motivate new internal entrepreneurial actions (e.g., innovation, internal venturing, internationalization) by subsequent generations (Barbera et al., 2018; Jaskiewicz et al., 2015). Delving into the content of such stories, Kammerlander et al. (2015) reveal that a focus on the family as a whole is positively associated with innovation, while a focus restricted to the founder only has the opposite effect. Finally, the previous family generation also hands down traditions (Erdogan et al., 2020), values, and cognitive heuristics (Dou et al., 2021) to the subsequent generation that can guide younger family members when approaching innovation, internal venturing, or internationalization activities.

Next generation characteristics. The literature agrees that the higher the level of education and work experience of the next generations, the more internal (Chalus-Sauvannet et al., 2016;

Sardeshmukh & Corbett, 2011) and external (Au et al., 2013) entrepreneurial activities will be promoted. Some EFs carefully plan the education and work experience of next generations (Giner & Ruiz, 2020; Jaskiewicz et al., 2015). Concerning education, no studies delve into its content in the attempt to highlight a specific connection with internal or external entrepreneurial activities. As for work experience, one could foresee that experience outside the family business is mainly responsible for external ventures started by successors (Pittino et al., 2018). Instead, some studies highlight the importance of previous family business exposure as an antecedent of external entrepreneurial intent, especially when the business experiences good performance (Hahn et al., 2021).

Other studies shed light on the personality traits characterizing the family members of next generations who decide to start new entrepreneurial activities. Commitment to the family business enhances innovation and internationalization (Shi et al., 2019), while willingness to qualify as a worthy successor encourages the launch of internal ventures (Riar et al., 2021). Unsurprisingly, the personality traits associated with external ventures are more related to personal independence and self-affirmation, such as willingness to exert independent leadership (Lorandini, 2015; Zheng & Wan, 2020), entrepreneurial self-efficacy (Carr & Sequeira, 2007), very high personal ambitions (Ramírez-Pasillas et al., 2021), and openness to new experiences (Schröder et al., 2011).

Incumbent generation characteristics. The incumbent generation's characteristics are less investigated than those of next generations. Kellermanns et al. (2008) do not find a significant correlation between the incumbent CEO's age and tenure, and innovation. In terms of succession, the predecessor's influence on business activities after succession negatively impacts not only innovation performance, since it creates confusion in the power structure (Querbach et al., 2020; Grundström et al., 2012), but also venturing and strategic renewal activities by hampering the successor's discretion (Mitchell et al., 2019). Only Riar et al. (2021, p. 22) study incumbent generations launching external ventures, stating their motives are the

desire to “establish themselves as successful entrepreneurs beyond the entrepreneurial families’ and family firms’ fields of activities”, and facilitate succession.

Family resources. Financial resources underpin and enhance internal venturing and innovation activities (Riar et al., 2021; Wiedeler & Kammerlander, 2019) as well as external ventures (Au et al., 2013; Ramírez-Pasillas et al., 2021). In the historical case of a long-lived Spanish family firm (Giner & Ruiz, 2020), the obligation of family members to financially support new entrepreneurial activities within the firm is even explicitly set out in a written deed.

Social capital is also relevant. Most entrepreneurial actions occur when EFs are highly socialized both with the next generation (internal social capital) and the capitalist class (external social capital) (Nason et al., 2019). For instance, higher levels of family social capital improve innovation outputs (Chirico & Nordqvist, 2010), since strong social ties facilitate information flows and knowledge internalization within the family. Good relationships with employees encourage them to propose innovative ideas that the EF can then implement, both internally and externally (Powers & Zhao, 2019). However, if these bonds are too tight, they may lead to lower innovation outputs (Ingram et al., 2020), as employees may take their job for granted and lower their innovation efforts.

Concerning the launch of external ventures, Sieger et al. (2011) deeply explore the role of human capital, social capital, and reputation during the EFs’ portfolio expansion over time. Considering early or later expansion phases, they find that such resources have different relevance at distinct points in time. For example, industry-specific human capital is particularly beneficial to early portfolio activities, since technical knowledge is needed. Conversely, meta-industry human capital is crucial in later stages when general knowledge is needed on how and with whom to do business.

Family values. The literature highlights the positive role of moral values (e.g., integrity, humility, responsibility, and loyalty), competence values (e.g., creativity, ambition, and

tenacity), and generally the family culture (Discua Cruz et al., 2012; Dou et al., 2021; Lorandini, 2015), to engage in internal and external entrepreneurial activities.

A powerful construct is that of entrepreneurial legacies, namely “rhetorically reconstructed narratives of the family’s past entrepreneurial behavior or resilience” (Jaskiewicz et al., 2015, p. 30), which encourage subsequent generations to engage in new entrepreneurial activities, such as innovation (Diaz-Moriana et al., 2020), internal venturing (Barbera et al., 2018), but also external ventures (Clinton et al., 2021; Salvato et al., 2010). Notably, entrepreneurial legacies are transferred across generations and inspire new generations to follow in the footsteps of their ancestors, also to become part of these legacies.

The role of the emotional bond between the EF and the business is rather complex. High emotional attachment to the firm makes EF members focus on the current business, thus enhancing innovation output (Filser et al., 2018; Rau et al., 2019), unless it leads to the inability to detach from a revered past (Dou et al., 2020). Relatedly, lower levels of emotional attachment drive family members toward external entrepreneurial initiatives (Riar et al., 2021). Concerning external ventures, family identification with the firm may be negatively related to external corporate venturing because family members are afraid that such activities, usually pursued with partners, will reduce their control and be detrimental to their reputation (Prügl & Spitzley, 2021). Conversely, Michael-Tsabari et al. (2014) suggest that family identification with the firm encourages external entrepreneurial activities by not putting the family core business at risk.

Interestingly, the desire to perpetuate the family dynasty is a dividing line in the mode of organizing chosen by EFs (Gu et al., 2019). Indeed, EFs with a strong desire to perpetuate the family dynasty prefer to establish a new independent business organization instead of a new division within the current businesses, since a new firm provides more opportunities for family descendants and facilitates the succession process.

Family traditions are only studied in relation to internal activities. They play a key role in shaping the EF’s approach to innovation (Erdogan et al., 2020; Rondi et al., 2019) and strategic

renewal (Sievinen et al., 2020b) by instilling a sense of continuity with the past, and in turn, confidence regarding new risky activities. Religion also matters. Believing in different religions, hence having different values (Christian vs. Muslim), differently commit EFs to internal and external entrepreneurial activities (Eze et al., 2021).

Finally, Zellweger et al. (2012b) seek to account for multiple values concurrently. They introduce “the construct of family entrepreneurial orientation, defined as the attitudes and mindsets of families to engage in entrepreneurial activity, which may serve as an antecedent to transgenerational value creation by families” (Zellweger et al., 2012b, p. 136). Notably, they built an exploratory scale of family entrepreneurial orientation to understand which values (e.g., preservation orientation, transgenerational outlook, change orientation) influence EFs more when engaging in new external ventures.

Family control. The literature provides contrasting findings concerning the effects of family ownership and/or management on internal entrepreneurial activities. With regard to innovation, the relationship is positive in the presence of institutionalized ownership (i.e., shares held by dedicated EF institutions and not by individual family members) (Decker & Günther, 2017), as family institutions improve communication among family members, reduce the likelihood of conflicts, and hence facilitate strategic decisions, such as innovation investments (Scholes et al., 2021). Some studies focus more specifically on family ownership dispersion, which motivates new internal venturing activities because of less emotional attachment and greater “concerns about a potential decline in revenues and/or profits from the core business” (Minola et al., 2016, p. 404), albeit rendering the decision-making and implementation processes harder (Tan & Fock, 2001). Family management in family firms increases the probability of foreign market entry with existing products at the expense of product innovation (Cucculelli et al., 2016). Studies that specifically consider the family-TMT ratio find that a higher TMT ratio is associated with lower innovation and internationalization activities (Hillebrand et al., 2020) due to the lack of external perspectives and knowledge.

These contrasting findings might be reconciled through the arguments of Mitter et al. (2014). Even if focusing only on internationalization, the authors reveal that family control is beneficial only up to a certain point. Indeed, if control is too low, the positive effects of family members acting as stewards will be missed. Conversely, too much control will intensify the negative effect of agency behavior, i.e., family members will seek to maximize their own utilities at the expense of the business.

Only two articles examine the role of family ownership and management with respect to the launch of new external ventures. Studying a bicentenary British company, Jones et al. (2013) find that after succession, new entrepreneurial activities take place only after ownership consolidation in one branch of the family because it enables easier and faster decision-making. Gu et al. (2019) show a negative relationship between family influence (i.e., ownership and management) and the number of new industry entries due to family risk aversion and the lack of managerial skills required to enter new industries.

3.2.2 Evidence referring to degree of relatedness

Generational development. Brumana et al. (2017) argue that first generations enact higher stewardship behavior, prioritizing the needs of the next generation over their own, including financial ones. Accordingly, they prefer to engage in related venturing activities considered less risky and leading to slower but safer profit growth from which the next generation will benefit. However, this stewardship behavior may conflict with long-term orientation. Indeed, first generations may prefer unrelated entrepreneurial activities as a long-term strategy that will ensure the firm's survival, such as radical innovation (Cucculelli et al., 2016) and diversified acquisitions (Schierstedt et al., 2020). While the entrepreneurial choices of first generations suffer this tension, the literature agrees subsequent generations are more likely to engage in unrelated ventures, since they are usually quite emotionally detached from the core business (Gu

et al., 2019) and can count on superior education and managerial skills to manage entrepreneurial activities, such as innovation, also in different industries (Dieleman, 2019).

Studies taking into account multigenerational involvement only consider related and not unrelated entrepreneurial activities. Multigenerational involvement in (small) family firms increases the socioemotional wealth (SEW) that the family seeks to protect, hampering even related innovation (Herrero, 2017). The coexistence of multiple generations in the business also negatively affects expansion into new markets with the same products due to control and coordination problems (Alayo et al., 2019), although when the next generation joins the firm, it may “constitute a particular episode in family businesses’ life cycle” that triggers internationalization activities (Calabrò et al., 2016, p. 682).

Intergenerational dynamics. Harmonious relationships among generations in terms of participative decision-making and trust provide advantages in the pursuit of new entrepreneurial activities, both related and unrelated (Calabrò et al., 2016; Discua Cruz et al., 2012). In addition, mentoring activities are a precursor of entrepreneurial activities, and their degree of relatedness decreases as the mentoring objectives move from a focus on the current business (Woodfield & Husted, 2017) to the identification of broad market opportunities (Clinton et al., 2021). Conflictual relationships between generations can spur new unrelated entrepreneurial activities for two main reasons: next generations might undertake radical innovations and diversified acquisitions as a form of rebellion (Miller et al., 2003), or start a new venture to seek independence and preserve family harmony (Riar et al., 2021). Finally, Dou et al. (2021) find that family values transferred across generations provide more guidance than cognitive heuristics when engaging in unrelated entrepreneurial activities (innovation, venturing).

Next generation characteristics. EFs set up schemes including high-level education and a clear career path for the next generation (Au et al., 2013), after which younger family members can apply the knowledge acquired in new entrepreneurial activities (Clinton et al., 2021). At

Table 4. The effect of family-related factors on related and unrelated entrepreneurial activities; (+) positive effect; (-) negative effect; (+/-) contrasting effect.

	Related Entrepreneurial Activities			Unrelated Entrepreneurial Activities		
	<i>Effect on entrepreneurial activities</i>	<i>Motivations</i>	<i>References</i>	<i>Effect on entrepreneurial activities</i>	<i>Motivations</i>	<i>References</i>
Generational development	First-generation	(+) (+) Less risk perceived, slower but safer profits for subsequent generations	Brumana et al., 2017; Strike et al., 2015	(+) (+) More entrepreneurial (+) Diversification to ensure survival		Cucculelli et al., 2016; Schierstedt et al., 2020
	Subsequent generations	(+) (+) Accumulation of knowledge, reduced emotional attachment	Dieleman, 2019; Fang et al., 2018; Fernández and Nieto, 2005; Merino et al., 2015	(+) (+) Reduced emotional attachment (+) Higher education and managerial skills		Brumana et al 2017; Dieleman, 2019; Gu et al., 2019; Sánchez-Marín et al., 2020; Scholes et al., 2021
	Multigenerational involvement	(+/-) (+) The next generation joining as a trigger (-) Increased SEW concerns, control and coordination problems	Alayo et al., 2019; Calabrò et al., 2016; Herrero, 2017			
Intergenerational dynamics	Supportive relationship between generations	(+) (+) Great knowledge of incumbent generation, mentoring activities, constructive communication	Au et al., 2013; Baranyai and Kozma, 2019; Calabrò et al., 2016; Discua Cruz et al., 2012; Kenyon-Rouvinez, 2001; Nason et al., 2019; Scuotto et al., 2017; Shi et al., 2019; Woodfield and Husted, 2017	(+) (+) Mentoring activities (+) Participative decision-making among generations		Clinton et al., 2021; Discua Cruz et al., 2012; Prügl and Spitzley, 2021
	Conflictual relationship between generations			(+) (+) Rebellion (+) Search for independence and conflict avoidance		Miller et al., 2003; Riar et al 2021
	Sharing stories about the family's past across generations	(+) (+) Inspiration for younger family members	Jaskiewicz et al., 2015; Kammerlander et al., 2015	(+) (+) Inspiration for younger family members		Barbera et al., 2018
	Imprinting traditions, values, cognitive heuristics	(+) (+) Guidance for younger family members	Erdogan et al., 2021; Miller et al., 2003; Riar et al., 2021	(+) (+) Guidance for younger family members		Dou et al., 2021

Next generation characteristics	Next generation education	(+)	(+) Strategic education carefully designed	Au et al., 2013; Clinton et al., 2021; Combs et al., 2021; Giner and Ruiz, 2020; Jaskiewicz et al., 2015; Miller et al., 2003; Powers and Zhao, 2019	(+)	(+) Technical and business knowledge advantages	Clinton et al., 2021; Combs et al., 2021; Giner and Ruiz, 2020; Miller et al., 2003; Powers and Zhao, 2019
	Next generation work experience within the FB	(+)	(+) Greater knowledge of the family business activities	Au et al., 2013; Combs et al., 2021; Giner and Ruiz, 2020; Jaskiewicz et al., 2015; Powers and Zhao, 2019	(+)	(+) Greater knowledge of the family business activities	Combs et al., 2021; Giner and Ruiz, 2020; Powers and Zhao, 2019
	Next generation work experience outside the FB	(+)	(+) Wider business knowledge (+) Exposure to different working environments	Au et al., 2013; Clinton et al., 2021; Miller et al., 2003; Powers and Zhao, 2019	(+)	(+) Wider business knowledge (+) Exposure to different working environments	Clinton et al., 2021; Miller et al., 2003; Powers and Zhao, 2019
	Next generations' personality traits	(+)	(+) Commitment to the FB (+) Moderate personal ambitions (+) Leadership	Ramírez-Pasillas et al., 2021; Shi et al., 2019; Tan and Fock, 2001	(+)	(+) Willingness to exert independent leadership (+) High personal ambitions (+) Desire to prove themselves	Lorandini, 2015; Ramírez-Pasillas et al., 2021; Riar et al., 2021; Tan and Fock, 2001; Zheng and Wan, 2020
Incumbent generation characteristics	CEO founder-status	(-)	(-) Fear of losing control	Yang et al., 2020			
	Predecessor's post-succession involvement	(+)	(+) Greater knowledge of the industrial sector	Grundström et al., 2012	(-)	(-) Harder to change technological trajectories	Grundström et al., 2012
	Incumbent generation personality traits				(+/-)	(+) Willingness to facilitate succession (-) Longer tenure	Brumana et al., 2017; Riar et al., 2021).
Family resources	Family financial support	(+)	(+) Less perceived risk	Au et al., 2013; Combs et al., 2021; Giner and Ruiz, 2020; Ramírez-Pasillas et al., 2021; Riar et al., 2021	(+/-)	(+) Initiative from a group of family members (-) Initiative from a single family member	Giner and Ruiz, 2020; Jones et al., 2013; Riar et al., 2021
	Human capital	(+)	(+) Greater knowledge of the industrial sector	Au et al., 2013; Combs et al., 2021; Giner and Ruiz, 2020; Ramírez-Pasillas et al., 2021; Riar et al., 2021			
	Social capital	(+)	(+) Stronger relationships with players in the same industry	Chirico and Nordqvist, 2010; Dieleman, 2019; Nason et al. 2019; Powers and Zhao, 2019; Randolph et al., 2017; Shi et al., 2019; Sieger et al., 2011	(+)	(+) Externally-oriented outlook (+) Social network beyond the core business' industry (+) Strong relationship with customer	Grundström et al., 2012; Nason et al., 2019; Powers and Zhao, 2019; Sieger et al., 2011
	Limited family network breadth				(-)	(-) Decreased opportunities for diverse knowledge acquisitions	Chirico and Nordqvist, 2010; Dieleman, 2019

Family values	Family culture and moral values	(+)	(+) Guidance for next generations' family members	Ge et al., 2022; Merino et al., 2015; Nason et al., 2019; Powers and Zhao, 2019; Tan and Fock, 2001	(+)	(+) Guidance for next generations' family members in new entrepreneurial settings	Dou et al., 2021; Lorandini, 2015; Powers and Zhao, 2019; Tan and Fock, 2001; Zheng and Wan, 2020
	Family traditions	(+)	(+) Attachment to the status quo	Erdogan et al., 2020; Rondi et al., 2019			
	Family religion	(+/-)	(+) Muslim religion (-) Christian religion	Eze et al., 2021	(+/-)	(+) Christian religion (-) Muslim religion	Eze et al., 2021
	Emotional attachment to the firm				(-)	(-) Fear of endangering SEW	Prügl and Spitzley, 2021; Riar et al., 2021
	Transgenerational succession intention	(+/-)	(+) Understanding the growing family's needs (-) Fear that risky activities might endanger the business	Randolph et al., 2017; Scuotto et al., 2017; Strike et al., 2015; Yang et al., 2020	(+)	(+) Risk diversification (+) Increased long-term orientation	Dou et al., 2020; Jones et al., 2013; Michael-Tsabari et al., 2014; Strike et al., 2015
	Entrepreneurial legacy	(+)	(+) Inspiration for the subsequent generations	Barbera et al., 2018; Combs et al., 2021; Discua Cruz et al., 2012; Giner and Ruiz, 2020; Jaskiewicz et al., 2015; Kammerlander et al., 2015; Kenyon-Rouvinez, 2001; Riar et al., 2021	(+)	(+) Commitment to the family entrepreneurial spirit (+) Legitimization of diversification from the past	Barbera et al., 2018; Clinton et al., 2021; Discua Cruz et al., 2012; Gu et al., 2019; Salvato et al., 2010
Family control	Family ownership	(+/-)	(+) Efficient and parsimonious use of resources (+) Increased long-term orientation (-) Risk-aversion	Bobillo et al., 2013; Dieleman, 2019; Fernández and Nieto, 2005; Herrero, 2017; Mitter et al., 2014; Strike et al., 2015; Tan and Fock, 2001; Yang et al., 2020	(+/-)	(+) Risk diversification to ensure transgenerational sustainability (-) Fear of reduced control	Dieleman, 2019; Gu et al., 2019; Schierstedt et al., 2020; Scholes et al., 2021; Strike et al., 2015
	Family management	(+/-)	(+) Increased long-term orientation (-) Risk aversion (-) Lack of managerial skills	Alayo et al., 2019; Cucculelli et al., 2016; Dieleman, 2019; Mitter et al., 2014;	(-)	(-) Risk aversion (-) Lack of managerial skills	Cucculelli et al., 2016; Dieleman, 2019; Sánchez-Marín et al., 2020
	Family ownership dispersion				(-)	(-) Harder decision-making process	Jones et al., 2013; Tan and Fock, 2001

times, these schemes target areas that are strategically relevant to the current family business, hence leading to related entrepreneurial activities (Jaskiewicz et al., 2015).

Ramírez-Pasillas et al. (2021) identify different routes leading to the creation of external ventures. The “imitating” and “surpassing” routes lead to new related ventures and manifest when next generations have relevant family business experience and moderate personal ambitions. The “splitting” route leads to ventures in unexplored sectors and manifests when next generations have very high personal ambitions. Riar et al. (2021) reach similar conclusions.

Incumbent generation characteristics. Especially after intra-family succession (Grundström et al., 2012), the presence of a family-CEO with a longer tenure will reduce the pursuit of unrelated innovation and venturing activities. Notably, longer tenure will increase the CEO’s stewardship attitude towards subsequent generations, and she/he will thus prefer safer related activities that will not put the wealth to be transferred to subsequent generations at risk (Brumana et al., 2017). However, if incumbent generations aim to facilitate succession, they are more likely to engage in unrelated (and usually also external) venturing activities. In so doing, older members satisfy their own passion for entrepreneurial activities while creating space for younger members (Riar et al., 2021).

Family resources. Next generations that engage in new related entrepreneurial activities usually benefit from family financial and advisory support (Au et al., 2013; Combs et al., 2021). However, an EF might rather offer financial support to unrelated entrepreneurial activities when these initiatives derive from a group of family members (Giner & Ruiz, 2020; Jones et al., 2013) instead of only one family member (Riar et al., 2021).

Concerning social capital, EFs socialized into the next generation but not into the capitalist class are more likely to engage in incremental (i.e., related) innovation activities because they lack an “externally-oriented outlook”. Instead, “it is the confluence of socializing influences that foster a future and externally-oriented outlook that may lead to unusually bold strategic actions, such as unrelated diversification” (Nason et al., 2019, p. 858). Social capital also promotes the

creation of new ventures. Sieger et al. (2011) argue that meta-industry social capital (networks spanning industry boundaries) particularly leads to unrelated venturing activities. Indeed, networks beyond the core industry facilitate access to resources that might be deployed in unrelated businesses (Chirico & Nordqvist, 2010; Dieleman, 2019).

