



Family Firms and Innovation

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Abstract

This paper reviews the literature on family businesses and innovation to clarify how family firms contribute to innovation. It describes the peculiarities of family firms through different theoretical perspectives and provides an overview of related empirical studies. Due to their complex nature and unique features that can facilitate but also hurt innovation, it is not always straightforward to predict how family-run businesses would approach innovation. Overall, the literature suggests that family firms invest less in innovation than nonfamily firms but might more efficiently convert inputs into outputs. It also reveals that family businesses prefer to pursue incremental strategies and seem reluctant to collaborate externally. Family firms' heterogeneity is also explored but requires further attention from scholars.

Key words: family business, innovation, innovation inputs, innovation outputs, radical innovation, collaborative innovation

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1 Introduction

How do family firms contribute to innovation? Do they innovate more or less than nonfamily firms? What are their peculiarities regarding innovation? Research on family businesses and innovation has encountered significant growth over the last decade to explore family firms' behavior from the innovation perspective and address such questions (Calabrò et al., 2019, Casado-Belmonte et al., 2021, De Massis et al., 2022). Since family firms are the dominant organizational structure in the economy (La Porta et al., 1999, Claessens et al., 2000, Faccio and Lang, 2002, Anderson and Reeb, 2003, Villalonga and Amit, 2006, Sraer and Thesmar, 2007) and considering that they differ from other firms in several dimensions (Gudmundson et al., 1999, Carney et al., 2015, De Massis et al., 2015b), investigating how they handle innovation is essential. More specifically, innovation constitutes a major concern for family businesses due to their unique motivation to ensure the continuity of their business and pass it on to future generations. It enables firms to adapt to changing market conditions and technologies, helping them remain competitive and secure long-term survival.

Nevertheless, generating and implementing new technologies, products, services, etc., supposes taking substantial risks by committing to long-term projects that require significant resources. While family firms are often perceived as reluctant to engage in innovation due to their conservative, traditionalist, risk and loss-averse appearance, they are characterized by unique features that are not always detrimental to innovation. Among other characteristics, their long-term orientation, for instance, can provide them with more incentives than other firms to innovate (Miller and Breton-Miller, 2005, Zahra et al., 2004). As opposed to common views, tradition might also be an interesting source of innovation for family-run businesses (De Massis et al., 2016, Erdogan et al., 2020). Thus, family firms have distinctive traits that may either foster or hinder innovation. By reviewing these peculiarities, this paper helps understand how family businesses differ from nonfamily firms in their approach to innovation.

It also highlights their complexity, clarifying why the literature remains inconclusive on certain questions (De Massis et al., 2013, Calabrò et al., 2019, Rondi et al., 2019).

This review first presents some theoretical approaches on which scholars have relied to understand the reasons why family firms might differ from nonfamily firms from an innovation viewpoint (Section 2). It then provides an overview of the results obtained in different studies regarding family firms' involvement in innovation (Section 3). It not only focuses on their investments in innovation inputs and production of outputs but also describes the specific type of innovation they consider. In addition, it dedicates some attention to variations within family firms as well.

2 Theoretical framework

Why should we expect family firms to be more or less innovative or more or less efficient in their innovation process than nonfamily firms? One of the main peculiarities of family firms is their unique organizational structure, stemming from the combination of family and business. This overlap between family and business results in key features that explain differences between family and nonfamily firms. In an attempt to better understand discrepancies in innovation behaviors, researchers have adopted various theoretical perspectives that are reviewed in this section.¹ Taking different theoretical lenses to analyze family firms' attitudes toward innovation points out the variety of mechanisms that might be at play in their innovation-related decisions and the difficulty of providing a conclusive view regarding their innovativeness.

¹This review refers to agency and stewardship theories as well as resource-based and socioemotional wealth approaches, among others. See Calabrò et al. (2019) and De Massis et al. (2022) for more detailed and comprehensive descriptions.

2.1 Agency and stewardship theories

Family firms are especially interesting to analyze through the lens of the agency theory, which looks at the relationship between owners/principals and managers/agents (Jensen and Meckling, 1976). In most companies, ownership and management are separate, and this separation can lead to conflicts known as agency problems.² However, in family firms, ownership and control are usually concentrated within a family. Since family members are both the owners and the managers, their interests are often more aligned, and this can reduce the typical conflicts between shareholders and managers seen in other firms (Jensen and Meckling, 1976, Schulze et al., 2001). In the context of innovation especially, family managers should have fewer incentives to behave opportunistically or avoid risky projects. Information asymmetry between managers and shareholders should also be less of a concern, enabling shareholders to collect reliable information on investment projects and facilitating the decision-making process. Hence, family firms might be more inclined to engage in innovative activities than other firms due to the concentration of ownership and management.