Family values. In general, unrelated entrepreneurial activities will hardly be pursued by EFs with strong identification and attachment to the current business (Prügl & Spitzley, 2021; Riar et al., 2021), due to the fear of endangering their SEW. However, this obstacle is managed when EFs link the new unrelated entrepreneurial activities to their broad entrepreneurial culture and legacy (Barbera et al., 2018; Salvato et al., 2010), such as by drawing on the previous diversification of predecessors (Clinton et al., 2021). Combs et al. (2021) add that the level of family cohesion and rigidity of family rules can explain the degree of relatedness of younger members' new entrepreneurial activities. The higher the levels, the higher the relatedness of new entrepreneurial activities, such as innovation (Erdogan et al., 2020; Rondi et al., 2019). Finally, concerning religion, Eze et al. (2021) find that Christian EFs are more likely to engage in unrelated entrepreneurial activities (e.g., innovation, venturing, strategic renewal) than their Muslim counterparts, since they are less risk averse.

Family control. Family control will reduce radical innovation, as family managers lack the necessary skills to depart from existing innovation trajectories and consider them too risky (Cucculelli et al., 2016; Dieleman, 2019). Furthermore, being too embedded and emotionally attached to their core business, family owners may be unwilling to launch ventures in different industry sectors due to the fear of not being able to exert the same control over new ventures as over the core business (Gu et al., 2019). Relatedly, ownership dispersion negatively influences the pursuit of unrelated entrepreneurial activities (e.g., innovation, venturing, acquisitions) due to the lack of a clear family leader who can make decisions (Jones et al., 2013; Tan & Fock, 2001). However, EFs can face this problem driven by their long-term orientation. Indeed, the desire to ensure transgenerational sustainability encourages EFs to engage in diversified

acquisitions as a tool to diversify the risk and protect the family wealth from a potential downturn in their core industry (Schierstedt et al., 2020; Strike et al., 2015).

4. Discussion, future research directions, and conclusions

To survive and prosper across generations, EFs must continuously pursue new entrepreneurial activities to keep building value and increase family wealth (Chirico & Nordqvist, 2010; Habbershon & Pistrui, 2002). Therefore, this review responds to the call for greater attention to EFs than just family businesses (Habbershon et al., 2010; Zellweger et al., 2012b). In so doing, I identified and categorized the family-related factors explaining how EFs act entrepreneurially across generations. Then, by acknowledging that EFs might engage in different types of entrepreneurial activities spanning two different dimensions (i.e., mode of organizing and degree of relatedness), I explain the relationships between the identified family-related factors and the various types of entrepreneurial activities.

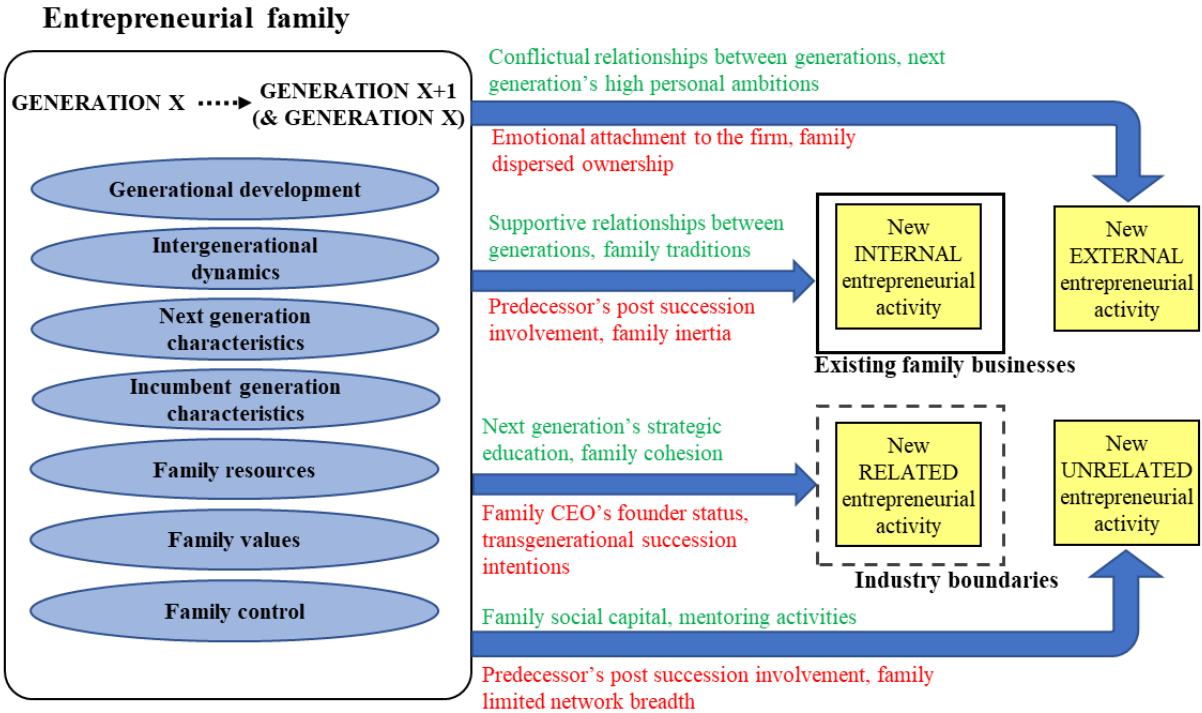


Figure 2. Findings of the systematic review embedded in the guiding framework. Seven categories of family-related factors are represented within the EF. Examples of specific family-related factors are colored in green in case of a positive effect on the connected entrepreneurial activity and colored in red in case of a negative effect.

Figure 2 depicts the most evident positive and negative relationships according to type of entrepreneurial activity. The next sections propose some general lines of inquiry for future research and other major research avenues concerning both dimensions, presented as research questions in Table 5.

4.1 General lines of inquiry for future research

Before highlighting the gaps related to the specific framework dimensions, I draw attention to some wide-ranging limitations in past studies.

First, studies often analyze one family-related factor at a time in relation to entrepreneurial activities across generations. This approach might be responsible for some contrasting findings, such as the controversial role of family identification with the business (Michael-Tsabari et al., 2014; Prügl & Spitzley, 2021), or the ambivalent effect of multigenerational involvement (Alayo et al., 2019; Calabrò et al., 2016). Instead, examining the interplay and connection between family-related factors, also belonging to different categories, might lead to a more holistic view of the topic under investigation and shed light on the inner tensions EFs face when making strategic decisions (Basco, 2014; McAdam et al., 2020).

Second, gender issues are lacking in the sample articles despite their increasing relevance in the family businesses domain (Bauweraerts et al., 2022; Campopiano, et al., 2017; Hytti et al., 2017; Xian et al., 2021), with the father-daughter relationship at the crux of the argument (McAdam et al., 2021). In particular, future studies might go beyond the appointment of female leaders as successors to investigate their entrepreneurial performance after succession, as the future entrepreneurial activities of EFs may be subject to differences when accounting for the gender of the next generations due to differences in the intergenerational dynamics.

Third, the articles included in this review neglect family values related to social and environmental responsibility as antecedents of the entrepreneurial activities pursued by EFs across generations. Since corporate social responsibility is a highly debated topic in the family

business literature (Discua Cruz, 2020; Mariani et al., 2021), it might be interesting to investigate whether EFs that are more sensitive to social values are also more entrepreneurial, and whether and how these values are handed down across generations. Indeed, willingness to help society and improve the image of the business with which they identify through the launch of new social enterprises could motivate them to overcome their general risk aversion.

Fourth, with rare exceptions (Giner & Ruiz, 2020; Sieger et al., 2011; Zheng & Wan, 2020), longitudinal studies are scarce. As a consequence, we lack knowledge of how the different family-related factors are built and impact the entrepreneurial activities pursued by EFs over time and how their role may change across generations. Moreover, a longitudinal approach might allow researchers to analyze different family stages and the consequences of specific family events (e.g., birth, marriage, divorce, death). Transgenerational entrepreneurship (Habbershon et al., 2010) and enduring entrepreneurship (Jaskiewicz et al., 2016a) are theories that might be well suited to follow this line of inquiry.

Fifth, I reinforce the call for multi-level studies (Randerson et al., 2015; Williams et al., 2018), as they are still lacking despite that EFs and family businesses are by definition nested levels. Accordingly, scholars may want to consider a multi-level approach to gain a better understanding of the intertwining between the entrepreneurial activities at the family and at the (family) business level. Moreover, the team as an intermediate level has received scant attention in the family business literature (Discua Cruz et al., 2013). Studies focusing specifically on the intergenerational dynamics within these teams or their evolution over time might provide further insights into how EFs act entrepreneurially across generations.

Sixth, extant studies broadly adopt business and management theories to explain the entrepreneurial phenomena under investigation. However, since the source of entrepreneurial activities is often embedded in the family, I encourage the adoption of theoretical lenses deriving from family science (for a review, see Jaskiewicz et al., 2017). Family science theories draw on domains such as sociology and psychology, and may be better suited to investigate the

family-related factors underlying the pursuit of EFs' new entrepreneurial activities (e.g., intergenerational solidarity theory).

Finally, to further disentangle the contrasting findings and/or shed more light on the role of family-related factors, it may be beneficial to consider the two dimensions proposed in our framework as not mutually exclusive. In other words, internal and external entrepreneurial activities can also be categorized as related or unrelated, and vice versa. This approach leads to a two-dimensional classification of an entrepreneurial activity (i.e., internal-related, external-related, internal-unrelated, external-unrelated). However, as the reviewed literature does not offer sufficient insights in this regard, future studies might adopt a more nuanced perspective by characterizing entrepreneurial activities by simultaneously considering both dimensions.

Table 5. Possible future research questions

General lines of inquiry	<ul style="list-style-type: none"> • Can some contrasting findings be explained by simultaneously considering multiple family-related factors? For example, can the contrasting findings related to family identification with the business be reconciled by taking into account generational stage or ownership dispersion? • How does the presence of female leaders or successors influence intergenerational dynamics, and in turn, entrepreneurial activities? • What is the effect of family values related to social and environmental responsibility on the pursuit of new entrepreneurial activities by EFs? • How does the role of family-related factors in the pursuit of new entrepreneurial activities change over time and across generations? • Can the pursuit of EFs' entrepreneurial activities be better understood through family science theories (e.g., intergenerational solidarity theory)? • What happens if mode of organizing and degree of relatedness are simultaneously considered to classify an entrepreneurial activity? For example, what are the family-related factors underlying an external and unrelated entrepreneurial activity?
Mode of organizing	<ul style="list-style-type: none"> • Does entrepreneurial mentoring have a downside for the core family business in the long run? Will next generation family members come back and take care of the core family business even if they already manage their own venture? • What role do older family members who have never been or are no longer involved in the business play in the pursuit of new entrepreneurial activities? • How are values imprinted across generations and how do they lead to internal and external entrepreneurial activities? • Can family traditions be actually transferred into new external corporate entities? If so, through which mechanisms (e.g., employee transfer)? Will tradition still be a strategic advantage outside the core family business? • What is the role of institutionalized ownership for new venture creation? For EFs interested in external ventures, does institutionalized ownership act as a positive signal that may attract partners for external venturing activities?
Degree of relatedness	<ul style="list-style-type: none"> • Can multigenerational involvement provide resources and knowledge of new industry domains, hence enhancing unrelated entrepreneurial activities? • Does family reputation span industry boundaries, and can it in turn become a resource for EFs wanting to engage in unrelated ventures? • What is the role of EFs' religion in their risk-taking approach, and in turn, in the degree of relatedness of their new entrepreneurial activities? • Can some contrasting findings about the effects of SEW preservation and family long-term orientation on related and unrelated entrepreneurial activities be reconciled considering "restricted" and "extended" SEW?

4.2 Discussion and future research directions regarding mode of organizing

I believe some gaps need to be addressed to improve our understanding of the links between family-related factors and mode of organizing.

First, among the intergenerational dynamics, entrepreneurial mentoring is found to encourage and prepare the next generations to start their own external ventures (Au et al., 2013; Discua Cruz et al., 2012). However, there is a lack of research on the effect of entrepreneurial mentoring on entrepreneurial activities within the family business across generations (Querbach et al., 2020). Stewardship theory could be useful to follow this line of inquiry. Indeed, recent studies show that stewardship can be devoted toward the family business aiming at its expansion or more generally toward the family's assets giving rise to new external ventures (Discua Cruz et al., 2013).

Second, the characteristics of the incumbent generation are generally under-researched with regard to mode of organizing, as studies focus only on the incumbent CEO as representative of the older generation (Brumana et al., 2017; Kellermanns et al., 2008; Querbach et al., 2020). Accordingly, I encourage future studies to pay attention to the characteristics of the incumbent generation (e.g., work experience, tenure, numerosity) and consider family members in this generation beyond the CEO. These investigations could draw on knowledge spillover theory, according to which “unexploited [entrepreneurial] opportunities generated within a firm remain in a latent state and can be successively concretized by a different individual or firm that has the entrepreneurial capabilities to do so” (Hahn et al., 2021). In this vein, older family members might be a source of latent opportunities that next generations exploit.

Third, family values are often related to entrepreneurial activities launched by subsequent generations (Clinton et al., 2021; Discua Cruz et al., 2012). However, insufficient research deals with the process through which these values are handed down across generations and lead to new types of entrepreneurial activities. Prior studies show that imprinting theory can inform such questions (Barbera et al., 2018; Jaskiewicz et al., 2015). In particular, second-hand

imprinting deserves more attention, since values are perpetuated over generations, meaning that there might be no direct interaction between the creator of such values and those imprinted by them. Specifically, among the values, scant attention has been dedicated to understanding whether family traditions encourage next generation family members to launch new external ventures in addition to boosting internal entrepreneurial activities as innovation (De Massis et al., 2016).

Fourth, concerning family control, institutionalized ownership (i.e., shares held by dedicated EF institutions and not by individual family members) is an underexplored family-related factor that I think deserves more attention. The few hints on this topic only show a positive relationship between institutionalized ownership and internal innovative activities (Decker & Günther, 2017). However, further research could also consider whether institutionalized ownership might act as a positive signal to attract partners for external venturing activities.

Finally, focusing on different potential internal entrepreneurial activities, I highlight that strategic renewal and acquisitions are less studied initiatives. Given my literature review design, this does not necessarily mean that such entrepreneurial activities are overlooked in the family business literature, but that they are not investigated in relation to family-related factors. I thus welcome future research on family business restructuring (King et al., 2022) that broadens the range of possible entrepreneurial activities undertaken by EFs in order to prosper across generations.

Overall, the literature on external entrepreneurial activities is limited compared to internal activities. While part of the reason may be that EFs prefer to organize their entrepreneurial activities internally, it also highlights the tendency to focus on a given family business over the various entrepreneurial activities an EF might pursue (Zellweger et al., 2012b). Accordingly, I encourage more studies to adopt a portfolio approach to (also) capture new family ventures

beyond the organizational boundaries of the core family business, and the family dynamics leading to such ventures.

4.3 Discussion and future research directions regarding degree of relatedness

My review highlights some family-related factors deserving more research with respect to degree of relatedness.

First, multigenerational involvement and family reputation have been overlooked in studying unrelated entrepreneurial activities. Therefore, I encourage studies to delve into these family-related factors as antecedents of entrepreneurial activities in different industries, since the involvement of subsequent generations may provide resources and knowledge of new industry domains, and family reputation might span industry boundaries (Cherchem, 2017).

Second, how religion influences entrepreneurial activities is considerably debated in the broad entrepreneurship literature (Henley, 2017). As Eze et al. (2021) suggest, EFs might represent a particular context to investigate the role of religion, since it constitutes a salient part of family values and culture, and could be a distinctive element in those areas where several religions coexist (Cater & Alderson, forthcoming; Discua Cruz, 2018). New institutional theory could be a relevant theoretical lens to advance this line of inquiry, since it accounts for both formal rules and less formal interactions in the definition of institutions (Henley, 2017). This approach would seem to fit EFs very well considering that family dynamics across generations are shaped especially by informal interactions, and that religion might exert a strong effect on these types of interactions.

Third, some contrasting findings on the effects of SEW preservation and EFs' long-term orientation in the pursuit of related and unrelated entrepreneurial initiatives highlight that the topic deserves further investigations. In some cases, these values motivate EFs to engage in unrelated entrepreneurial activities in order to diversify the risk and assure business survival in the long run (Gu et al., 2019; Michael-Tsabari et al., 2014). Conversely, other EFs will do the

opposite (even if motivated by the same SEW preservation concerns and long-term orientation) and prefer related entrepreneurial activities, aiming for slower but safer profit growth that subsequent generations will benefit from (Brumana et al., 2017; Strike et al., 2015). I believe that recent advances in SEW theory could provide an appropriate theoretical background for future studies attempting to reconcile these inconsistencies by acknowledging that two forms of SEW may occur, namely “restricted” and “extended” (Miller & Le Breton-Miller, 2014). The former refers to the original SEW conceptualization (Gomez-Mejia et al., 2007), is strongly based on family-centered priorities, and might be more responsible for related entrepreneurial activities. The latter instead encompasses extended priorities that go beyond the family and seek to also reward other stakeholders (Miller & Le Breton-Miller, 2014), and as such, might underlie ventures in different industries. Considering that business (and risk) diversification is a best practice in the strategic entrepreneurship literature (Neffke & Henning, 2013), and that EFs with restricted SEW have also been criticized for being short-sighted, trying to build an extended SEW might be a crucial goal for EFs seeking multigenerational longevity (Newbert & Craig, 2017). Accordingly, future studies could address this issue by investigating which family-related factors might be connected to extended SEW and in turn favor entrepreneurial initiatives that span industry boundaries.

Finally, the contingent effects of the environmental conditions in the industry in which the EF operates and/or may want to enter cannot be neglected to further explain whether and how family-related factors affect the degree of relatedness of new entrepreneurial activities (Yu et al., 2019). This observation is related to questions on whether the effects of family-related factors remain consistent in times of crisis (Moreno-Menéndez et al., 2021), as in the case of the Covid-19 pandemic.

4.4 Conclusions

Family business scholars are increasingly acknowledging the role of family-related factors in explaining how EFs act entrepreneurially, especially as the family grows across generations. To my best knowledge, this study is the first literature review aimed at providing a comprehensive picture of family-related factors leading to diverse entrepreneurial activities. I classify these factors, link them to specific types of entrepreneurial activities, and highlight some future research directions. In so doing, I hope to encourage scholars to delve more deeply into the relationships between family-related factors and entrepreneurial activities pursued by EFs across generations.

Chapter 2

Family Firms and Digital Product Innovation: A Construal Level Perspective

Abstract

Digital product innovation (DPI) is critical to the survival of firms, especially those operating in traditional industrial-age industries. Based on a longitudinal sample of family and non-family firms in the automotive and industrial engineering sectors, observed from 2013 to 2020, I find that family firms develop more DPIs than non-family firms. More importantly, I acknowledge and account for heterogeneity among family firms, thus extending previous research that considers family firms as equal in the digital transition process. In particular, drawing on construal level theory and focusing, in a second step, only on family firms, I propose and show that the presence of later family generations in control positively influences DPI in family firms, whereas the presence of a family CEO is detrimental to DPI. Finally, I examine the potential moderating role of top management team (TMT) size in the above relationships. Indeed, TMT members play a key role in strategic decision-making, such as engaging in DPI. The results show that a larger TMT weakens the positive relationship between the presence of later generations in control and DPI, consistently with construal level predictions. This is the first empirical study applying construal level theory in the family business literature, with important implications for the literature on family firm digital innovation, and for family owner-managers interested in pursuing digital innovation.

Keywords: family firms, digital innovation, generations, family CEO, top management team, construal level theory

1. Introduction

The rapid evolution of information and communication technologies (ICTs) – such as sensors and devices connected by high-speed networks, large-capacity data storage, high-speed computing, and data analytics (Inaba & Squicciarini, 2017) – has opened up many opportunities for firms in traditional industrial-age industries to develop novel products and depart from traditional innovation trajectories (Hanelt et al., 2021; Lyytinen et al., 2016). Accordingly, firms engage in digital product innovation (DPI) – namely “new combinations of digital and physical components to produce novel products” (Yoo et al., 2010, p. 725) – to develop novel value creation and appropriation pathways (Nambisan, 2017; George et al., 2021). For example, in the automotive industry, a car’s connectivity is nowadays as important as its mechanical features (Svahn et al., 2017), and in the industrial machinery industry, robots have once-unthinkable computing power thanks to the relentless miniaturization of microchips (Teece, 2018).

In line with this trend, DPI research is flourishing (e.g., Yoo et al., 2010; Pesch et al., 2021; Shi et al., 2023; Svahn et al., 2017). Although research demonstrates the need to engage in DPI, it also shows that the concerns are less about technology and more about management (Appio et al., 2021; Nambisan et al., 2017; Vial et al., 2019), as the management issues related to DPI and digitalization in general offset, if not overcome, the technical issues (Besson & Rowe, 2012; Li et al., 2018). Indeed, the likelihood of achieving DPI varies depending on the firm’s governance and decision-making processes (Svahn et al., 2017; Liu et al., 2023; Li et al., 2018). In this sense, the idiosyncratic governance structure and decision-making processes of family firms (FFs) provide a relevant context to study the digital transformation phenomenon and its potential outcomes (Liu et al., 2023; Prügl & Spitzley, 2021; Soluk & Kammerlander, 2021), such as DPI.

In particular, with the exception of a first attempt focused on IoT exploratory innovation (Ceipek et al., 2021), we still lack knowledge on how family involvement in ownership and/or management affects DPI. On the one side, studies have focused on FFs’ digital transformation

(Soluk & Kammerlander, 2021) and digital business model innovation (Soluk, 2022; Soluk et al., 2021; Xie et al., 2022), on the other side, the more general FF advantages for product innovation are well known (e.g., Calabrò et al., 2019; De Massis et al., 2013; Duran et al., 2016). However, these two literature streams have not converged in the study of DPI in FFs, despite that DPI is distinct from other types of digital innovation (e.g., digital business model innovation) (Snihur & Wiklund, 2019) and product innovation in general because it involves an “unprecedented level of unpredictability and dynamism” (Nambisan, et al., 2017, p. 225). Importantly, the aforementioned studies on digital transformation and digital business model innovation have treated FFs as a monolithic group. As a result, we especially lack a deeper understanding of the differences between FFs with regard to DPI.

These represent relevant research gaps for several reasons. First, family owner-managers may have idiosyncratic attitudes toward DPI, as their long-term orientation is likely to make them aware of the importance of DPI for the sustainability of their firms across generations (Kammerlander & Ganter, 2015; König et al., 2013; Le Breton-Miller & Miller, 2006). Second, DPI requires significant investments, and the overlap between the family and the business is likely to make family owner-managers more sensitive to the risks associated with such endeavors (Block et al., 2022; Gomez-Mejia et al., 2014; Liu et al., 2023; Miller & Le Breton-Miller, 2014). Third, scholars have increasingly called for examining the heterogeneity of FFs (Chua et al., 2012; Daspit et al., 2021), which is crucial to understanding which specific characteristics favor DPI. After all, FFs account for two-thirds of all businesses worldwide, generate approximately 70–90% of annual global GDP, and create 50–80% of jobs in the majority of countries (Family Firm Institute, 2017; De Massis et al., 2018). Given this dominant position and central contribution to any global economy, the potential failure of FFs to embrace digital technologies and achieve DPI may jeopardize their survival in the competitive landscape, which in turn may have serious consequences for society as a whole (KPMG, 2017; PwC, 2021).

I address these research gaps in two steps. First, by drawing on FF product innovation research (De Massis et al., 2015; Duran et al., 2016) and extending the conjectures on the digital business model innovation of FFs (Soluk et al., 2021; Xie et al., 2022), I develop a baseline hypothesis arguing that FFs will (also) outperform their non-family counterparts in DPI. Second, focusing only on FFs, I explore their heterogeneity by drawing on construal level theory (Trope & Liberman, 2010). The core tenet of this theory is that each individual perceives a different psychological distance toward an object, which leads her/him to construe the object in a more or less abstract way (Trope & Liberman, 2010), ultimately affecting decisions about that object. Specifically, managers' construals can influence innovation decisions (Mzembe, 2021; Wiesenfeld et al., 2017), and this is also true for FF owner-managers, as their construals of the FF can influence their goals and risk behavior when making decisions (Kammerlander & Breugst, 2019). Accordingly, I propose that different generations in control of the business and a family vs non-family CEO may construe the FF differently, ultimately explaining differences in DPI across FFs. Specifically, I contend that later generations' more abstract construals of the firm will foster DPI. Conversely, a family CEO will have more concrete construals compared to a non-family CEO, which will negatively affect DPI.

Finally, although the generation in control and the CEO (family or non-family) lead the decision-making process, strategic decisions – such as engaging in DPI – are made jointly with the top management team (TMT) (Calabrò et al., 2021a). Thus, the influence of the controlling generation and the (family) CEO on DPI may vary depending on the characteristics of the TMT. In particular, I address this issue by examining the moderating role of TMT size. Indeed, TMT size is an important characteristic that reflects the cognitive resources and problem-solving capabilities at the disposal of the TMT (Haleblian & Finkelstein, 1993; Certo et al., 2006), and has been shown to influence (directly or indirectly) entrepreneurial initiatives (Bass, 2019; Kirca et al., 2012). Specifically, I argue that the greater diversity of perspectives in a larger TMT (Certo et al., 2006) will attenuate both the direct effects of later generations and a family CEO

on DPI by negatively moderating the positive effect of later generations, and positively moderating the negative effect of a family CEO. I test my hypotheses in a two-step analysis. First, I test my baseline hypothesis on a longitudinal dataset of 364 family and non-family firms from the automotive and industrial engineering sectors, observed over the period 2013–2020. Then, I focus on the subsample of FFs to examine the role of the considered sources of heterogeneity and the moderating role of TMT size. My results support all the hypotheses, except for the positive moderating effect of TMT size on the relationship between family CEO and DPI.

This study makes several contributions. First, by showing that FFs outperform non-family firms in DPI, I contribute to the growing literature on FF digital innovation by extending research so far limited to digital business model innovation (Soluk et al., 2021) and challenging the idea that FFs struggle with innovation based on technologies that may represent a discontinuity (König et al., 2013). In addition, by demonstrating the positive role of later generations in pursuing DPI and, conversely, the constraints imposed by a family CEO in line with the predictions of construal level theory, I contribute to research on FF heterogeneity (Chua et al., 2012; Daspit et al., 2021) and provide more nuanced insights into why some family owner-managers are better or worse at driving DPI. Second, I advance FF research with the first attempt – to my best knowledge – to use construal level theory as the theoretical basis for an empirical study in the family business context. Indeed, construal level theory provides a new perspective to understanding the risk behavior and goal time horizon of family owner-managers, and ultimately their heterogeneous behavior (Kammerlander & Breugst, 2019). Third, because family owner-managers have to make real-life decisions, and their construals are simultaneously shaped by different dimensions of psychological distance, I contribute to construal level theory (Trope & Liberman, 2010) by extending research so far mainly limited to student samples, hypothetical decision tasks, or considering only one dimension at a time (e.g., Förster et al., 2004; Fujita et al., 2006). Fourth, I contribute to digital innovation research that has mainly

focused on the *consequences* of digital innovation (Yoo et al., 2010; Nambisan, 2017; Nambisan et al., 2017) by shedding light on how some unique governance characteristics of FFs and TMT size may be *antecedents* of DPI through their influence on strategic decisions, thus also contributing to the debate on the importance of studying and framing digital innovation from a strategic perspective (Pesch et al., 2021; Vial, 2019). Finally, I contribute to the TMT literature (Hambrick, 2007; Jin et al., 2017) by challenging the assumption that the greater diversity of perspectives of a larger TMT is always beneficial to decision-making, as I argue and show that a larger TMT may hinder later generations in control of the FF in pursuing DPI.

2. Theoretical Framework and Hypotheses Development

I next review the literature on digital and product innovation in FFs and develop the arguments leading to my baseline hypothesis. Then, I introduce construal level theory and explain how it allows me to explore heterogeneity among FFs and their DPI. Finally, I develop my main hypotheses.

2.1 Digital (Product) Innovation in Family Firms

FFs can be defined as businesses governed and/or managed with the intention of shaping and pursuing the vision of the business held by the members of the controlling family in a way that is sustainable across generations (Chua et al., 1999). The presence of family owners and managers gives rise to idiosyncratic decision-making with regard to innovation (De Massis et al., 2013). For instance, research has shown that, overall, FFs tend to invest less in innovation inputs (i.e., R&D) compared to non-family firms due to their willingness to preserve socioemotional wealth (Block, 2012). However, FFs may reverse this trend when faced with challenges, such as financial performance below the family's aspirations (Chrisman & Patel, 2012), and are more efficient at converting innovation inputs into innovation outputs (Duran et al., 2016). Furthermore, when facing the adoption of a discontinuous technology for innovative

purposes, FFs may be slower to recognize the strategic importance of the technology, but once they do, they will implement it more quickly and with more stamina (König et al., 2013).

Overall, prior studies present a picture in which the idiosyncrasies induced by family owner-managers play a positive role in FF innovation. In the following, while acknowledging the potential detrimental effects of, for instance, excessive family-paternalistic leadership on (exploratory) digital innovation (Ceipek et al., 2021; Soluk & Kammerlander, 2021), I blend arguments from prior studies on product innovation and those on digital transformation and digital business model innovation in FFs to argue that FFs outperform their non-family counterparts in DPI³.

First, the higher level of control and decisional autonomy of family owner-managers leads FFs to have a less formalized structure and a more flexible decision-making process (Craig & Dibrell, 2006; De Massis et al., 2015), which can be beneficial for DPI. Indeed, given the novelty (or even immaturity) of digital technologies and their constant evolution (Ceipek et al., 2021), DPI projects hardly follow a linear path. Rather, they may require frequent adjustments, for which quick and flexible decision-making is certainly beneficial. Relatedly, their higher level of control makes family owner-managers particularly willing and able to monitor the innovation process (Duran et al., 2016), thus fostering parsimonious and efficient resource allocation, which has been shown to positively influence digital innovation, even during critical events, such as the COVID-19 pandemic (Soluk, 2022). Moreover, the usually less formalized structure of FFs facilitates knowledge sharing and enables superior learning mechanisms, thus

³ Prior literature has extensively emphasized the difference between DPI and “traditional” product innovation, which is why DPI requires ad-hoc investigations. DPI refers to the combinations of digital and physical components to produce novel products which often consist of the enhancement of existing physical products through the inclusion of digital technologies (Lyytinen et al., 2016; Yoo et al., 2010). Specifically, DPI entails a higher degree of uncertainty and ambiguity. This lies in the fact that DPIs may continue to evolve even after their launch thanks to the re-programmability of digital technologies and such improvements may also be made by competitors thanks to the interoperability of digital technologies (Pesch et al., 2021). Moreover, DPI’s higher risk may also be related to some digital technologies being still immature (Ceipek et al., 2021). More broadly, highlighting the distinctive traits of DPI, prior research has argued that DPI changes product architectures, enables new organizing logics for innovation, provides and requires new innovation tools, and shapes new product meanings (Bunduchi et al., 2022).

counteracting the lack of digital knowledge, one of the main barriers to achieving DPI (Hanelt et al., 2021; Xie et al., 2022).

Second, given their propensity for transgenerational control, FFs tend to build long-term and trust-based relationships with external stakeholders, which can be a critical advantage in the development of DPI. Indeed, as DPIs are usually the result of participative efforts of widely distributed actors (Teece, 2018; Yoo et al., 2012), such kind of relationships with partners are likely to facilitate knowledge sharing and create a network in which actors support each other with valuable and genuine feedback (Duran et al., 2016). Similarly, their closer relationships with customers allow FFs to better identify their needs and continuously satisfy them through their DPIs by taking advantage of the reprogrammable nature of digital technologies (Nieto et al., 2015; Yoo et al., 2010).

Third, FFs have idiosyncratic resources in terms of internal human and social capital that can foster DPI. For example, FFs can rely on the outstanding commitment of both family and non-family employees, especially when family owner-managers enjoy widespread appreciation among employees and are able to inspire them by sharing success stories about digital transformation (Soluk & Kammerlander, 2021). Moreover, the longer tenure of family and non-family employees in FFs allows them to develop deep and specific product-related skills and experience, leading to the accumulation of tacit knowledge (Sirmon & Hitt, 2003) that can be particularly useful for DPI (Soluk, 2022).

Finally, Soluk et al. (2021) argue that FFs have specific advantages that foster the development of knowledge exploitation, risk management, and marketing capabilities, which in turn foster digital business model innovation. Since these (dynamic) capabilities have long been studied and proven beneficial for product innovation in general (Marsh & Stock, 2003; Verona & Ravasi, 2003), I contend that a similar effect will apply to DPI. Therefore, I posit:

Baseline Hypothesis: *FFs are associated with higher DPI than non-family firms.*

After developing my baseline hypothesis comparing DPI in family and non-family firms, I turn my attention to FFs only and examine the possible sources of heterogeneity that may affect DPI. I do so by drawing on construal level theory.

2.2 Construal Level Theory

Drawing on psychology, construal level theory is based on the idea that everyone builds mental representations (or construals) of objects, entities, or events, and that these representations can vary in their level of abstraction (Liberman & Trope, 1998). For example, electricity may be conceptualized at a low level as a power-source or at a higher level as one of the greatest innovations of all time. Similarly, in the entrepreneurship domain, the action of “starting a venture” can be described more abstractly as “a dream come true” or more concretely as “filing an entry into the commercial register” (Tumasjan et al., 2013, p. 862). In addition, construal level theory posits that the degree of abstractness depends on the psychological distance that a person perceives toward the target being construed. Specifically, the higher the distance, the more abstract the construal will be (Trope & Liberman, 2010). Prior research has identified four dimensions that psychological distance primarily refers to: time⁴, space, personal involvement, and hypotheticality. In other words, people perceive more abstractly those objects or events that are distant in time and space, that happen to other people, or that seem unlikely to occur (Trope & Liberman, 2010). Studies also show that the way a target is construed, in terms of level of abstractness, influences people’s cognitions and behaviors, such as their predictions, evaluations, and decisions about that target (Soderberg et al., 2015). Therefore, people make choices and set preferences with respect to their construals of objects rather than the objects themselves (Trope & Liberman, 2010).

⁴ In the next sections, when I develop the hypotheses, I argue that earlier and later generations, as well as family and non-family CEOs, may perceive different psychological distances in terms of space, personal involvement, and hypotheticality, but I do not make assumptions about the time dimension. Indeed, as they are all controlling and managing the firm during the observed period, their perceived temporal psychological distance should be similar, i.e., should be low as they are currently involved in the firm.

From an innovation perspective, construal level theory is interesting because construals may be able to explain people's risk behavior and their prioritization of long-term vs short-term goals, both factors influencing the innovation decision-making process (Tumasjan et al., 2013; Wiesenfeld et al., 2017). Specifically, more abstract construals are associated with higher predisposition toward risk and prioritization of long-term goals. In terms of risk behavior, for example, when evaluating a particularly novel innovation opportunity, entrepreneurs who perceive greater distance toward the opportunity and thus form more abstract construals will perceive less risk, thereby increasing the likelihood that the opportunity will be exploited and the innovation pursued (Lin et al., 2021; Duan et al., 2022). Similarly, managers with more abstract construals are more likely to support radically new concepts in the new product development process, despite the higher risk associated with this type of innovation (Bauer et al., 2021; Liu et al., 2020). In terms of goal time horizons, higher-level construals "expand people's mental horizons and connect them to their broader and more distant goals" (Wiesenfeld et al., 2017, p. 369). For example, in his study of sustainable innovation, Mzembe (2021) finds that owners and/or managers with more abstract construals are more likely to make a large resource commitment to sustainability-oriented innovation because they prioritize the associated long-term environmental and economic effects.

Overall, the preceding discussion suggests that construal level theory can provide insights into how different decision-makers behave depending on their psychological distance and associated construal toward the firm they lead (Steinbach et al., 2019). In the next section, I theorize how construal level theory can inform digital innovation and FF research.

2.3 Construal Level Theory to Explain DPI in Family Firms

DPI enables firms to gain a sustainable competitive advantage by providing new ways to create and appropriate value (Nambisan et al., 2017; George et al., 2021). Despite these benefits,

engaging in DPI is particularly risky and takes a long time to pay off, requiring high and continuous commitment from firm decision-makers (Appio et al., 2021; Pesch et al., 2021).

Indeed, DPI requires large initial investments from firms operating in industrial-age industries, while at the same time entailing a great deal of uncertainty (Müller et al., 2018; Xie et al., 2022). Many aspects contribute to this uncertainty. For example, digital technologies are often immature and complex to manage, and efforts to overcome these problems may be almost negated by the fact that they evolve extremely rapidly (Ceipek et al., 2021; Fichman, 2004). Similarly, the complexity of DPI usually requires entering into new partnerships, which of course entails risks and coordination costs (Vial, 2019). Furthermore, research highlights that organizational inertia is a threat that can easily lead to the failure of digital innovation projects (Lucas & Goh, 2009).

Relatedly, engaging in DPI is also a long-term strategy for firms operating in industrial-age industries. Indeed, they are very likely to need time to acquire digital knowledge, build new partnerships, and reorganize the innovation function to overcome organizational inertia (Hanelt et al., 2021; Kohli & Melville, 2019; Svahn et al., 2017). In support of these arguments, research highlights that the benefits of engaging in digital innovation projects may be realized over an extended period of time and can affect long-term firm performance (Cappa et al., 2021; Devaraj & Kohli, 2000).

In sum, engaging in DPI can be viewed as a risky and long-term decision. According to construal level theory, as argued earlier, firm decision-makers who perceive higher psychological distance toward their firms tend to make riskier decisions and prioritize long-term goals. Combining these notions, decision-makers who perceive greater psychological distance (i.e., build higher construals) may favor DPI in their firms.

In this sense, construal level theory allows me to account for heterogeneity among FFs and explain their different abilities to develop DPI in light of their family owner-managers' different construals, thus addressing the lack of research on FF heterogeneity and digital innovation.

Broadly speaking, family owner-managers may construe their family business in heterogeneous ways, depending on the psychological distance they perceive toward it. For example, they might describe their firm more concretely as “a manufacturer of our products” or “a source of income”, or more abstractly as “our family tradition” or a “legacy that needs to be maintained for the future” (Kammerlander & Breugst, 2019, p. 223). Focusing on FFs led by different generations and family or non-family CEOs, I propose that the higher (lower) psychological distance perceived by these family owner-managers leads to more (less) DPI in FFs.

I next develop my hypotheses highlighting how different generations and a family vs non-family CEO perceive heterogeneous psychological distances toward the firm, and in turn, build different construals that lead to diverse levels of DPI.

2.4 Generation in Control and DPI

I already indicated that earlier and later generations in control of the FF have different construals of the firm, leading to diverse goals and risk propensities for DPI, ultimately affecting their respective performance outcomes.

First, earlier and later generations in control may perceive different psychological distances toward the firm in terms of space. In the founding and earlier generational stages, FF owner-managers often live close to the firm, and the household may even be the firm’s first location (Aldrich & Cliff, 2003). Conversely, FFs in later generational stages are usually in the so-called sibling partnership or cousin consortium phases, where owners and sometimes even managers may be dispersed and live in different countries (Gersick et al., 1997). Indeed, later generations often leave home for education or work purposes and continue to live far from the FF, even if they continue to own shares (Jaskiewicz et al., 2015; Wiklund et al., 2013). For these reasons, the perceived spatial distance of later generations toward the FF will be higher compared to earlier generations.

Second, the personal involvement of family members from different generations, and thus the relative psychological distance, may vary. In the earlier stages of the firm and therefore when earlier generations control the FF, family members tend to dedicate their lives to the business. Since the firm is still growing and resources are scarce, family members are involved in all business activities, from managerial to operational (Cruz & Nordqvist, 2012; Sirmon & Hitt, 2003). On the contrary, FFs in later generational stages tend to be more professionalized, a prerequisite for managing the associated increased complexities (Minola et al., 2016). Therefore, these FFs will employ more external managers, and thus require less day-by-day involvement of family members. In terms of personal involvement, emotional involvement may also change across generations. In fact, earlier generations tend to be more emotionally attached to the firm compared to later generations (Le Breton-Miller & Miller, 2013). For these reasons, I argue that later generations will perceive greater psychological distance to the FF in terms of personal involvement.

Third, different generations may also perceive heterogeneous distances in the hypotheticality dimension. When the firm is controlled by earlier generations, the family and the firm are usually smaller. Thus, for family members of earlier generations, the likelihood of joining the business is very high for at least two reasons. On the one hand, they are needed as part of the workforce due to limited resources (Chrisman et al., 2002; Kellermanns & Eddleston, 2006). On the other hand, because the family is smaller, the pool of family members who can be appointed as future owner-managers is also limited (Bennedsen et al., 2007), hence needing family members to join the firm to ensure transgenerational control (Zellweger et al., 2012a). These considerations decrease in the case of later generation family members. Indeed, as the family grows, the likelihood of becoming a family owner-manager firm is lower because the pool of family members is larger, and at the same time, the pressure to join the firm is lower because resources have expanded over time (Combs et al., 2021). Accordingly, later generation family members “are also exposed to the potential succession scenario for a longer time frame,

over which they will imagine a variety of potential options regarding their own identity and role in the narrative of the family firm” (Kammerlander & Breugst, 2019, p. 225). Based on these considerations, I predict that later generations may feel greater psychological distance in the hypotheticality dimension.

Overall, I argue that later generations in control of the FF will perceive higher psychological distance toward the firm in terms of space, personal involvement, and hypotheticality compared to earlier generations. According to construal level theory, this greater distance will trigger higher level construals of the firm, which in turn will make later generations more prone to risky decisions and more concerned about long-term goals (Duan et al., 2022; Wiesenfeld et al., 2017). Given that engaging in DPI can be viewed as a risky and long-term decision, as I argued in the previous section, later generations should pursue more DPI in the FF they control as compared to earlier generations due to their higher construal levels. More formally:

H1. *FFs controlled by later generations are associated with higher DPI.*

2.5 Family CEO and DPI

I propose that a family CEO and an external CEO will perceive lower and higher psychological distance toward the firm, respectively. In turn, a family CEO with a more concrete construal should constrain DPI in the FF, while an external CEO with a more abstract construal should positively influence DPI.

First, a family CEO may perceive lower psychological distance toward the firm in terms of space compared to an external CEO. Indeed, a family member appointed as CEO is expected to have a great deal of experience within the firm and have worked there for a long time (Giner & Ruiz, 2022; Sardeshmukh & Corbett, 2011), which also makes it very likely that s/he has lived and continues to live close to the firm. Conversely, an external CEO hired through the job market is very likely to be extraneous to the local context, as s/he is likely to come from another

region, given the mobility of the job market today, especially for top positions (Çolak & Korkeamäki, 2021; Custódio et al., 2019).

Second, a family CEO may perceive less distance in terms of personal involvement. Recalling the three-circle model of family firm (Tagiuri & Davis, 1996), where the circles represent the family, ownership, and the business, a family CEO is located at the intersection of all three circles, hence implying a high level of involvement and more concrete construals (Kammerlander & Breugst, 2019). Conversely, the personal involvement of an external CEO is limited to the managerial side of the business, thus excluding entanglements in ownership and family matters. Relatedly, the emotional involvement of a family CEO will also be higher compared to an external CEO (Delgado-García et al., 2022), as her/his identification and attachment to the firm will be stronger (Fang et al., 2021; Naldi et al., 2013). Again, this closer bond of a family CEO to the firm will trigger more concrete construals.

Third, the perceived hypotheticality distance of a family CEO may be lower if measured against the perceived distance of a non-family CEO. As discussed above, a family CEO is likely to have worked and dedicated her/his whole life to the business. It is also possible that s/he knew from childhood that the likelihood of becoming CEO of the FF is very high (Ahrens et al., 2019), especially if s/he is the first-born child (Calabrò et al., 2018; Yu et al., 2020). Moreover, the hypothesis of leaving is often not even an option in the mind of a family CEO. Indeed, research has shown that family CEOs have greater power and authority than their non-family counterparts (Miller et al., 2013; Strike et al., 2015), which also leads to their longer tenure (Brumana et al., 2017; Le Breton-Miller & Miller, 2006). This long tenure in turn consolidates a family CEO's power and authority, creating a self-reinforcing loop that makes the likelihood of dismissal very low (Chen et al., 2013; Keil et al., 2017). Conversely, an external CEO may have considered many job offers and different scenarios, of which joining the specific FF was only one and therefore less likely compared to a family member. In addition, an external CEO knows that the probability of eventually being dismissed is quite high (Gentry et al., 2021; Jenter &

Kanaan, 2015). Overall, this suggests that a family CEO may perceive less psychological distance in the hypotheticality dimension.

In sum, these arguments show how and why a family CEO should feel lower psychological distance toward the firm compared to an external CEO and thus build more concrete construals. These types of construals will make her/him more focused on the firm's day-to-day problems and short-term goals (Wiesenfeld et al., 2017). Coupled with the more risk-averse behavior promoted by concrete construals (Duan et al., 2022), these characteristics could result in a family CEO not being able to take the necessary actions to engage in DPI, thus negatively affecting the firm's DPI. Accordingly, I hypothesize:

H2. *FFs with a family CEO are associated with lower DPI.*

2.6 The Moderating Role of TMT Size

In the previous hypotheses, I focused on the impact that FF owner-managers, such as the controlling family generation and family CEO, exert on DPI through their decisions, which ultimately depends on their risk behavior and goals. However, although the controlling family generation and the (family) CEO lead the DPI decision-making process, this is not only in their hands, but also involves the TMT (Calabrò et al., 2021a; Jin et al., 2017). Put differently, these leading (family) decision-makers must consider the perspectives of TMT members when making DPI decisions and are likely to be influenced by them. Indeed, TMT members are key actors in shaping firm strategy, to the point that the TMT composition and characteristics strongly influence leading (family) decision-makers' positions and in turn, the organizational outcomes (Hambrick, 2007; Zimmerman, 2008). For instance, in the context of FFs, scholars have found that TMT composition directly or indirectly affects financial performance (Calabrò et al., 2021a; Minichilli et al., 2010), entrepreneurial orientation (Sciascia et al., 2013), and innovation (Kraiczy et al., 2014).

In particular, the size of the TMT is a relevant characteristic that affects the decision-making process. Although a larger TMT has at its disposal more capabilities and resources to address strategic issues (Haleblian & Finkelstein, 1993), it faces more difficulties in reaching consensus (Certo et al., 2006), as larger size is associated with greater diversity of TMT members' backgrounds, information, and knowledge sources (Amason & Sapienza, 1997; Kirca et al., 2012; Sanders & Carpenter, 1998). In turn, these differences are likely to manifest in a wider range of construals among TMT members. For example, TMT members are likely to differ in functional background, education, age, and tenure (Zimmerman, 2008). Functional background refers to the business function in which the TMT member has accumulated more experience, and along with education, has been argued to reflect their knowledge and skills (Hambrick & Mason, 1984; Zimmerman, 2008). Similarly, age and tenure infer an individual's perspectives, belief systems, networks, affiliations, and commitment to the status quo (Richard & Shelor, 2002; Zimmerman, 2008). Other sources of heterogeneity that manifest as TMT size increases are likely to be gender and ethnicity, which relate to people's social identity, culture, and prior experience (Calabrò et al., 2021a; Hogg & Terry, 2000). Drawing from construal level theory, prior experience and education may, for instance, shape TMT members' construals in terms of hypotheticality. Indeed, a higher fit between their work experience and education and their role in the firm might increase the likelihood that they will keep working there, thus reducing the hypotheticality distance. As another example, tenure might be related to the personal involvement dimension, as TMT members with longer tenure may be more attached and committed to the firm, therefore their perceived distance in terms of personal involvement will be lower. Finally, as our focus is on FFs, a larger TMT is very likely to include different generations and family and non-family managers (Ceipek et al., 2021; Kraiczy et al., 2014; Sciascia et al., 2013).

Overall, this reasoning highlights that different members are likely to coexist in a larger TMT, each with their own perception of the firm, suggesting different construals among TMT

members. That is, TMT members will have different risk behaviors and goal priorities (Duan et al., 2022; Wiesenfeld et al., 2017). Therefore, later generations' riskier behaviors and long-term goals, that ultimately foster DPI, are likely to be mitigated when they must confront or indulge the more risk-averse and short-term perspectives of some components of a larger TMT. In other words, these mitigating perspectives stemming from a larger TMT may influence their judgment and ultimately reduce their willingness and/or ability to support DPI. Thus:

H3. *A larger TMT negatively moderates (i.e., weakens) the positive relationship between later generations in control of the business and DPI.*

Similarly, I suggest that the variety of construals of a larger TMT may influence the decision-making process of a family CEO. Previously, I argued that the close psychological distance perceived by a family CEO makes her/him more risk-averse and concerned with short-term goals, thus hampering DPI. However, in the presence of a larger TMT, a family CEO is likely to face TMT members who are more risk-inclined and prioritize long-term goals. Accordingly, a family CEO's judgment may be influenced by these perspectives, thereby mitigating her/his negative impact on DPI. Thus, I hypothesize:

H4. *A larger TMT positively moderates (i.e., weakens) the negative relationship between the presence of a family CEO and DPI.*

3. Methods

3.1 Sample and Data Collection

To gain insights and test the relationships proposed in my hypotheses, I constructed a unique longitudinal database of publicly traded firms from the automotive and industrial engineering sectors, operating in North America, Europe, and Southeast Asia. Samples of publicly traded firms have been used extensively in FF research (e.g., Braun & Sharma, 2007; Gomez-Mejia et al., 2003), and because I rely on secondary data, data availability and reliability are higher for

publicly traded firms (Michiels & Molly, 2017; Tsao et al., 2009). I focus on automotive and industrial engineering firms because they are among the industrial-age industries currently undergoing digital transformation (McKinsey & Company, 2019; Svahn et al., 2017), and achieving DPI is therefore an important but risky goal. Moreover, family involvement in ownership and management is common for firms in these sectors (Villalonga & Amit, 2010), as is the tendency to patent their innovative outcomes (WIPO, 2022), which allows me to use patents as a reliable proxy to measure innovation performance. Finally, I focus on firms operating in North America, Europe, and Southeast Asia due to access to richer data in our database.

The starting point for my data collection was the NRG Metrics database, which has been validated in both the management and finance literature (e.g., Delis et al., 2020; Miroshnychenko et al., 2021), and provides data on ownership structure, corporate governance, directors and officers (including family involvement) for over 8.000 publicly traded firms around the world⁵. It also includes information on the generation controlling the firm in case of FFs, the potential presence of a family CEO, and TMT size. I extracted firms belonging to the automotive (subsectors Auto Parts, Automobiles and Tires), and industrial engineering (subsectors Industrial Machinery and Commercial Vehicles & Trucks) sectors that are located in North America (i.e., US and Canada), Europe (i.e., the EU27 countries plus Norway and Switzerland), and Southeast Asia (i.e., India, Indonesia, Japan, Singapore, and South Korea).

For all these firms, I then collected firm-level financial and accounting data from Orbis (Bureau van Dijk), which mainly served as control variables. In some cases, firms were not included in Orbis and therefore excluded. If more than one firm with the same name was registered in Orbis, I checked the country of origin and selected the firm whose country of origin

⁵ NRG Metrics collects data through annual reports generally obtained from the firms and other sources, such as presentations, SEC filings, and press releases. NRG Metrics employs expert analysts to manually enter, review, and crosscheck data with senior analysts who often perform random audits. To ensure high quality data, NRG Metrics has developed a customized software program that traces all the inconsistencies and errors in the data.

matched the NRG database. Since Orbis provides data from 2013 for most of my sample firms, my final sample consists of 364 firms observed over the period 2013–2020 (2501 firm-year observations). The final panel is unbalanced, as I included both active firms and firms that became inactive during the observation period. This also allows me to mitigate survivorship bias (Elton et al., 1996).

Finally, for each firm, I collected granted patent families (PFs) and related bibliographic information (e.g., application year, cited patents, International Patent Codes - IPC) from the Questel Orbit Intelligence FamPat database to measure the dependent variable.

3.2 Variables

Digital product innovation is the dependent variable and is a patent-based measure. Patents have been used in previous studies to capture product innovation (e.g., Dosi et al., 2015), and DPI in particular (Pesch et al., 2021). Specifically, *DPI* is operationalized as the number of digital PFs filed by a firm in year t ⁶. When a patent (family) is granted, it is assigned to a set of IPC codes according to the technological domains to which it belongs. I classify a PF as digital if assigned to an IPC code pertaining to the ICT domain, as defined in the relevant OECD report by Inaba and Squicciarini (2017). This variable is measured with a one-year lag with respect to the independent variables, as I assume that PFs in year t reflect the outcomes of a previous ownership and management structure.

Family firm is a dummy variable coded 1 if the firm is a FF, 0 otherwise. In line with the literature, I classify firms as FFs if the controlling family is involved in both ownership and management (Anderson & Reeb, 2003). Specifically, FFs had to meet two criteria: (1) the controlling family owns at least 20% of the shares (Sekerci et al., 2022; Sraer & Thesmar, 2007; Villalonga & Amit, 2006); and (2) at least one family member is on the board of directors (Tao-

⁶ All the PFs considered have been granted to the firms. Still, I consider the filing-year rather than the grant-year because the former better reflects the period when the DPI was developed. Indeed, the grant-year is subject to the duration of the examination process, which may require several years to be completed. Moreover, firms can use their patents since the filing-year.

Schuchardt et al., 2022; Werner et al., 2018). Since the NRG database also identifies lone-founder firms, I was able to ensure these firms were not classified as FFs in my sample. FFs make up about 17% of my sample (338 firm-year observations), which is in line with the average percentage of prior studies using the NRG database as a starting point (e.g., Dupuis et al., 2021; Miroshnychenko & De Massis, 2022; Miroshnychenko et al., 2021). Worth noting is that the studies using the NRG database and showing higher percentages of FFs use a less strict definition of FFs (e.g., including only ownership criteria and lower share thresholds).

Generation in control refers to the generation that owns the majority of the equity and thus guides the FF (Gu et al., 2019; Kraiczy et al., 2015; Ling & Kellermanns, 2010). Of the firms in my sample, 53% are controlled by the first generation, 20% by the second generation, 11% by the third generation, and 16% by the fourth generation.

Family CEO is a dummy variable equal to 1 if the CEO position is held by a member of the controlling family, 0 otherwise.

TMT size is my moderating variable operationalized as the number of members of the TMT.

Control variables. To improve reliability, I included several control variables that may affect DPI. I controlled for *Firm age*, calculated as the number of years since the firm was founded, and *Firm size*, measured as the number of employees (e.g., Beck et al., 2011; Kraiczy et al., 2015). *R&D expenses* represent the firm's R&D expenditures. *Leverage* is measured as total debt to total assets (e.g., Sekerci et al., 2022). *Patent stock*, which reflects the firm's prior knowledge, is calculated as the number of patents granted to the firm in the previous five years (e.g., Decker & Günther, 2017). With the exception of firm age, all these variables are log-transformed. Finally, to account for possible environmental factors, I control for *Industry effects* and *Country effects*. For the latter, I grouped countries into three variables: North America, Europe, and Southeast Asia.

3.3 Model Specification

I used a random effects negative binomial regression model to test my hypotheses. As my independent variable is a non-negative integer count variable that is not normally distributed, the Poisson or negative binomial longitudinal econometric approach are appropriate. Because my dependent variable is overdispersed (i.e., the mean is lower than its standard deviation), I chose a negative binomial model over the Poisson model because it corrects for overdispersion (Wooldridge, 2012). In addition, I used a random effects model because it allows accounting for time-invariant variables (Wooldridge, 2012).

4. Findings

Table 6 shows the descriptive statistics and pairwise correlations. The correlation values are all below the 0.70 threshold, thus avoiding multicollinearity concerns (Cohen et al., 2014).

Table 6. Descriptive Statistics and Pairwise Correlations

	1	2	3	4	5	6	7	8	9	10
1. DPI	1									
2. Family firm	0.03	1								
3. Generation in control	0.02	0.49*	1							
4. Family CEO	-0.04	0.43*	0.37*	1						
5. TMT size	0.05*	0.12*	-0.00	-0.03	1					
6. Firm age	0.03	-0.09*	-0.02	-0.13*	0.10*	1				
7. Firm size	-0.02	-0.15*	-0.07*	-0.09*	0.07*	0.24*	1			
8. R&D expenses	0.04*	-0.18*	-0.08*	-0.20*	0.08*	0.28*	0.65*	1		
9. Leverage	-0.05*	-0.11*	-0.01	-0.02	-0.26*	0.02	-0.01	-0.01	1	
10. Patent stock	0.29*	-0.12*	-0.09*	-0.13*	0.10*	0.28*	0.57*	0.55*	-0.10*	1
11. Industry effects	incl.	incl.	incl.	incl.	incl.	incl.	incl.	incl.	incl.	incl.
12. Country effects	incl.	incl.	incl.	incl.	incl.	incl.	incl.	incl.	incl.	incl.
Mean	12.49	0.17	1.80	0.08	1.82	87.20	8.51	8.57	0.32	4.03
S.D.	78.41	0.34	1.05	0.27	1.75	47.21	1.97	4.57	0.46	2.97

* $p < 0.05$

Mean and S.D. values for Generation in control refer to the subsample of family firms.

Table 7 presents the results of the negative binomial regression. I use partial models to present the results. Model 1 includes the control variables and the moderating variable, and Model 2 includes the *Family firm* variable to allow comparing family and non-family firms. The subsequent models are estimated on the subsample of FFs. Model 3 includes the control

variables and the moderating variable. Models 4 and 5 include the independent variables *Generation in control* and *Family CEO*, respectively.

Table 7. Results of the Negative Binomial Regression

Model	Step 1		Step 2					
	1	2	3	4	5	6	7	8
Family firm (BH)		0.450 (0.013) [0.029]						
Generation in control (H1)				0.475 (0.036) [0.227]		1.171 (0.001) [0.338]		1.477 (0.000) [0.385]
Family CEO (H2)					-1.199 (0.018) [0.507]		-1.990 (0.006) [0.722]	-1.881 (0.001) [0.586]
Gen. in control x TMT size (H3)						-0.212 (0.009) [0.081]		-0.262 (0.004) [0.091]
Family CEO x TMT size (H4)							0.316 (0.088) [0.185]	0.220 (0.198) [0.171]
TMT size	0.011 (0.697) [0.029]	0.008 (0.789) [0.029]	0.064 (0.418) [0.079]	0.076 (0.325) [0.077]	0.045 (0.579) [0.080]	0.533 (0.006) [0.195]	0.031 (0.710) [0.084]	0.599 (0.004) [0.210]
Firm age	-0.002 (0.124) [0.001]	-0.002 (0.165) [0.001]	-0.007 (0.146) [0.005]	-0.011 (0.041) [0.005]	-0.008 (0.092) [0.005]	-0.013 (0.016) [0.005]	-0.008 (0.099) [0.005]	-0.014 (0.009) [0.005]
Firm size	0.032 (0.666) [0.028]	0.011 (0.721) [0.030]	-0.151 (0.133) [0.100]	-0.205 (0.038) [0.099]	-0.076 (0.474) [0.106]	-0.228 (0.018) [0.096]	-0.051 (0.632) [0.107]	-0.122 (0.221) [0.100]
R&D expenses	0.011 (0.493) [0.016]	0.017 (0.294) [0.016]	0.017 (0.715) [0.046]	0.039 (0.347) [0.044]	-0.050 (0.343) [0.052]	0.064 (0.134) [0.043]	-0.070 (0.175) [0.052]	-0.016 (0.675) [0.039]
Leverage	-0.182 (0.218) [0.147]	-0.158 (0.283) [0.148]	-0.342 (0.665) [0.792]	-0.776 (0.336) [0.808]	-0.369 (0.650) [0.813]	-1.369 (0.109) [0.854]	-0.416 (0.620) [0.839]	-1.950 (0.045) [0.974]
Patent stock	0.683 (0.000) [0.029]	0.700 (0.000) [0.030]	0.754 (0.000) [0.101]	0.698 (0.000) [0.100]	0.753 (0.000) [0.100]	0.702 (0.000) [0.099]	0.747 (0.000) [0.101]	0.716 (0.000) [0.096]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-5.564 (0.000) [0.311]	-5.586 (0.000) [0.315]	-3.221 (0.025) [1.435]	-3.191 (0.017) [1.334]	-2.832 (0.063) [1.525]	-4.567 (0.002) [1.475]	-2.651 (0.095) [1.587]	-4.606 (0.006) [1.675]
Wald chi2	647.34 (0.000)	635.97 (0.000)	101.69 (0.000)	116.45 (0.000)	107.76 (0.000)	130.11 (0.000)	105.43 (0.000)	137.24 (0.000)
Log likelihood	-3044.6	-3041.7	-249.6	-247.4	-246.5	-243.9	-245.2	-283.1

This table shows the coefficients of the regression models with the p-values parentheses and standard errors in brackets below the coefficients. From Model 3 and onwards, the analyses are performed on the subsample of family firms.

Models 6 and 7 include the interaction terms between the moderating variable and *Generation in control* and *Family CEO*, respectively. Finally, Model 8 is the full model and includes all the variables.

In Model 1, the coefficient of *Patent stock* is positive and significant ($\beta = 0.683, p < 0.001$), indicating that the firm's prior knowledge stock positively affects DPI.

My baseline hypothesis aims to confirm that FFs outperform non-family firms in the development of DPI. In Model 2, the regression coefficient of the *Family firm* variable is positive and statistically significant ($\beta = 0.450, p < 0.05$), thus supporting the baseline hypothesis.

H1 predicts that FFs controlled by later generations will be associated with higher DPI. Model 4 provides empirical support for H1, as the coefficient of *Generation in control* is positive and statistically significant ($\beta = 0.475, p < 0.05$).

H2 proposes that the presence of a family CEO has a negative effect on DPI compared to FFs where the CEO position is held by a non-family member. In Model 5, the regression coefficient of *Family CEO* is negative and statistically significant ($\beta = -1.199, p < 0.05$). Thus, H2 is also supported.

H3 posits that a larger TMT negatively moderates (i.e., weakens) the positive effect of later generations in control on DPI. Model 6 provides empirical support for H3, as the interaction term between *Generation in control* and *TMT size* is negative and statistically significant ($\beta = -0.212, p < 0.01$). To better interpret the moderating effect, I also plotted the average marginal effect of *Generation in control* on DPI against *TMT size* in Figure 3. As this marginal effect decreases with increasing *TMT size*, the moderating effect is confirmed.

H4 predicts that a larger TMT positively moderates (i.e., weakens) the negative effect of a family CEO on DPI. Since in Model 7 the interaction term between *Family CEO* and *TMT size* is positive but not statistically significant ($\beta = 0.316, p = 0.088$), H4 is not supported, although the sign is in line with our prediction.

Finally, the full Model 8 shows similar results, namely H1, H2, and H3 are supported, while H4 is rejected.

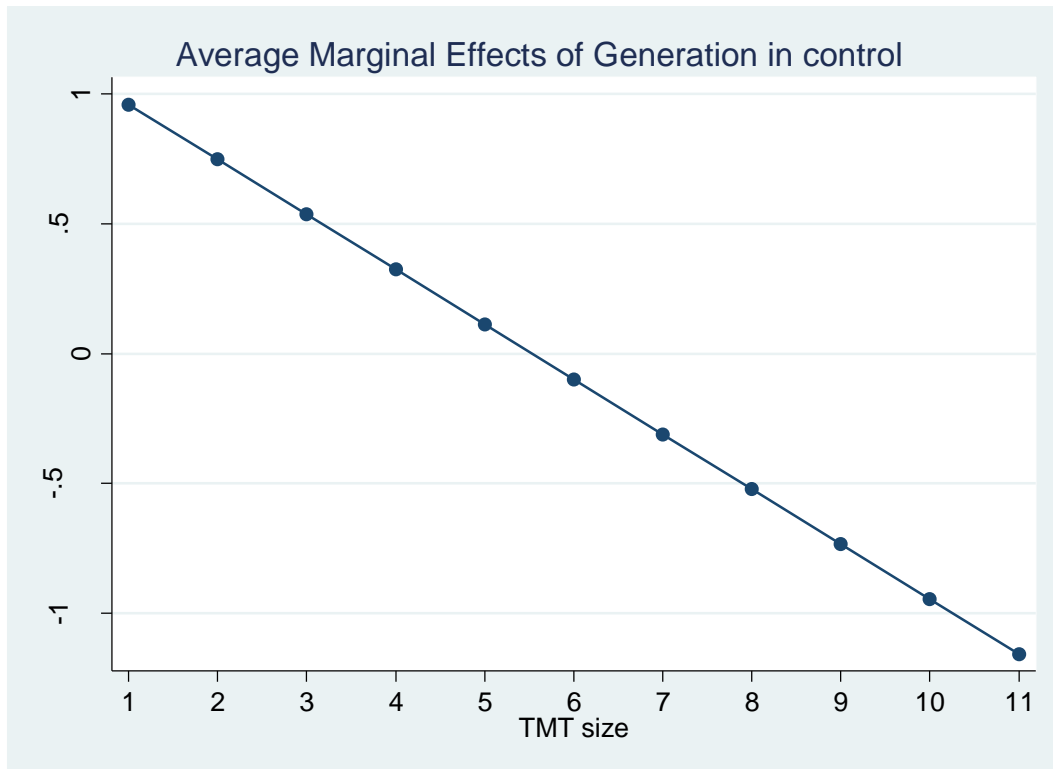


Figure 3. Moderating effect of TMT size on the relationship between Generation in control and DPI.

4.1 Robustness Tests

To ensure the reliability of my main findings, I conducted a series of robustness tests reported in Table 8. First, I tested my results by using different FF definitions. Following prior research, I considered different thresholds of shares owned by the family to classify a firm as a FF, namely 5% and 10% (Chrisman & Patel, 2012; Gomez-Mejia et al., 2010). The results in respectively Models 9 and 10 support my main findings: H1, H2, and H3 are supported, while H4 is not. Second, I checked my results by considering a 2-year time lag between the independent and the dependent variables. Model 11 provides the results, which are again in line with my main results.

Table 8. Robustness Tests

Model	9	10	11	12	13
Generation in control	1.033 (0.002) [0.337]	1.154 (0.001) [0.345]	1.596 (0.000) [0.375]	0.023 (0.007) [0.009]	0.027 (0.000) [0.007]
Family CEO	-1.892 (0.001) [0.593]	-1.920 (0.001) [0.594]	-1.624 (0.025) [0.727]	-0.019 (0.037) [0.009]	-0.015 (0.094) [0.009]
Generation in control x TMT size	-0.196 (0.018) [0.083]	-0.208 (0.015) [0.086]	-0.297 (0.000) [0.085]	-0.005 (0.054) [0.003]	-0.006 (0.002) [0.002]
Family CEO x TMT size	0.215 (0.208) [0.171]	0.231 (0.179) [0.172]	0.114 (0.541) [0.186]	0.002 (0.519) [0.003]	0.001 (0.864) [0.003]
TMT size	0.386 (0.060) [0.205]	0.433 (0.033) [0.203]	0.863 (0.000) [0.194]	0.007 (0.209) [0.006]	0.013 (0.007) [0.005]
Firm age	-0.008 (0.067) [0.005]	-0.011 (0.021) [0.005]	-0.021 (0.001) [0.007]	-0.000 (0.024) [0.000]	-0.000 (0.009) [0.000]
Firm size	-0.046 (0.610) [0.089]	-0.073 (0.431) [0.092]	-0.228 (0.031) [0.106]	-0.009 (0.013) [0.003]	-0.009 (0.001) [0.003]
R&D expenses	-0.024 (0.526) [0.038]	-0.017 (0.647) [0.038]	-0.031 (0.538) [0.051]	0.001 (0.359) [0.001]	-0.001 (0.419) [0.001]
Leverage	-1.950 (0.011) [0.766]	-2.332 (0.006) [0.848]	-1.160 (0.246) [1.000]	-0.015 (0.393) [0.017]	-0.019 (0.217) [0.016]
Patent stock	0.896 (0.000) [0.090]	0.793 (0.000) [0.091]	0.547 (0.000) [0.091]	0.014 (0.000) [0.003]	0.014 (0.000) [0.002]
Industry effects	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	Yes
Constant	-5.929 (0.000) [1.268]	-5.620 (0.000) [1.362]	-3.101 (0.050) [1.579]	0.043 (0.201) [0.034]	0.050 (0.066) [0.027]
Wald chi2	178.18 (0.000)	151.14 (0.000)	137.48 (0.000)	52.05 (0.000)	69.54 (0.000)
Log likelihood	-290.5	-269.9	-217.24	598.7	601.0

This table shows the coefficients of the regression models with the *p*-values in parentheses and standard errors in brackets below the coefficients. The analyses are performed on the subsample of family firms.

Third, I tested the robustness of our DPI measure by adopting a different operationalization. Specifically, instead of the number of digital PFs filed by a firm in year *t*, I considered the ratio between this number and the total number of PFs filed by the same firm in year *t* (digital plus non-digital). I tested this alternative measure with a 1-year and 2-year lag in Models 12 and 13, respectively. To perform this test, I ran a Tobit regression model, as the dependent variable is

censored and limited (Long, 1997). Model 12 supports my main findings, although H3 slightly loses significance ($\beta = -0.005, p = 0.054$). Model 13 is in line with my main findings, although H2 slightly loses significance ($\beta = -0.015, p = 0.094$). Finally, I performed a series of likelihood-ratio tests on my main results (i.e., from Model 1 to 8). By comparing each model with the respective nested model, the likelihood-ratio tests show that there is statistically significant improvement in every case, except when comparing Model 7 over Model 5 which is however in line with H4 not being supported.

5. Discussion, Future Research Directions, and Conclusions

As a first step in this study, I examined whether FFs develop more DPI than non-family firms using a sample of 364 firms in the automotive and industrial engineering industries observed from 2013 to 2020. Consistently with prior studies on digital business model innovation, I find that FFs outperform their non-family counterparts with respect to DPI. As a second step, I focused on the subsample of FFs and found (as hypothesized) that later generations in control of the firm positively influence DPI, while a family CEO hampers DPI. Finally, I find that a larger TMT weakens the positive relationship between later generations in control and DPI (as expected), but do not find empirical support for my last hypothesis predicting that a larger TMT has a positive moderating effect on the relationship between family CEO and DPI.

5.1 Theoretical Contributions

This study makes several contributions. First, I add to the literature on FF digital innovation. By focusing on DPI, I extend the findings of prior studies limited to digital business model innovation (Soluk et al., 2021; Xie et al., 2022), confirming that FFs outperform non-family firms also with regard to DPI. In so doing, I help overcome the idea that FFs struggle with innovations based on technologies that may constitute a discontinuity (König et al., 2013). Building on the literature, I attribute this finding to the idiosyncrasies induced by family

involvement in ownership and management, such as a higher degree of control and decision autonomy, which allows for more flexible decision-making and more efficient use of resources, long-term and trust-based relationships with external stakeholders, and high engagement and commitment of family and non-family employees.

Most importantly, I provide a first attempt to account for the heterogeneity of FFs (Chua et al., 2012; Daspit et al., 2021) when examining their DPI. The family generation in control and the presence of a family CEO are two sources of heterogeneity among FFs that have long attracted scholarly attention (e.g., Beck et al., 2011; Naldi et al., 2013), but still puzzle researchers in terms of their effect on FF innovation outcomes (e.g., Hillebrand et al., 2020; Zybura et al., 2021). To explain how different generations in control and the CEO type affect DPI, I rely on construal level theory (Trope & Liberman, 2010), which has recently been highlighted as relevant for making sense of diverse family owner-managers' decisions and the resulting outcomes (Kammerlander & Breugst, 2019). Specifically, I argue that later generations will perceive greater psychological distance to, and thus more abstract construals of, the firm. Higher levels of abstractness will induce riskier behavior and a focus on long-term goals, thereby favoring DPI. Conversely, I argue that family CEOs perceive less psychological distance toward the firm compared to external CEOs, which makes them more risk-averse and concerned with short-term goals, thus constraining DPI. I believe that compared to conventional management theories in family business research (e.g., agency, stewardship, social capital theories), construal level theory may provide a more comprehensive understanding of the heterogeneous perceptions that different family owner-managers have of the FF and how these perceptions shape their goals, decisions, and behaviors. Accordingly, I strongly encourage FF scholars to draw on construal level theory in future studies.

I also contribute to FF research in general with this first attempt – to the best of my knowledge – to use construal level theory as the theoretical underpinning of an empirical study in the family business context. By showing that the heterogeneous construals of family owner-

managers induce different risk behaviors and goal time horizons, I enrich the debate on this topic. Indeed, I go beyond the picture that depicts family owner-managers as risk-averse due to their willingness to preserve socioemotional wealth (Gomez-Mejia et al., 2007, 2014), and provide a new theoretical lens for understanding their risk behavior. Similarly, I offer an alternative to the *a priori* assumption that family owners-managers prioritize long-term goals (Le Breton-Miller & Miller, 2006; Lumpkin & Brigham, 2011) by arguing that if they perceive the firm more concretely, they may also be more concerned about short-term goals. Although I show that more abstract construals are associated with higher DPI, I do not claim that more abstract construals are beneficial or superior in every situation. For example, there may be turbulent market or institutional conditions in which a more cautious approach to investing (i.e., more concrete construals) may be preferable. This line of reasoning raises questions about how construals can be actively shaped and/or whether or how they can change over time. These questions resonate with research on transgenerational entrepreneurship (Habbershon et al., 2010; Jaskiewicz et al., 2015), which seeks to understand how some FFs are able to maintain their entrepreneurial spirit across generations, since construals might be antecedents of these entrepreneurial actions. Furthermore, construal level theory could inform research on FF conflict and cohesion (Bettinelli et al., 2022), as each family member builds her/his construal egocentrically, but they ultimately need to confer and agree to make decisions.

In addition, I contribute to construal level theory. The psychological literature agrees that all psychological distance dimensions can contribute equally and simultaneously to people's construals (Trope & Liberman, 2010). However, prior studies have mainly focused on one dimension at a time (e.g., Förster et al., 2004; Fujita et al., 2006; Wakslak et al., 2006). Conversely, I apply construal level theory in the family business context, where different dimensions of psychological distance coexist, and as I argue in the hypotheses, concur in building family owner-managers' construals. In this sense, FFs may represent a viable setting for applying construal level theory and exploring how different psychological distances may

interact and how they may be managed. In turn, these insights could shed light on how individuals integrate multiple competing goals and ultimately make decisions. Moreover, prior studies applying construal level theory are mainly based on student samples and hypothetical decision-making tasks. Although these studies have been “invaluable to understanding causal relationships between forms of distance and mental construal, they are also limited in their complexity” (Kammerlander & Breugst, 2019, p. 230). Accordingly, I seek to theorize how construals may in turn affect more concrete managerial decisions and firm performance.

I also contribute to digital innovation research (Yoo et al., 2010; 2012; Nambisan, 2017; Nambisan et al., 2017). This literature stream is very broad and has attempted to shed light on digital innovation activities, the role of the external competitive environment, the internal organizational environment, and digital innovation product, service, and process outcomes (Kohli & Melville, 2019). In contrast to studies that mainly focus on the consequences of digital innovation (e.g., Cappa et al., 2021; Hanelt et al., 2021), I add to this debate by considering the presence of different FF owner-managers as a potential antecedent of DPI. As the literature on digital transformation highlights the key role of the firm’s management structure and the need to frame digital innovation as a strategic initiative (Pesch et al., 2021; Vial, 2019), I shed light on the impact of family involvement in ownership and management and TMT size on DPI.

Finally, I contribute to the TMT literature (Hambrick, 2007; Jin et al., 2017; Steinbach et al., 2019). According to prior studies, a larger TMT is a double-edged sword. On the positive side, it brings a wider range of perspectives to the decision-making process, while on the negative side, it makes it more difficult to coordinate ideas in the final decision (Certo et al., 2006; Halebian & Finkelstein, 1993). In this study, I go beyond the notion that the only drawback of a larger TMT is the coordination problem by arguing and showing that the greater diversity of perspectives is not *per se* beneficial. Indeed, I argue that FF controlling generations and CEOs will take into account the opinions of TMT members and modify their beliefs. Accordingly, if the FF is controlled by later generations, which are more inclined to engage in

DPI, a larger TMT with more top managers who fear the challenges of digital innovation is likely to influence the judgment of later generations and retain their positive attitude toward DPI, ultimately harming the firm's DPI.

5.2 Implications for Practice

My work also has practical implications. First, my results show that FFs in industrial-age industries can develop more DPIs than non-family firms. This evidence informs family owner-managers about the strengths of their firm and should thus encourage and help them overcome their reluctance to embark on digital innovation projects. Second, this study reveals that more DPIs are developed when later generations control the family business. Accordingly, family owner-managers may want to cede control to the next generations if the circumstances allow them to do so. If this is not possible, they should involve and trust the next generations in the decision-making process, especially with regard to digital innovation. Third, I find that a family CEO is detrimental to DPI. Therefore, FFs wanting to excel in DPI should recognize this limitation and consider hiring an external CEO. As an alternative, they might consider appointing a non-family Chief Digital Officer and giving her/him as much power as possible over digital innovation projects. In this way, they could overcome, or at least mitigate, the constraints posed by the presence of a family CEO. Fourth, I find that the positive effect of later generations on DPI diminishes with larger TMTs. I theorize that this effect is due to the higher likelihood of having top managers who fear the risks of digital innovation. Accordingly, I inform later generations family owner-managers that a smaller TMT may be better suited to pursue DPI. Finally, I draw on construal level theory to explain family owner-managers' risk behavior and goal time horizon, and ultimately their decision-making. Family owner-managers and FFs' advisors may wish to consider the construal perspective when designing interventions to improve the strategic decision-making process.

5.3 Limitations and Future Research

My work is not without limitations that may provide opportunities for future research. First, my sample is limited to automotive and industrial engineering sectors. Although these sectors are theoretically sound for my research design as I was interested in industrial-age industries where DPI is particularly risky, and prior studies have also acknowledged their relevance to DPI (e.g., Svahn et al., 2017), future research could test the robustness of my findings in different industries. Similarly, although my sample is international, I focus on digitally developed countries. Therefore, it may be interesting to test whether my findings hold in other geographical settings with different institutional contexts and different levels of development and diffusion of digital technologies (Autio et al., 2014; OECD, 2016; Wright et al., 2014).

Second, I rely on patent data to measure DPI. Although prior research has extensively used patent-based measures, including for DPI (e.g., Pesch et al., 2021), they may be imperfect proxies of innovation. Indeed, not all inventions are patentable, and firms may prefer other mechanisms to protect the results of their innovation activities (OECD, 2009). Accordingly, future studies may want to use different non-patent-based measures, such as those relying on survey methods.

Third, since in this study I only theorized about the different psychological distances perceived by different family owner-managers, future studies could delve deeper into these distances and how people build their construals through surveys, vignette studies, or qualitative methods (e.g., Liu et al., 2020; Tumasjan et al., 2013).

Finally, although the FF digital innovation literature is growing rapidly (e.g., Soluk, 2022; Soluk et al., 2021; Xie et al., 2022), our knowledge on the topic is still limited, especially regarding specific family-related drivers and constraints toward digital innovation (Soluk & Kammerlander, 2021). Qualitative studies could improve our understanding of these phenomena.

5.4 Conclusions

Digital innovation in FFs is particularly relevant due to the global importance of these organizations and the impact of digital technologies on all types of business activities. My study shows that FFs can exploit the opportunities that digital technologies offer to develop DPIs, even more so than non-family firms. Moreover, drawing on construal level theory, I argue and find that FFs controlled by later generations are associated with higher DPI, while the presence of a family CEO is detrimental to DPI. In so doing, I hope to stimulate scholars to address the topic of digital innovation in FFs and consider this relatively novel theoretical lens to make sense of their empirical investigations.

Chapter 3

A Knowledge-based Perspective on Transgenerational Entrepreneurship: Unveiling Knowledge Dynamics across Generations in Family Firms

Abstract

Given the limited understanding of the process of transgenerational entrepreneurship and that knowledge is a fundamental antecedent of entrepreneurial endeavors, this study aims at shedding light on how entrepreneurial families nurture entrepreneurship across generations, which knowledge is required within the entrepreneurial family to spur new entrepreneurial activities, and how is this knowledge acquired. Considering the paucity of empirical evidence on the topic under investigation and the related exploratory nature of my study, I adopted a qualitative approach by conducting a case study on an Italian wine-making family business. The case analysis reveals that entrepreneurial family members are required to acquire different types of knowledge at different generational stages in order to spur new entrepreneurial activities, specifically technical knowledge in the second generation and business knowledge in the third generation. Moreover, the data analysis shows two mechanisms, namely trust among generations and role separation, that, during both generational transitions, enabled and empowered the younger generations to exploit their knowledge to explore entrepreneurial opportunities and engage in new entrepreneurial activities. This study provides novel insights into the role of knowledge in transgenerational entrepreneurship, particularly looking at knowledge acquired by entrepreneurial family members across generations. Accordingly, this

research contributes to the literature streams of transgenerational entrepreneurship, knowledge management in family businesses, and broader knowledge management research.

Keywords: transgenerational entrepreneurship, knowledge management, entrepreneurial families, family business, family firm

1. Introduction

‘From shirtsleeves to shirtsleeves in three generations’. This is, unfortunately, a popular expression that describes what happens to roughly 90% of family businesses, namely they fail under the control of the third generation or even the second one (Ward, 1987; Porfírio et al., 2020; Gagné et al., 2021). This statistic is a huge problem considering that family businesses contribute to 80% of global GDP and create 50–80% of jobs in the majority of countries (De Massis et al., 2018). Moreover, the survival of the business *per se* is not a successful outcome for the entrepreneurial family (EF)⁷. Indeed, the EF needs to carry out repeated acts of entrepreneurship in order to grow the business and prosper across generations (Jaskiewicz et al., 2015; Minola et al., 2016). Stated differently, the EF needs to engage in transgenerational entrepreneurship, that is using and developing entrepreneurial mindsets, family influenced capabilities, and resources to create new streams of entrepreneurial, financial, and social value across generations (Habbershon et al., 2010). Despite the well-known relevance of this issue, this process and the required resources have yet to be fully understood. Prior studies have investigated different facets of transgenerational entrepreneurship such as family entrepreneurial orientations (Zellweger et al., 2012b), innovation motives (Diaz-Moriana et al., 2020), venturing motives (Riar et al., 2022) and practices (Ramírez-Pasillas et al., 2021), business model evolution (Clinton et al., 2018), and cultural contexts (Basco et al., 2019; Eze et al., 2021).

⁷ I refer to an EF as a social unit composed of different members of a family that owns and/or manages one or more family businesses and intends to continue behaving entrepreneurially over time (Discua Cruz et al., 2021)

However, prior research has devoted little attention to the role that knowledge, as a resource, can play in transgenerational entrepreneurship, namely what knowledge is required within the EF across generations and how it is acquired to sustain the business development and spur new entrepreneurial activities. This is important because knowledge is a fundamental antecedent of innovative and entrepreneurial endeavors (Del Giudice & Della Peruta, 2016; Ganguly et al., 2019) as well as an element of the transgenerational entrepreneurship framework (Habbershon et al., 2010). I do not mean that family business research has completely been silent on the topic of knowledge management. Nevertheless, scholars mainly focused on knowledge sharing (e.g., Botero et al., 2021), showing, for example, how values and cognitive heuristics transferred across generations are applied in new entrepreneurial settings (Dou et al., 2021) or the mechanism through which knowledge is integrated and recombined among family members to innovate (Chirico & Salvato, 2008; 2016). The few studies that have investigated knowledge acquisition have focused on knowledge sources external to the EF (Randolph et al., 2019), such as employees or other firms (Casprini et al., 2017), hence overlooking the role of next generations, who may acquire different knowledge and contribute to new entrepreneurial activities (Ge & Campopiano, 2021; Woodfield & Husted, 2017). I strongly believe that looking at this phenomenon may be crucial, since in family businesses, especially in the earlier generations, the members of the EF are the main source of knowledge acquisition and drive new entrepreneurial initiatives (Querbach et al., 2021). Moreover, neglecting that different types of knowledge can differently affect entrepreneurial outcomes may result in a limited understanding of this phenomenon (Burgers et al., 2008; Deligianni et al., 2015; Sullivan & Marvel, 2011).

Therefore, to address these research gaps, I pose the following questions: *How do EFs nurture entrepreneurship across generations? Which knowledge is required within the EF to stay entrepreneurial across generations, and how is it acquired?* To answer these questions, I conducted an in-depth case study on an Italian family business, namely Rivera SpA, operating in the wine industry. The EF who controls Rivera SpA remained entrepreneurial and kept growing

their business across generations. My findings allow me to develop four propositions. I propose that the acquisition of different types of knowledge is needed to support new entrepreneurial activities during the earlier generations. Specifically, it is important that the second generation acquires technical knowledge related to the industry in which the EF operates, such as raw materials, products, processes, and technologies that are industry-specific (enological knowledge in our case). Conversely, the third generation needs to acquire broader business knowledge, that is more independent from the industry context, such as management or marketing skills and experience. Nevertheless, not everything needs to change across generations. My study also reveals two common contingency factors during both succession processes, i.e., trust among generations and role separation. These factors enabled the next generations to exploit the knowledge acquired to pursue new entrepreneurial opportunities.

My research thus makes relevant contributions. First, I contribute to transgenerational entrepreneurship (Habbershon et al., 2010; Jaskiewicz et al., 2015) by looking at knowledge within the EF as an antecedent of new entrepreneurial activities across generations. In addition, I show two mechanisms that empowered next generations during the generational transition phases, involving both the family system (i.e., trust among generations) and the business system (i.e., role separation). Second, I contribute to the literature on knowledge management in family businesses and EFs (Su & Daspit, 2021; Arzubiaga et al., 2022) by extending the predominant focus on knowledge sharing (e.g., Botero et al., 2021; Woodfield & Husted, 2017) by rather looking at knowledge acquisition and highlighting the role of next generations as a source of knowledge acquisition. In addition, I show how different types of knowledge are needed at different generational stages to spur new entrepreneurial activities. Third, I contribute to the broader literature on knowledge management (Del Giudice & Della Peruta, 2016; Ganguly et al., 2019) by distinguishing between technical and business knowledge and, by looking at knowledge acquisition and exploitation over time, I highlight an evolutionary relationship between different types of knowledge and new entrepreneurial activities (Balland et al., 2016;

Deligianni et al., 2015). In this vein, I extend prior research tending to address various knowledge types separately (e.g., Clarysse et al., 2011; Fu, 2012) or examining knowledge and its effects at a specific point in time, thus overlooking how knowledge may develop over time (e.g., Yli-Renko et al., 2001). Moreover, showing that different types of knowledge may be required as firm ages, as generational stages are often strictly related to family firms' age (e.g., Fernández & Nieto, 2005; Forcadell et al., 2018), I add to prior studies that have investigated the interplay of a firm knowledge base and firm age (e.g., Gopalakrishnan & Bierly, 2006; Messeni Petruzzelli et al., 2018).

The paper is structured as it follows. The next section reviews the literatures about transgenerational entrepreneurship and knowledge management in family business, hence presenting the theoretical background of this study. Then, I explain my research methodology and describe the setting of the case study. Finally, I present my findings and discuss them in order to open future lines of inquiry.

2. Theoretical framework

2.1 Transgenerational entrepreneurship

Family business scholars have dedicated considerable efforts to understanding how to ensure continuity and a smooth succession, intended as the process in which the control of the business is transferred from the previous generation to the next one (e.g., Gagné et al., 2021; Handler, 1994; Le Breton–Miller et al., 2014; Lee et al., 2003). This great attention stems from the fact that transgenerational control is one of the defining characteristics of family businesses (Chua et al., 1999) as well as one of the most important goals (if not the most important) of an EF (Zellweger et al., 2012a).

However, scholars have more recently acknowledged that a successful transfer of ownership and/or management from one generation to the next does not generate entrepreneurial

value per se and might not be sufficient for EFs to survive and prosper across generations (Jaskiewicz et al., 2015). Indeed, although such transfer is an inevitable process and may be considered a short-term success for the EF, the competitive advantage built by the previous generation will inevitably erode in the long run if the next generation is not able to engage in new acts of entrepreneurship (Nordqvist & Melin, 2010). Moreover, a focus on passing the baton from one generation to the other might be limited as it concentrates on the unique family business and misses bringing the EF into the spotlight as the engine of new entrepreneurial activities (Zellweger et al., 2012b). For instance, such an approach overlooks that EFs may be involved in more than one business, thus requiring researchers to consider their whole entrepreneurial portfolio rather than the single business to assess EFs' entrepreneurial success (Discua Cruz et al., 2021; Riar et al., 2022).

In other words, scholars are more and more emphasizing the need for EFs to engage in transgenerational entrepreneurship (Habbershon et al., 2010; Jaskiewicz et al., 2015), which entails developing and leveraging specific resources and capabilities within the EF to achieve entrepreneurial growth (Rosa, 2019). More specifically, the transgenerational entrepreneurship perspective aims to address the nexus of entrepreneurship theory and family business research (Habbershon et al., 2010) by offering a research framework that combines theorizing and empirically observing the entrepreneurial phenomena that occur within EFs across generations (Ruzzene et al., 2022). Particularly, the key components upon which the transgenerational entrepreneurship research framework is built comprise the focus on the EF rather than the business, the specific attention to the family's entrepreneurial mindset and influence on resource stocks and usage as means to generate entrepreneurial value across generations, and contextual factors like industry, community culture, family life stage and family involvement (Habbershon et al., 2010; Zellweger et al., 2012b).

Prior research has highlighted some of the factors that may foster transgenerational entrepreneurship, such as entrepreneurial legacies, conceived as rhetorical reconstructions of a

family's past entrepreneurial achievements or resilience (Jaskiewicz et al., 2015), family entrepreneurial orientation, a construct aimed at measuring the attitudes and mindsets of EFs to engage in entrepreneurial activities (Zellweger et al., 2012b), and even metaphors, as a medium for a shared understanding of entrepreneurial opportunities within the EF that gives a sense of confidence and stability when approaching risky venturing activities (Discua Cruz et al., 2021). Similarly, next generations may launch new ventures inspired by different reasons and follow different routes, which in turn lead to internal or external ventures with respect to the family business, depending on how much support the next generations seek from the EF, their emotional attachment to the business and, finally, their transgenerational intentions (Ramírez-Pasillas et al., 2021; Riar et al., 2022).

Despite these notable attempts, our understanding of why only some EFs are able to engage in transgenerational entrepreneurship and how this process unfolds is still limited. In particular, so far, very few studies have dealt with the impact that knowledge management can have on the EF's entrepreneurial activities across generations (Clinton et al., 2021; Dou et al., 2021; Woodfield & Husted, 2017). Digging deeper into this phenomenon is relevant because knowledge is one of the key elements of the transgenerational entrepreneurship framework (Habbershon et al., 2010) and has been proven to be a fundamental resource to spur new entrepreneurial activities (Del Giudice & Della Peruta, 2016; Ganguly et al., 2019). In the next section, I highlight the peculiarities of knowledge management in family businesses and EFs, and then bridge this stream of literature with transgenerational entrepreneurship.

2.2 Knowledge management in family businesses and EFs across generations

Stemming from the broader resource-based view (Barney, 1991), the knowledge-based view of the firm has depicted knowledge as a key resource to obtain a competitive advantage and create value (Grant, 1996). More importantly, knowledge does not generate value per se but rather needs to be properly managed and exploited in order to build a competitive advantage (Barney,

1991). Accordingly, knowledge management – i.e., the process through which knowledge is created, acquired, stored, shared, and applied (Alavi & Leidner, 2001; Lee et al., 2012) – has received a lot of attention from prior research, for instance for its impact on innovation, internationalization, financial performances, and growth (Darroch & McNaughton, 2002; Deligianni et al., 2015; Fang et al., 2018; Gu et al., 2017; Martinez-Conesa et al., 2017). In addition, knowledge management has been showed to impact not only firm-level outcomes but also lower-level ones, such as task productivity or new business development projects (Burgers et al., 2008; Haas & Hansen, 2007). More specifically, the knowledge management literature has recognized that knowledge is a multifaceted and multidimensional construct, thus highlighting the importance of considering different types of knowledge for gaining a deeper and more nuanced understanding of firm outcomes (Hilmersson, 2014; Jakubik, 2007; Sullivan & Marvel, 2011). For instance, research interested in knowledge sharing has developed an important debate around the distinction between codified and tacit knowledge, where the first refers to knowledge that can be articulated in written documents while the second refers to knowledge that cannot be explicitly expressed and is mainly developed over time through social interactions (Fu, 2012; Haas & Hansen, 2007). Similarly, research centered around knowledge acquisition and application has devoted particular attention to distinguishing between technical knowledge and business knowledge (e.g., Balland et al., 2016; Deligianni et al., 2015). Technical knowledge refers to knowledge associated with products, technologies, and/or processes and is usually associated with a particular industry setting (Burgers et al., 2008; Mayer et al., 2012; Neal, 1995). Business knowledge has also been referred to or related to market knowledge and managerial knowledge, thus entailing knowledge about targeting customer sets, entering markets, marketing approaches, and managerial practices (Balland et al., 2016; Burgers et al., 2008; Fu, 2012).

As for many other business activities, the idiosyncratic governance structure of family businesses gives unique characteristics to knowledge management (Arzubiaga et al., 2022; Su &

Daspit, 2021). For instance, family businesses are unique in their ability to generate tacit knowledge thanks to the long-lasting involvement and longer tenure of EF members (Lee et al., 2003; Sirmon & Hitt, 2003). Similarly, EFs have an unmatched capability to transfer such tacit knowledge among the family members thanks to their close ties (Cunningham et al., 2016; Jaskiewicz et al., 2013), although this may also have some drawbacks, as this ease in internally sharing knowledge may make EFs overlook the opportunities offered by external knowledge exchange (Brinkerink, 2018; Patel & Fiet, 2011). Furthermore, by being deeply rooted in traditions, family businesses are also especially capable of storing old knowledge and then applying it for innovation purposes (De Massis et al., 2016).

As one of the main goals of an EF is transgenerational control and entrepreneurial growth (Zellweger et al., 2012a; 2012b), managing knowledge across generations is of paramount importance (Su & Daspit, 2021). Specifically, from a transgenerational entrepreneurship perspective, it is relevant to understand the role that knowledge can play to spur new entrepreneurial activities across generations. So far, prior research has investigated this phenomenon from different angles. Intergenerational knowledge sharing is probably the topic that received the most attention, and the prevalent view appoints the previous generation as the source of knowledge, while the next one as the recipient (Botero et al., 2021; Ge & Campopiano, 2021). For instance, an effective transmission of the tacit knowledge embedded in the founder toward the successor is deemed to grant a competitive advantage to the business (Cabrera-Suárez et al., 2001) and legitimize the successor as a leader (Cater III & Justis, 2009). Nevertheless, more recent studies have acknowledged that EFs in which the intergenerational knowledge-sharing process is bi-directional can foster more innovations in their businesses (Clinton et al., 2021; Woodfield & Husted, 2017). Fewer studies have examined knowledge creation and acquisition within EFs and family businesses, mainly focusing on external knowledge sources as drivers of corporate entrepreneurship and innovation (Casprini et al., 2017; Randolph et al., 2019), thus leaving unexplored the role of the knowledge internal to the

EF, i.e., the knowledge possessed by the EF members. Finally, to the best of my knowledge, prior research has remained silent on the content of such knowledge.

Overall, by focusing on knowledge sharing rather than acquisition and on external rather than internal knowledge sources, the prior literature tends to overlook how the next generations can enrich the EF's knowledge base and, in turn, how such knowledge can be leveraged to spur new entrepreneurial activities. This is quite surprising since in family businesses, especially those controlled by earlier generations, the learning emphasis rests for the most part on the EF as well as the burden to drive new entrepreneurial activities (Querbach et al., 2021). Accordingly, in the next section, the analysis of my case study aims at advancing our understanding of how EFs act entrepreneurially across generations and, more specifically, unveiling which type of knowledge is required within the EF at different generational stages to support new entrepreneurial activities.

3. Methodology

Considering the paucity of empirical evidence on the topic under investigation and the related exploratory nature of our research questions, I conducted an inductive, qualitative, case study (Eisenhardt, 1989; Myers, 2009; Yin, 1994). The case study is an appropriate research strategy to analyze complex and contemporary phenomena characterized by inexplicit processes, since it “allows investigators to retain the holistic and meaningful characteristics of real-life events” (Yin, 1994, p. 2). I select this case for theoretical and convenience reasons (Eisenhardt, 1989). Moreover, I believe it fits the requirements of motivating our research questions, inspiring theory development, and illustrating our conceptual findings (Siggelkow, 2007). In particular, I conduct an in-depth case study on Rivera SpA (henceforth Rivera), an Italian wine-making family business controlled by the third generation. The EF was able to stay entrepreneurial across generations and kept growing the business.

This choice is adequate to address my research questions for several theoretical reasons. First, Italy, together with France, Germany, and Japan, has the oldest family firms in the world⁸, thus making it well suited to study transgenerational entrepreneurship (Jaskiewicz et al., 2015). In addition, also the prevalence of family businesses in Italy is very high, as recent data estimate that family businesses represent more than 85% of the total⁹. Second, the wine industry is a mature industry that however remains innovative, even in terms of patenting activities (Gusenbauer et al., 2023), and experiences fierce global competition (Johnson & Robinson, 2019; Woodfield & Husted, 2017), hence constantly requiring entrepreneurial initiatives. Specifically, the wine industry in Italy is very well-developed, accounting for almost 1800 wine manufacturers¹⁰. In 2022, with revenues of 20 billion dollars, Italy was the fourth largest market in the wine industry worldwide¹¹ and the second country for export volumes¹². Third, with its relatively high number of family businesses, the wine industry has been identified as a relevant context for family firm research (e.g., Gallucci et al., 2015; Gusenbauer et al., 2023; Kammerlander et al., 2015; Reay et al., 2015; Steen & Welch, 2006) and even specifically for transgenerational entrepreneurship studies (Jaskiewicz et al., 2015; Woodfield & Husted, 2017). Finally, I selected Rivera as I had privileged access to data since I have a close relationship with one member of the EF. This made the EF's members very open and willing to share their experience during the interviews as well as willing to make available to me internal documents.

3.1 Research setting

Founded in the late 1940s by Sebastiano De Corato, Rivera is a wine-making family business (Figure 4) located in the province of Andria (Italy), in the middle of the Apulian region and,

⁸ <https://www.familybusinessmagazine.com/worlds-oldest-family-companies>

⁹ <https://www.aidaf.it/en/aidaf-3/1650-2/>

¹⁰ Istat. (June 21, 2022). Number of enterprises in the manufacture of wine from grapes industry in Italy in 2020. In *Statista*. Available at: <https://www.statista.com/statistics/534845/grape-wine-manufacturers-by-legal-form-italy/>

¹¹ Wine Report 2023. In *Statista*. Available at: <https://www.statista.com/study/48818/wine-report/>

¹² https://www.federvini.it/images/RBS_Report_II_Business_vitivinicolo_in_Italia.pdf

specifically, in a territory particularly famous for its castle built in the XIII century, namely *Castel del Monte* (Figure 5).



Figure 4. Rivera's plant



Figure 5. Castel del Monte, a famous castle built in the XIII century by the emperor Frederick II of Swabia

Sebastiano was very ambitious from the start, as he wanted to create a brand that could stand for the Apulian region in the national wine market. This was quite a challenge as, back

then, the Apulian region was deemed to produce low-quality wines. However, he succeeded thanks to a rosé wine that made Rivera famous throughout all of Italy (see Figure 6).



Figure 6. A frame from the Oscar winning film "La Ciociara" (1960). The actress in the frame is Sophia Loren and, on the table, there is a bottle of the Rivera's rosé wine, highlighted with colours.

Carlo, Sebastiano's son, joined the firm in 1960 and under his leadership the firm has experienced a significant development pattern. In particular, he was responsible for the experimentation of new varieties of grapes and the renewal of the wine cellar, leading to the production of innovative wines for the regional landscape. Although Carlo is still involved, the firm is now mainly controlled by his sons, Sebastiano and Marco, who joined the business in 1999 and 2011, respectively (see Figure 7).



Figure 7. The de Corato family, Carlo, Sebastiano, and Marco (from left to right).

They follow the family's footsteps in growing the firm, as they keep being entrepreneurial by constantly pushing for innovations and evaluating the possibilities of new investments. Nowadays, Rivera's vineyards extend for 75 hectares and are farmed with the most modern techniques, ensuring both sustainable and high-quality production (Figure 8).



Figure 8. One of the Rivera's vineyards

From these vineyards, Rivera produces more than 20 varieties of wines and almost all of these possess the quality assurance label *DOC Castel del Monte*. This is a well-known Italian quality label granted to food products made in specific geographical areas and in this territory the *DOC* is named after the famous castle (*DOC* stands for "denomination of controlled origin"). Finally, in 2022, Rivera has reported revenues of about five million euros, half of them obtained from substantial export activities, as Rivera is active in more than 40 foreign markets, such as the closer Germany, Switzerland, and France, or the more distant Canada, USA, Australia, Russia, China, Japan, and South Korea.

3.2 Data collection

I collected data from April 2022 to December 2022. Although semi-structured interviews with the members of the EF constitute my main source of data, I also collected secondary data such as documentary information and archival records in order to assure triangulation. Indeed, multiple data collection methods strengthen the grounding of theory by triangulation of evidence (Eisenhardt, 1989). Consequently, triangulation of multiple data sources is a primary strategy adopted to improve the reliability of a case study methodology (Ardito et al., 2019; D'Ippolito et al., 2014), thus increasing the quality and the robustness of the findings (Flick et al., 2004; Yin, 1994).

Specifically, I collected primary data in two rounds of face-to-face interviews held at Rivera, thus also allowing me to visit the firm. During each round, I interviewed the three members of the EFs who are currently involved in the management of the business (one member of the second generation and his two sons). The six interviews lasted from 32 to 95 minutes, they were recorded and transcribed, resulting in about 50 single-spaced pages of transcripts. During the interviews, I presented the general aim of the study being careful not making any assumptions regarding the topic to avoid influencing the informants. Then, open-ended questions combined with a narrative interview method allowed the interviewees to talk freely

about the aspects they deemed most relevant and interesting (Eriksson & Kovalainen, 2015). The interview protocol included initial questions about the history of the firm and the education and work experience of the interviewees, then moving toward more specific questions about entrepreneurial activities and the role of the EF members. An example of the questions is reported in the Appendix C. By having multiple highly knowledgeable informants I could also compare and triangulate their answers, hence limiting the issues related to retrospective sensemaking and single-respondent bias (Eisenhardt & Graebner, 2007).

In addition, I collected secondary data from multiple sources. I started by collecting data on the Rivera website, where I collected 33 documents, among articles and press releases. In addition, I collected 12 articles about Rivera and its activities in newspapers and online magazines as well as I accessed six internal documents containing more detailed information and technicalities about products and activities. Overall, the secondary data documents account for 74 pages. Furthermore, I watched and analyzed a total of 37 videos, among which 12 were published on the Rivera YouTube channel, 19 on YouTube channels belonging to local TVs or wine-dedicated channels, and, finally, I found a series of six videos on an entrepreneurship-focused channel in which Sebastiano De Corato speaks about Rivera's entrepreneurial activities and the contemporary status of entrepreneurship in Italy. The videos lasted from 2 to 40 minutes, for a total of 207 minutes. Finally, I analyzed Rivera's social media profiles and the personal LinkedIn profiles of Sebastiano and Marco De Corato since their knowledge, skills, competences, and work experiences are also within the scope of this study. Overall, all these secondary data sources allowed me to track Rivera's entrepreneurial activities over time, such as innovations and market expansions, thereby generating new data and enabling cross-checking of information from other sources (Layder, 1993). All data sources are summarized in Table 9.

Table 9. Data collection details

Data Sources	Details
<i>Interviews</i>	
With Carlo de Corato	First round 93 min, second round 58 min
With Marco de Corato	First round 95 min, second round 67 min
With Sebastiano de Corato	First round 55 min, second round 42 min
<i>Rivera press releases</i>	33 documents
<i>Rivera internal documents</i>	6 documents about products and activities
<i>Newspapers and online magazines</i>	12 articles
<i>Videos</i>	37 videos, lasting from 2 to 40 min, 207 min total
<i>Social Media</i>	Rivera firm's profiles, Marco and Sebastiano de Corato LinkedIn profiles

3.3 Data analysis

To analyze the data, I adopted an inductive approach, deeply informed by the recommendations of Eisenhardt (1989), Miles and Huberman (1984), Myers (2009), Strauss and Corbin (1998), and Yin (1994). The objective of the analysis was to understand how the de Corato family was able to remain entrepreneurial across generations, with particular attention to the role of knowledge and the ways it is acquired and exploited to pursue new entrepreneurial activities. Although I independently assessed the various data sources (Cappa et al., 2022), during the data collection I conducted periodic meetings with my supervisors to share my thoughts and ask for feedbacks, thus overlapping data collection and analysis (Eisenhardt, 1989). In particular, after the first round of interviews, it emerged that the competences and the knowledge of the EF members were key factors for spurring the new entrepreneurial activities. Accordingly, I took advantage of the flexibility of the case study's data collection to deeply explore this phenomenon in the second round of interviews (Eisenhardt, 1989). When I reached theoretical saturation, I continued my analysis by organizing the data along a chronological sequence (Yin, 1994), highlighting the most important entrepreneurial initiatives to reach a comprehensive understanding of the case. Then, I kept analyzing and interpreting the data. From my analysis, I discovered that different types of knowledge were required during different generational stages and that two mechanisms worked during both succession processes in enabling the

entrepreneurial ideas of the next generations. Finally, following Eisenhardt's (1989) suggestions, I conducted a further series of iterations between my data and the literature in order to refine the emerging findings and better ground my arguments in the transgenerational entrepreneurship framework. In the next sections, I extensively present my findings.

4. Findings

My analysis reveals that the De Corato family has maintained an entrepreneurial spirit across generations. At first, I found that both the second and the third generations like recalling stories about the family's and business' past, especially about the founder. These were narrated and imprinted in the next generations by the founder himself, but the members of the third generation also like to teach these stories to their children, who are very young and not involved in the business (yet). These stories usually focus on the founder's strong will and his innovative ideas, especially considering the historical moment in which he started the business, that is in the late 1940s. For instance, Carlo De Corato, the second generation EF member, highlights what was the risky yet successful idea that made Riviera famous throughout all of Italy, differentiating its wines from the other Apulian wines:

The winning intuition was that he [the founder] wanted to demonstrate that Apulian wines were not all blending wines [i.e., low-quality, very alcoholic]. Luckily, in this region, there was one niche grape variety, the "bombino nero", which gave a rosé wine with a lower alcohol content. Exactly the opposite of what traditional Apulian wines were.

Similarly, also the third generation reports the founder's entrepreneurial initiatives, especially underlining the singularity of his idea for that historical moment, in which he wanted to create a brand to provide his wine with a precise identity. Although we could say that such a practice is common now, it was quite a rarity in the 1940s, as clearly stated by Marco De Corato:

He [the founder] used to go to many restaurants in Rome and Milan, but he never found Apulian wines and asked himself “Why? I want Apulian wines to be there too”. He started with the idea of producing high-quality wine with his own brand and bringing it to restaurants’ tables, so it was a really huge ambition. [...] The idea was “I want to create a brand and a logo for the bottles’ tag”. In the 1940s this was not very common, especially in the wine market. So, this is how the business was born, I think an idea like this goes beyond innovation, I don’t know how to define it, but you need to have a lot of self-confidence to do such a thing.

Sebastiano De Corato also recalls a similar story, however focusing more on his grandfather strong will and long-term vision:

After the war, my grandfather was looking for an entrepreneurial idea, he was not satisfied with being a farmer. [...] When he started the business, he already wanted to enter what could be considered foreign markets back then, such as Rome or Milan, and in particular wine bars and restaurants. So that’s how he started, by going to Rome with a car full of wine bottles and knocking at the doors of the best restaurants and wine bars. And you could say it was an immediate success.

In addition, and most importantly, from the interviews emerged that, for the EF members, knowledge – comprising skills and expertise acquired through education or work experience - is very valuable for business development. Marco De Corato even believes that his grandfather's education is responsible for his ability to start the venture:

I think that part of the reason why Rivera was founded is that my grandfather belonged to a wealthy family and, even in 1920s, had the chance to go to the university, in Rome and Milan.

Moreover, the founder strongly encouraged his son, Carlo, to study enology, a behavior that is now praised by both Carlo himself and the third-generation EF members. Similarly, Carlo encouraged both his sons to get a high-level education and gain work experience outside the family business. He is strongly convinced that this is the best way to develop the family business, as the following quote illustrates:

I think that for a family business is very important that young family members go work outside the business for some years, even five or ten years, and then, with no rush, they come back to the business with new ideas. The best is to get experience in similar businesses where you can grasp, steal ideas, and also come up with new ones. For Sebastiano, it was exactly like this. For Marco, the business he worked in was a bit different, but he learned how to manage a business.

More specifically, my findings reveal that different types of knowledge were needed to spur new entrepreneurial activities across generations, i.e., the second-generation EF member required to acquire technical knowledge, while the third-generation EF members required to acquire business knowledge. In the next sections, I define these different types of knowledge and explain how they helped the EF members in pursuing their entrepreneurial activities.

4.1 Second generation's technical knowledge

I refer to technical knowledge as knowledge related to a particular industry setting, thus including competences, skills, and experience about raw materials, products, processes, and technologies that are industry-specific (Burgers et al., 2008; Deligianni et al., 2015; Mayer et al., 2012; Neal, 1995). In my particular case, the technical knowledge is mainly represented by the enological knowledge, as the EF operates in the wine industry.

In 1954, Carlo, the EF member of the second generation, left Andria when he was 15 years old to study in Conegliano, in the Veneto region, since there was one of the few agrarian high schools with a specialization in enology. After completing the six-year enology program, he returned to Andria and joined the business in 1960. This is how Carlo acquired his technical knowledge and he strongly believes that choosing to study enology played a critical role for his entrepreneurial activity:

Luckily my father guided me in choosing what we could call technical studies. I think that was good advice from him because I had an education related to the business.

Sebastiano also thinks that this choice, strongly influenced by the founder, was a crucial moment for the EF:

Basically, my grandfather already decided what would be the path of the family, that is specializing in this business activity.

Some prime examples of how the acquisition of such technical knowledge constantly enabled Carlo to think about and consider new entrepreneurial ideas were recalled by all the interviewees. First, Carlo's technological knowledge sustained a process innovation, as in the 1970s he understood that the wine cellar could be improved, thus deciding to renew it by installing the most recent technologies at that moment. Indeed, the new wine cellar was made of reinforced concrete and built vertically, which was very innovative for that historical moment. In addition, a refrigerating system was introduced to better control alcoholic fermentation, hence keeping the temperature under a certain threshold and preserving the flavorings of the wine.

Second, in the early 1980s, Carlo promoted many product innovations. Until that moment, up to 70% of Rivera's revenues came from its famous rosé wine. However, in the 1970s, the market of rosé wines started to experience a decreasing trend, thus representing a potential risk for the business. Carlo's technological knowledge made him recognize the opportunity to try out farming new varieties of white grapes that were never cultivated in the Apulian region before. This experience was a success, as for the first time the varieties Chardonnay, Sauvignon, and Pinot were farmed in the region, and the resulting wines were very profitable in the market. The strategic relevance of this choice is clearly supported by Sebastiano's words:

This was very important because we were the first firm in Apulia to cultivate these new grape varieties: Chardonnay, Sauvignon, and Pinot. This was a big innovation for Rivera and it came from my father's will to experiment.

Finally, in the late 1980s, Carlo's supported an important innovation in the farming technique, i.e., he planted the first vineyards in lines by using espaliers. Although this technique

is relatively less productive in terms of grapes per hectare, it allows to produce higher-quality wine. Such an innovation was again possible thanks to Carlo's technical knowledge.

Overall, Carlo acquiring technical knowledge was crucial for developing the family business in its early stages, since his father, the founder, lacked this kind of knowledge. Indeed, Carlo's acquisition of technical knowledge allowed him to recognize opportunities and push for new entrepreneurial activities, such as improving the production process by renewing the wine cellar, planting new grape varieties that were never farmed in the Apulian region before, and introducing a new farming technique. The above arguments suggest the following proposition:

P1: Second-generation EF members require especially to acquire technical knowledge to sustain and develop new entrepreneurial activities.

4.2 Third generation's business knowledge

I refer to business knowledge as a set of competences, skills, and experiences that, compared to technical skills, are more independent from the specific industry context in which they are acquired (Sieger et al., 2011) and include knowledge and skills such as how to enter new markets, effective marketing approaches, good managerial practices, and, overall, how to run a business (Balland et al., 2016; Burgers et al., 2008; Fu, 2012).

Contrary to the second-generation EF member who was guided in the choice of technical education by the founder, Sebastiano and Marco - members of the third generation - could choose their university careers more freely. They both decided to study in Business Schools. From the interviews emerges that acquiring such business knowledge was very much needed, especially in the third generation. For instance, Sebastiano recalls considering studying enology but then changed his mind. Sebastiano remembers his father's answer after communicating the decision to him:

It's not a problem, you can always employ an enologist, but you need to be an entrepreneur.

After graduating in 1995, Sebastiano did an internship in the marketing office of a big firm operating in the spirits industry. He recalls the value of this experience:

That three-month experience in such a big firm was very important for me because I really learned a lot. It was a well-structured office with a good director where marketing meant not only advertisement but also data analysis, so I learned both.

After that internship, he started to work for Rivera, although only for a short period. Indeed, after a year, he had the opportunity to work in Denmark in a multinational company that also operated in the spirits industry. Sebastiano worked in the marketing department of this company for two years before coming back to Rivera, during which he also went to China to promote products.

All these experiences and accumulated knowledge allowed Sebastiano to recognize the opportunities to launch new products. For instance, he pushed for developing new wines made from a single grape variety instead of blending multiple ones, since the marketing communication can be more straightforward by highlighting the grape variety. He understood that the market preferred these single-variety wines, as it was easier for the customers to remember and appreciate the grape varieties, especially famous ones, rather than general Rivera-branded wines. Accordingly, Sebastiano believed in the value of communicating the grape variety as an entrepreneurial strategy. The following quote by Sebastiano better illustrates his role:

From 1997 to 2010 Rivera launched 12 new wines on the market. All these wines required on one side a study of their production and on the other side a market analysis. I managed all of these, I had the idea as I recognized the market needs.

Carlo acknowledges Sebastiano's merits as well:

It was Sebastiano that pushed for these [new wines] as he was able to understand market needs.

Similarly, Sebastiano's acquisition of market knowledge allowed him to foresee the potential of a wine that now is probably the most produced and sold in the Apulia region, the *Primitivo*. However, Rivera started producing it in 1997, thanks to the fact that Sebastiano studied the market in the previous years and understood the opportunity to make the *Primitivo*. Finally, Sebastiano is also responsible for the expansion of Rivera's export activities in Asia, thanks to the knowledge of that market that he built in his work experience before joining the family business.

Marco also acquired business knowledge, however more related to managerial and financial skills. Indeed, after graduating in 1999, Marco joined an important accounting firm for three years during which he became very skilled with balance sheets and started to understand firms' dynamics. Then, Marco found a new job as an administrative manager in a small firm, where he spent about two years before joining a small private equity where he worked for about seven years. He learned a lot during these experiences because the private equity firm was small and he needed to work on the negotiation, business and financial due diligence, as well as serving on the boards of the firms in which the private equity invested.

Marco left his job and joined the family business in 2011, at a time in which his business knowledge was actually needed. Although the EF always managed the firm almost independently, for some years there was a partner¹³ who owned 50% of the shares. In 2011, this partner needed to sell these shares and the EF wanted to buy them to avoid a possible ownership dispersion. However, this was a huge financial challenge for Rivera and the De Corato family, hence representing the reason why Marco had to come back to the firm. The business knowledge he acquired and his experience were fundamental to handle this process of re-buying the shares. After that, Marco's business knowledge supported many other entrepreneurial

¹³ This partner was Gancia SpA, a business founded in 1850 by Carlo Gancia and still operating in the wine industry, and located in Asti (Italy), in the Piedmont region. Gancia SpA is an international leader in the production of sparkling wines. In 2021, Gancia SpA reported revenues of about 55 million euros and employed about 100 people. During the partnership period with Rivera, Gancia Spa was still owned by the founding family, however, about ten years ago they decided to sell up to 95% of the shares to a Russian investor.

initiatives. In particular, his presence makes the EF more confident in making investments, as his knowledge allows the family to assess them better. For instance, in 2015, the EF decided to buy 15 hectares to plant and grow a grape variety that, until then, was always bought from external farmers. This was the first time the EF bought new hectares of territory and it was mainly possible thanks to Marco's competences. Indeed, the EF wanted to make this investment for a very long time as they recognized the decreasing quality of the externally sourced grape; however, the family was reluctant to make such an investment since they felt they lack sufficient experience to handle it. Since then, the EF is making many new investments in vineyards. The complexity of these investments consists also in the long-time horizon in which they are supposed to pay off as a vineyard is usually exploited for 15-20 years, hence making Marco's skills and knowledge even more important. Apart from the business knowledge he acquired, Marco has a strong entrepreneurial spirit. For instance, he realized the opportunity to improve the wine cellar, although he needed to study quite a lot:

Now I cannot say that I know the chemistry of the [wine making] process, but I know the overall production process. In this way, I know which phases can have the most economic impact and I can consider investments in those.

Indeed, in 2020, he pushed for the renewal of the machinery in the bottling line.

More broadly, Marco's managerial skills and knowledge also allowed him to restructure the organization of the business, for instance improving the way customer orders are handled. In this way, the overall better organization increased efficiency and productivity, thus allowing Rivera to employ more people and keep growing.

Overall, Sebastiano and Marco's acquisition of business knowledge was fundamental to continue developing the family business after its first expansion. In this phase, technical knowledge was outsourced by employing external enologists, while business knowledge was needed within the EF to recognize and pursue new entrepreneurial initiatives. Indeed, Sebastiano's marketing knowledge allowed him to identify market needs and satisfy them by

producing new wines as well as expanding Rivera's export activities. Similarly, Marco's managerial and financial knowledge allowed him to improve Rivera's organizational structure and pursue investments in new vineyards and machinery. According to the foregoing evidence, I propose:

P2: Third-generation EF members require especially to acquire business knowledge to sustain and develop new entrepreneurial activities.

4.3 Trust among generations and role separation

Although I argued that knowledge has a fundamental role to spur new entrepreneurial activities and, specifically, that different types of knowledge are essential in different generational stages of the EF, my analysis also revealed two mechanisms that remained unchanged in both generational transitions and fostered new entrepreneurial activities. Specifically, I argue that *trust among generations* and *role separation* enabled the younger generation to exploit their knowledge and freely explore new entrepreneurial initiatives.

Trust has been defined as the disposition and “the willingness to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party's behaviors” (Mayer et al., 1995, p. 712). I adhere to this definition as, in each generational transition, I consider the incumbent generation as the trustor and the younger generation as the trustee. The “particular action important to the trustor” is, therefore, the entrepreneurial initiatives that the next generation will undertake, and it is important in the sense that the EF financial and socioemotional wealth may be put at risk.

For instance, Carlo recalls that gaining his father's trust was a gradual process that, however, was crucial for his development as an entrepreneur. For example, he remembers that feeling the trust and the consequent support gave him confidence, which was a key factor when he pushed for the renewal of the wine cellar and the experimentations of new grape varieties.

Then, Carlo had a similar trustworthy behavior towards his sons, Sebastiano and Marco. For instance, when speaking about the current decision-making process, he said:

When we have to make an important decision, little by little, I am less involved. Or better, my opinion is less decisive. But I understand this, it would be stupid of me to say “This is how we are going to make this wine”, based on my taste. Because Sebastiano follows the market and knows better than me.

Sebastiano and Marco also perceive the trust they receive from their father. Indeed, during the interview, when speaking about the single-variety wines that he wanted to produce, Sebastiano said:

I have to say that I have always taken my space, and my father gave it to me. It never happened that I wanted to try something, and my father stopped me.

Marco acknowledges this trust too, and feels it was important for him to restructure Rivera’s organization and push for investments. He said:

I think my father was unique, I rarely have seen something like this in family businesses. My father instantly delegated to me. I know many entrepreneurs that can’t do that, in their 80s they still can’t delegate to their sons or external managers. I think my father recognized my competences and trusted me.

Overall, it is evident how trust encouraged and empowered the next generations to exploit their knowledge and follow their entrepreneurial ideas during both generational transitions. For instance, this trust gave Carlo the boldness to try farming grape varieties that were never cultivated in the Apulian region before and, similarly, trust made Sebastiano and Marco feel supported and empowered when pushing for innovation or investments. Thus, I proposed that:

P3: Trust among generations works as an enabler for younger generations to exploit their knowledge to pursue new entrepreneurial activities.

Concerning role separation, I refer to a mechanism through which the EF managed to separate responsibilities between the generations during the generational transitions. In

particular, in my case, the EF also possesses a small agricultural business that produces olive oil. According to EF members, the management of this smaller business is less complicated and stressful than managing Rivera. During both generational transitions, it happened quite naturally that the incumbent generation gradually became less involved in the wine business and focused on the olive oil business. The EF defines this as a win-win scenario for both generations, since the incumbent generation was still satisfied by managing the smaller business and the younger generation felt more freedom and less interference in the decision-making process regarding entrepreneurial activities. More broadly, this could also be considered a viable solution to reduce conflicts in family businesses (Bettinelli et al., 2022; Kellermanns & Eddleston, 2007) and, although in this specific case the two businesses are formally separated, the role separation might also work in different divisions of the same firm. For instance, Carlo said in his interview:

When I joined the firm, it could happen that me and my father disagreed. However, he slowly started to mainly take care of the agricultural business, giving me more freedom in Rivera.

Also, Marco speaks about how this role separation helped with the generational transition:

It's a theme [the generational transition] that we already lived, and I think we overcame it pretty well because now me and my brother have the reins of the business. My father is here every day, but he does not feel the stress, he mostly focuses his attention on the agricultural business.

In line with my observations, I propose the following:

P4: Role separation works as an enabler for younger generations to exploit their knowledge to pursue new entrepreneurial activities.

My propositions are sketched and summarized in Figure 9.

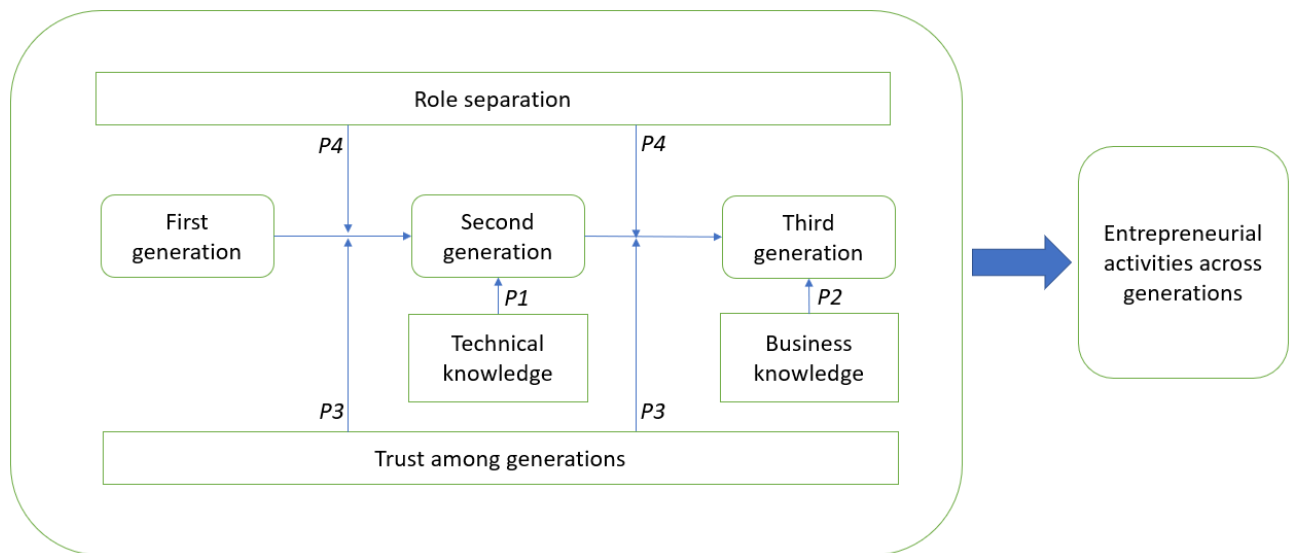


Figure 9. Graphical summary of the propositions

5. Discussion

My objective was to shed new light on how the transgenerational entrepreneurship process unfolds, specifically through a focus on knowledge as an antecedent of EF's entrepreneurial activities. My analysis highlights the role played by different types of knowledge at different generational stages. Specifically, I find that the second generation needs to acquire technical knowledge related to the industry in which the EF operates since, in this phase, it is very likely that the business is still relatively small and relies on EF members for all kinds of activities. Accordingly, such technical know-how gives EF members the ability to recognize entrepreneurial opportunities and handle their implementation as a whole, especially concerning more operational and technical features. In addition, my findings reveal that technical knowledge becomes less important for the third generation, as in this phase the business has likely already experienced a first round of growth and people with technical skills are usually employed. Accordingly, the broader business knowledge becomes more relevant for EF members. Indeed, in my case, the managerial, financial, and marketing skills possessed by the third-generation family members, paired with their entrepreneurial spirits, were the basis for new entrepreneurial initiatives. Finally, I unveil two main mechanisms that, independently from

the generational stage, enabled the younger generations to pursue their entrepreneurial ideas during both generational transitions, i.e., trust among generations and role separation. Indeed, thanks to these mechanisms the intergenerational relationships were preserved, and the transitions happened smoothly. At the same time, the younger generations felt the freedom to make decisions and actually had the power to start new entrepreneurial activities.

5.1 Theoretical contributions

My study provides several theoretical contributions. First, I contribute to the growing literature on transgenerational entrepreneurship (Habbershon et al., 2010; Jaskiewicz et al., 2015). How and why some family firms and their controlling EFs are more able than others to stay entrepreneurial across generations is a question that keeps puzzling researchers (Clinton et al., 2021; Dou et al., 2021). I add to this debate by studying the evolution of a family business over three generations and extending prior understanding of transgenerational entrepreneurship by looking specifically at knowledge acquisition within the EF as an antecedent of entrepreneurial activities across generations. Moreover, I reveal two contingency factors that fostered knowledge exploitation and thus transgenerational entrepreneurship during both generational transitions, i.e., trust among generations and role separation. Trust is a concept that has received attention in family business research, usually conceived as trust within the family (De Clercq & Belausteguigoitia, 2015) or among family members and employees (Powers & Zhao, 2019). Although my study - to the best of my knowledge - is the first to explicitly shed light on the role of trust among generations for transgenerational entrepreneurship, my findings also resonate with prior research highlighting the general positive effect of trust within EFs, for instance, when making strategic decisions (De Clercq & Belausteguigoitia, 2015). Regarding role separations, my results may also trigger reasoning blending transgenerational entrepreneurship and the wide literature on conflicts in family firms (Bettinelli et al., 2022; Kellermanns & Eddleston, 2007), as role separations may act as a way to reduce conflicts.

Second, I contribute to the literature on knowledge management in family businesses and EFs (Su & Daspit, 2021; Arzubuaga et al., 2022). Family firms and EFs have reasonably been depicted as social contexts in which the transmission of tacit knowledge about the business is easier, mainly thanks to the increased occasions for interaction and the closer ties, thus making it a possible source of competitive advantage for family businesses (Cabrera-Suárez et al., 2001; Chirico, 2008). Relatedly, prior research has paid significant attention to the process of knowledge sharing, mainly focusing on how the incumbent generation shares knowledge with the subsequent one (Ge & Campopiano, 2021), but also suggesting that the process can be bi-directional (Clinton et al., 2021; Woodfield & Husted, 2017). I add to this stream of the literature by focusing on knowledge acquisition, specifically recognizing the key role of EF members as a source of new knowledge and showing how EF members can leverage and exploit this knowledge to launch new entrepreneurial activities. In particular, I also offer a more nuanced picture of this phenomenon by proposing that the acquisition of different types of knowledge is required in different generational stages of the EF, namely technical knowledge in the second generation and business knowledge in the third generation.

Third, I contribute to the knowledge management literature. Although it has been recognized that knowledge is a multifaceted construct (Burgers et al., 2008; Hilmersson, 2014; Jakubik, 2007), research investigating the potential effects of different knowledge types is still limited (Deligianni et al., 2015; Sullivan & Marvel, 2011) and tend to address various knowledge types separately (e.g., Clarysse et al., 2011; Fu, 2012). In addition, most studies examine knowledge and its effects at a specific point in time (e.g., Yli-Renko et al., 2001) overlooking how knowledge may develop over time and the way it is leveraged at different stages of a firm's growth path. I contribute to this debate by considering in the same study the effects of both technical and business knowledge. Moreover, as I study the development of a family business over three generations, I highlight an evolutionary relationship between different types of knowledge and new entrepreneurial activities. In this vein, I also contribute to

the literature underlining the importance of considering the interplay between the knowledge possessed by each individual and the context in which individuals find themselves in order to better understand the entrepreneurial-related outcomes of knowledge (Acs et al., 2013; Wiklund & Shepherd, 2003). Indeed, EFs constitute a particular context in which EF members are usually exposed to entrepreneurial stimuli and business discussions from childhood, thus potentially influencing the ability of grown-up EF members to leverage their knowledge to engage in new entrepreneurial initiatives. Finally, I add to prior studies that have paid attention to the interplay of a firm knowledge base and firm age (e.g., Gopalakrishnan & Bierly, 2006; Messeni Petruzzelli et al., 2018; Sørensen & Stuart, 2000), as EF generational stages are likely to partially reflect the age of the family business. Indeed, prior studies have focused on different knowledge-based strategies, for instance in terms of internal vs external knowledge sources, the breadth of a firm's network, and the maturity of knowledge leveraged in innovation activities (Gopalakrishnan & Bierly, 2006; Messeni Petruzzelli et al., 2018). I extend this line of inquiry by looking at the content of knowledge required as a firm grows, emphasizing the importance of technical knowledge in the earlier stage, while the relevance of business knowledge in later stages.

5.2 Implications for practice

This work also offers several practical implications. First, my findings show that technical knowledge helps second-generation EF members to recognize and pursue entrepreneurial activities. Conversely, business knowledge is especially beneficial for third-generation EF members. Accordingly, I inform EFs of the advantages provided by these different types of knowledge during different generational stages. Therefore, I encourage EFs in which the first or the second generations control the business to consider designing the next generations' education in the light of these recommendations. Second, this study reveals that, during generational transitions, trust among generations acts as an enabler for the next generations allowing them to

freely leverage their knowledge and pursue new entrepreneurial initiatives. Although trust cannot easily be built, EFs might consider engaging professional family business advisors to sustain and build trust-based relationships. Third, I found that role separation has a similar enabling effect, since the incumbent generation is satisfied by managing a smaller business and the younger generation has more freedom and power over decisions in the main business. Indeed, in my case, during both generational transitions, the members of the senior generation gradually reduced their involvement in the main business by focusing their attention on the management of the smaller business that the EF possesses. Accordingly, I inform EFs of this potential positive practice and, in cases where the EF does not control formally separated businesses, I suggest that a similar effect might be achieved by letting the senior generation focus on a particular division of the firm. Finally, detaching from the family business context and embracing a broader perspective, my findings support the importance of a firm knowledge base in the development of new entrepreneurial activities and point out how different types of knowledge are required over time. Accordingly, I inform managers of the necessity to enrich a firm knowledge base over time and, although my focus is on the knowledge provided by EF members of different generations, I suggest that technical knowledge may be more important when the firm is younger while business knowledge during later development stages.

5.3 Limitations and future research directions

This study is not exempt from limitations that may however open the doors to future researchers. First, I analyzed the role of knowledge acquired by EF members for transgenerational entrepreneurship by conducting a single case study. To extend the validity and generalizability of my findings, future studies might investigate other cases, for instance in different sectors, and develop an empirical strategy to test the emerging propositions. Relatedly, as I investigate an Italian family business and its controlling EF, future studies could be carried out in other countries or adopt a cross-country research design to allow for comparisons among

EFs in diverse geographical contexts, since different cultures may also differently affect family dynamics. Second, my case study focuses on a relatively small business in which the role and knowledge of EF members are inherently fundamental due to resource constraints. Although this is usually the case for nascent family businesses in earlier generations, it could also be interesting to compare my findings with particular examples in which the family business experiences a faster scale-up and, thus, the role of EF members and their knowledge might become less relevant. Third, I reveal that some specific types of knowledge are required at different EF generational stages. Moreover, in my case, all the EF members were willing to join the firm. Nevertheless, future studies could dig deeper into this phenomenon, looking for instance at how to attract young members into joining the family business as well as how to motivate them to follow some specific education paths.

5.4 Conclusions

I offer a knowledge-based perspective on transgenerational entrepreneurship as I unveil how knowledge can support and foster EFs' entrepreneurial activities across generations. Specifically, I show how the knowledge required within the EF changes across generations, as the second generation needs more technical knowledge, while the third one benefits more from possessing business knowledge. In addition, I shed light on two mechanisms that instead worked very well in enabling the younger generations to pursue entrepreneurial initiatives during both generational transitions, namely trust among generations and role separation. I hope this study can encourage future research at the intersection of transgenerational entrepreneurship and knowledge management.

Conclusions

This thesis aimed to increase our knowledge at the intersection of family firms research and entrepreneurship literature. Specifically, given the importance for family firms and entrepreneurial families (EFs) of staying entrepreneurial across generations and considering their substantial contribution to the global economy, I highlight factors that may help EFs prosper across generations. I do so through three studies that unfold in the three chapters of this thesis. In the first chapter, I conducted a systematic literature review on family entrepreneurship across generations in which I identified the family-related factors that may serve as antecedents of EFs' innovative and entrepreneurial activities. In the second chapter, I conducted a quantitative study where I focused on digital product innovation (DPI) as entrepreneurial outcome and generational stage and family-CEO status as explanatory variables. Finally, in the third chapter, I conducted a qualitative study on an Italian wine-making family business with the objective of shed light on how the EF was able to remain entrepreneurial across generations, with particular attention to the role of knowledge in this process.

Specifically, in the first chapter I conducted a systematic literature review (Tranfield et al., 2003) with three main objectives: (i) identifying the family-related factors underlying the pursuit of new entrepreneurial activities of EFs across generations; (ii) linking the identified factors to different types of entrepreneurial activities EFs pursue across generations; and (iii) providing a future research agenda. Indeed, recent literature reviews, although extremely valuable, have not fully addressed these goals, focusing on a specific type of entrepreneurial activity (e.g., innovation), overlooking the intergenerational and multigenerational dynamics, and/or lacking a formal characterization of family-related factors (Bettinelli et al., 2017; Calabrò et al., 2019; Williams et al., 2018). Accordingly, compared to prior literature reviews, I focus on multigenerational EFs and highlight the critical role of family-related factors in launching new entrepreneurial activities across generations (Aldrich et al., 2021; Chrisman et al., 2003; Zellweger et al., 2012b). As such, I provide a unique categorization of these factors to enhance

current understanding of the link between family-related factors and different entrepreneurial activities across generations, thus contributing to the growing body of knowledge at the nexus of the entrepreneurship and family business literature streams (Habbershon et al., 2010; Jaskiewicz et al., 2015; Miller et al., 2016; Minola et al., 2020; Randerson et al., 2015). Finally, I use the literature review as a springboard to outline opportunities for future research.

In the second chapter, as a first step, I examined whether family firms develop more DPI than non-family firms using a sample of 364 firms in the automotive and industrial engineering industries observed from 2013 to 2020. Consistently with prior studies on digital business model innovation, I find that family firms outperform their non-family counterparts with respect to DPI. As a second step, I focused on the subsample of family firms and developed a set of hypotheses drawing from construal level theory, a theory drawn from the psychology field. I found (as hypothesized) that later generations in control of the firm positively influence DPI, while a family CEO hampers DPI. Finally, I find that a larger top management team (TMT) weakens the positive relationship between later generations in control and DPI (as expected), but do not find empirical support for my last hypothesis predicting that a larger TMT has a positive moderating effect on the relationship between family CEO and DPI. I believe this study makes several contributions. First, by showing that family firms outperform non-family firms in DPI, I contribute to the growing literature on family firm digital innovation by extending research so far limited to digital business model innovation (Soluk et al., 2021) and challenging the idea that family firms struggle with innovation based on technologies that may represent a discontinuity (König et al., 2013). In addition, by demonstrating the positive role of later generations in pursuing DPI and, conversely, the constraints imposed by a family CEO in line with the predictions of construal level theory, I contribute to research on family firm heterogeneity (Chua et al., 2012; Daspit et al., 2021) and provide more nuanced insights into why some family owner-managers are better or worse at driving DPI. Second, I advance family firm research with the first attempt – to my best knowledge – to use construal level theory as the

theoretical basis for an empirical study in the family business context. Indeed, construal level theory provides a new perspective to understanding the risk behavior and goal time horizon of family owner-managers, and ultimately their heterogeneous behavior (Kammerlander & Breugst, 2019). Third, because family owner-managers have to make real-life decisions, and their construals are simultaneously shaped by different dimensions of psychological distance, I contribute to construal level theory (Trope & Liberman, 2010) by extending research so far mainly limited to student samples, hypothetical decision tasks, or considering only one dimension at a time (e.g., Förster et al., 2004; Fujita et al., 2006). Fourth, I contribute to digital innovation research that has mainly focused on the *consequences* of digital innovation (Yoo et al., 2010; Nambisan, 2017; Nambisan et al., 2017) by shedding light on how some unique governance characteristics of family firms and TMT size may be *antecedents* of DPI through their influence on strategic decisions, thus also contributing to the debate on the importance of studying and framing digital innovation from a strategic perspective (Pesch et al., 2021; Vial, 2019). Finally, I contribute to the TMT literature (Hambrick, 2007; Jin et al., 2017) by challenging the assumption that the greater diversity of perspectives of a larger TMT is always beneficial to decision-making, as I argue and show that a larger TMT may hinder later generations in control of the family firm in pursuing DPI. From a practical standpoint, family owner-managers interested in achieving DPI are informed of the benefits of including later generations in the decision-making process as well as of the negative effect of appointing a family CEO. Similarly, family owner-managers might consider designing a smaller TMT to give later generations more freedom to pursue DPI.

Finally, in the third chapter, through an in-depth case study, I shed new light on how the transgenerational entrepreneurship process unfolds, with particular attention to the role of knowledge and the ways it is acquired and exploited to pursue new entrepreneurial activities. My analysis highlights the role played by different types of knowledge at different generational stages. Specifically, I find that the second generation needs to acquire technical knowledge

related to the industry in which the EF operates since, in this phase, it is very likely that the business is still relatively small and relies on EF members for all kinds of activities, including the more operational and technical ones. In addition, my findings reveal that technical knowledge becomes less important for the third generation, as in this phase the business has likely already experienced a first round of growth and people with technical skills are usually employed. Accordingly, the broader business knowledge becomes more relevant for EF members. Indeed, in the case I studied, the managerial, financial, and marketing skills possessed by the third-generation family members were the basis for new entrepreneurial initiatives. Finally, I unveil two main contingency factors that, independently from the generational stage, enabled the younger generations to pursue their entrepreneurial ideas during both generational transitions, i.e., trust among generations and role separation. Indeed, thanks to these mechanisms the intergenerational relationships were preserved, and the transitions happened smoothly. At the same time, the younger generations felt the freedom to exploit their knowledge, make decisions, and pursue new entrepreneurial initiatives. My research thus makes relevant contributions. First, I contribute to transgenerational entrepreneurship (Habbershon et al., 2010; Jaskiewicz et al., 2015) by looking at knowledge within the EF as an antecedent of new entrepreneurial activities across generations. In addition, I show two mechanisms that empowered next generations during the generational transition phases, involving both the family system (i.e., trust among generations) and the business system (i.e., role separation). Second, I contribute to the literature on knowledge management in family businesses and EFs (Su & Daspit, 2021; Arzubaga et al., 2022) by extending the predominant focus on knowledge sharing (e.g., Botero et al., 2021; Woodfield & Husted, 2017) by rather looking at knowledge acquisition and highlighting the role of next generations as a source of knowledge acquisition. In addition, I show how different types of knowledge are needed at different generational stages to spur new entrepreneurial activities. Third, I contribute to the broader literature on knowledge management (Del Giudice & Della Peruta, 2016; Ganguly et al., 2019) by distinguishing

between technical and business knowledge and, by looking at knowledge acquisition and exploitation over time, I highlight an evolutionary relationship between different types of knowledge and new entrepreneurial activities (Balland et al., 2016; Deligianni et al., 2015). In this vein, I extend prior research tending to address various knowledge types separately (e.g., Clarysse et al., 2011; Fu, 2012) or examining knowledge and its effects at a specific point in time, thus overlooking how knowledge may develop over time (e.g., Yli-Renko et al., 2001). From a practical standpoint, EFs might consider strategically designing the education of the offspring, specifically encouraging second-generation family members to pursue technical studies related to the industry in which the EF operates, and third-generation family members to pursue business studies, to acquire market and managerial knowledge.

Overall, this thesis extends our knowledge about innovation and entrepreneurship in EFs and family firms across generations. Indeed, through a systematic literature review, I offered a unique categorization of the family-related factors that may foster or hamper entrepreneurial initiatives in EFs across generations. Moreover, by acknowledging that EFs may pursue different types of entrepreneurial activities and distinguishing them among internal vs. external and related vs. unrelated (Brumana et al., 2017; Riar et al., 2021), the relationships between family-related factors and entrepreneurial activities that I highlight are even more nuanced, unveiling specific dynamics for innovation and internationalization rather than strategic renewal or external venturing, thus paving the way for more fine-grained research on this topic.

In addition, this thesis contributes to research on innovation in family firms responding to calls encouraging to acknowledge family firms' heterogeneity and not treat them as a monolithic group (Chua et al., 2012; Daspit et al., 2021). I do so by considering family firms controlled by different generations and managed, or not, by a family CEO and explaining their different (digital) innovation behavior. Indeed, the family generation in control and the presence of a family CEO are two sources of heterogeneity that have long attracted scholarly attention (e.g.,

Beck et al., 2011; Naldi et al., 2013), but still puzzle researchers in terms of their effect on family firms' innovation outcomes (e.g., Hillebrand et al., 2020; Zybura et al., 2021).

Moreover, this thesis also contributes to family firm research more in general with this first attempt – to the best of my knowledge – to use construal level theory as the theoretical underpinning of an empirical study in the family business context. By showing that the heterogeneous construals of family owner-managers induce different risk behaviors and goal time horizons, I enrich the debate on this topic. Indeed, I go beyond the picture that depicts family owner-managers as risk-averse due to their willingness to preserve socioemotional wealth (Gomez-Mejia et al., 2007, 2014), and provide a new theoretical lens for understanding their risk behavior. Similarly, I offer an alternative to the *a priori* assumption that family owners-managers prioritize long-term goals (Le Breton-Miller & Miller, 2006; Lumpkin & Brigham, 2011) by arguing that if they perceive the firm more concretely, they may also be more concerned about short-term goals.

Finally, this thesis adds to the transgenerational entrepreneurship literature stream (Habbershon et al., 2010; Jaskiewicz et al., 2015). Specifically, in a qualitative study, I focused on the role of knowledge as an antecedent of transgenerational entrepreneurship. Considering that knowledge is one of the elements of the transgenerational entrepreneurship framework (Habbershon et al., 2010, p. 9), surprisingly little research has devoted attention to this topic, and the few studies that did so concentrated on knowledge sharing (Clinton et al., 2021; Woodfield & Husted, 2017). Conversely, I focus on knowledge acquisition, specifically looking at the knowledge acquired by EF members, and unveil which types of knowledge are needed within the EF to sustain new entrepreneurial activities at different generational stages.

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Appendix A – Descriptive statistics of the articles included in the review

The first article included in the review was published in 1999, thus revealing the topic is relatively young. Figure A1 depicts the number of articles per year and their growth over the years, underlining the increasing interest in the topic in the academic debate.

Regarding the journals, 31 different journals are represented in my final sample – including journals dedicated to family business (e.g., *Family Business Review*, *Journal of Family Business Strategy*) and more pervasive entrepreneurship journals (e.g., *Entrepreneurship Theory and Practice*, *Journal of Business Venturing*). Unsurprisingly, the top two journals in terms of number of published articles are dedicated family business outlets, i.e., *Journal of Family Business Strategy* with 14 papers, and *Family Business Review* with 13 papers. These are followed by *Entrepreneurship Theory and Practice* with 8 articles, and *Journal of Small Business Management* with 6 (Figure A2).

As for the methods, most articles (80) are empirical studies split similarly between quantitative (43) and qualitative (37). The remaining 10 are theoretical.

Concerning the entrepreneurial activities investigated, many articles include more than one type of entrepreneurial activity. The most studied entrepreneurial activities are innovation (50 articles) (Beck et al., 2011; Chirico and Nordqvist, 2010), venturing (39 articles) (Michael-Tsabari et al., 2014; Ramírez-Pasillas et al., 2021), and internationalization (17 articles) (Calabrò et al., 2016; Merino et al., 2015). Strategic renewal (10 articles) (Salvato et al., 2010; Sievinen et al., 2020a) and acquisitions (4 articles) (Discua Cruz et al., 2012; Strike et al., 2015) are instead less researched. Regarding the proposed classification of entrepreneurial activities (see Figure A3), 63 papers investigate only internal entrepreneurial activities, 18 investigate external initiatives, and the remaining 9 papers explore both types. As for the second dimension, degree of relatedness, 22 articles study related entrepreneurial activities, 11 articles study unrelated activities, and 22 investigate both types. Finally, 35 articles do not contain enough information to classify the entrepreneurial activities as related or unrelated, since this distinction

is not captured by the way the “entrepreneurial variable” is defined, or falls outside their design and scope.

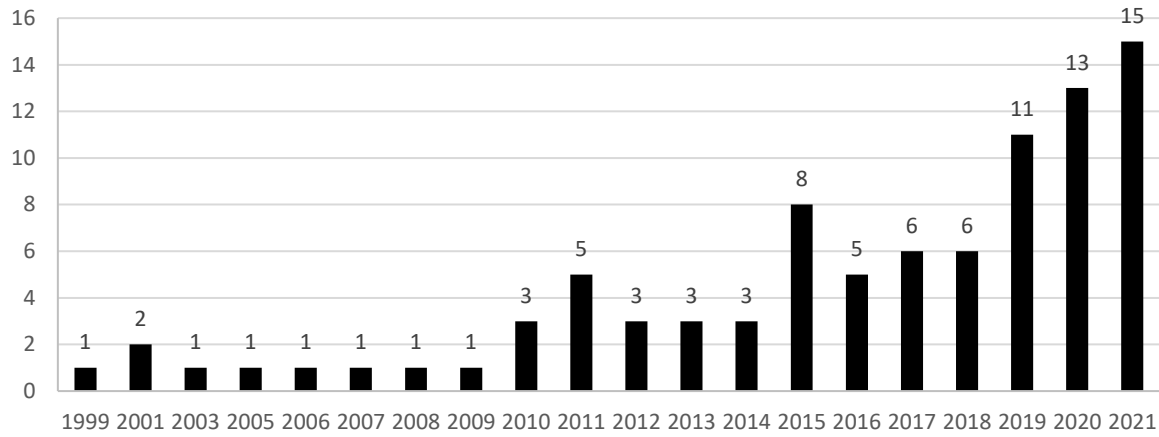


Figure A1. Number of articles per year



Figure A2. Number of articles per journal

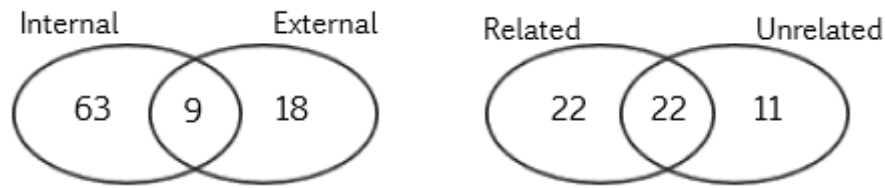


Figure A3. Articles' positioning within our framework. Numbers at the intersections represent articles that study both types of entrepreneurial activities (e.g., internal and external). For the degree of relatedness dimension, 35 articles did not contain enough information to classify the entrepreneurial activities as related or unrelated

Appendix B – Real cases clarifying the two dimensions of the review framework

Recent empirical studies show that many EFs pursue diverse types of entrepreneurial activities across generations that can be distinguished according to our framework (Riar et al., 2021; Zellweger et al., 2012b). In the following, I provide some relevant examples.

Examples of internal and external entrepreneurial activities

Olivetti S.p.A. was founded in 1908 as a typewriter manufacturer by Camillo Olivetti in Ivrea (Piedmont, Italy). His son, Adriano Olivetti, pursued his business ideas by developing his father's firm. Under his leadership, and also thanks to Adriano's son, Olivetti S.p.A. internally produced Italy's first electronic computer in 1959 (i.e., adopting an internal mode of organizing, specifically innovation).

The Cargill family is a different example. Cargill is an American global food corporation based in Minnesota. Founded in 1865, it is the largest privately-held corporation in the United States in terms of revenues. In 1953, the third generation decided to expand into the European market by selling the same food products. In so doing, they preferred to establish a different company called Tradax, thus adopting an external mode of organizing.

Examples of related and unrelated entrepreneurial activities

Recalling the above examples, Olivetti's development of the computer is an example of an unrelated entrepreneurial activity. Conversely, Cargill's expansion into the European market,

albeit through Tradax, is an example of a related entrepreneurial activity. Some additional examples follow.

Ferrero is an Italian manufacturer of branded chocolate and confectionery products, and the second biggest chocolate producer and confectionery company in the world. Ferrero was founded in 1946 in Alba (Piedmont, Italy) by Pietro Ferrero. His son, Michele Ferrero, was appointed CEO in 1957, and under his leadership, many innovative products and brands were launched, including Mon Chéri (in 1956), Kinder (in 1968), and Rocher (in 1982). All these products require similar resources to the initial business and are part of the confectionery sector, thus related entrepreneurial activities.

An example of an unrelated entrepreneurial activity is the foundation of Tata Motors. The Tata family is one of the wealthiest families in India. In 1945, J.R.D. Tata, a third-generation family member, founded Tata Motors, hence an unrelated activity because until then the family ran businesses in the textile, hospitality, and aeronautics sectors.

Appendix C – Interview protocol

An example of the questions asked to the EF members.

- Could you describe your education and work experience before joining the firm?
- Could you describe your education and work experience within the firm? How was it influenced by your family members and the relationships with them?
- How do you interact with your family members during work? Do you believe that you learn from them or are able to share your knowledge with them?
- How and when did the successions happened? Was it planned? Did the succession impact the relationships with the other family members?
- Which are in your opinion the most important innovations or market expansions in the history of the firm?
- What was the role of the family members in these new entrepreneurial activities? Did they leverage their knowledge, skills, or competences?
- Are you planning new entrepreneurial activities for the future?