Nevertheless, this particular structure that combines family and business might also suffer from other agency costs, absent in nonfamily firms (Schulze et al., 2001, Gómez-Mejía et al., 2001, Dyer, 2006, Block, 2012, Villalonga et al., 2015) and that hurt family firms' innovation initiatives. The most notable concerns relate to self-control and altruism, which favor the recruitment of family members and lead to nepotism (Schulze et al., 2001, 2003, Sirmon and Hitt, 2003). While differential treatment of family members for recruitment, promotion, or monitoring purposes can create conflicts between family and non-family members, inner family conflicts can also generate additional agency costs (Dyer, 2006, Block, 2012). This, in turn, might have negative implications for innovation, especially if it leads

²Agency issues often arise when managers want to pursue their own interests (making decisions that benefit themselves) rather than those of the owners. Such conflicts can be responsible of inefficiencies and reduce the firm value.

to a lack of qualified talents with specialized skills and creative knowledge (Schulze et al., 2003, Bennedsen et al., 2007, Bloom and Van Reenen, 2007, Gómez-Mejía et al., 2007).

Adding to the agency theory, the stewardship theory suggests that, when both owners and managers, family members are more likely to act as stewards of their organization and behave in the family’s interest rather than self-interest (Davis et al., 1997). Giving priority to the firm’s long-term success and sustainability over personal benefits might encourage commitment to innovation. However, close identification with the family can also reinforce cautious behaviors (Scholes et al., 2021) and increase risk aversion, conservatism, and resistance to change within the firm. Thus, both agency and stewardship theories remain unclear on whether family firms should be more or less innovative than non-family firms. Both theories offer arguments in favor of a positive relationship between family ownership and innovation while acknowledging factors that could hinder innovation.

2.2 Socioemotional wealth approach

Another specificity that sets family firms apart is the value family members attribute to social and emotional factors when making decisions. Family owners do not perceive their firm as only a source of income; they view it as an extension of their family identity and legacy. Thus, family firms also pursue non-economic goals that influence their overall decisions, and researchers have analyzed this aspect using behavioral theories. The socioemotional wealth (SEW) theory (Gómez-Mejía et al., 2007), in particular, highlights the importance of non-pecuniary benefits extracted from the family’s reputation, personal satisfaction, legacy for future generations, social status, etc. It suggests that family firms highly value the preservation of their socioemotional wealth, which constitutes a reference point guiding their decisions (Sciascia et al., 2015). According to the behavioral perspective of this theory, any decision that might threaten family firms’ SEW will be evaluated based on the potential loss of SEW, and family firms’ aversion to SEW losses will outweigh their aversion to financial losses. They will make decisions and engage in actions that protect their SEW. Thus, while

they will avoid any risky decision that might threaten their SEW, they may engage in risky decisions that might help them preserve this wealth at the expense of potential economic benefits (Gómez-Mejía et al., 2007).

From an innovation perspective, the willingness to protect the SEW and the loss aversion associated with it is often presented as one of the main reasons why family firms might forgo uncertain and risky innovation opportunities (Chen and Hsu, 2009, Munari et al., 2010, Chrisman and Patel, 2012, Matzler et al., 2015, Sciascia et al., 2015). At the same time, some studies also stress that family firms will accept higher levels of risk associated with innovation whenever it is necessary to preserve their SEW (Chrisman and Patel, 2012, Gómez-Mejía et al., 2014, Kotlar et al., 2013). To further understand the relationship between the SEW theory and innovation, we can also rely on the five key dimensions of SEW outlined by Berrone et al. (2012).³ Almost all of these dimensions are expected to have positive and negative implications in terms of innovation. On the one hand, the identification with the firm, the emotional attachment, and the desire to maintain and renew the family legacy can fuel innovation since they affect family members' eagerness to enhance the firm's reputation and secure its long-term sustainability. Thus, they may be willing to engage in innovative projects even if this means taking on more risks. The binding social ties of family firms, referring to their relationships with their community, employees, and other stakeholders, can also stimulate innovation by encouraging collaboration, knowledge sharing, and creativity. On the other hand, these dimensions, combined with the desire to maintain control, might make family firms more risk-averse than nonfamily firms. This can reinforce a conservative approach, where the family prefers preserving the status quo and its traditional image over adopting new ideas, disruptive innovations, or collaborating with external partners. To assess the net effect on innovation, future research should further explore the interactions between these dimensions and innovation.

³These dimensions are labeled as FIBER: Family control and influence, Identification of family members with the firm, Binding social ties, Emotional attachment of family members and Renewal of family bonds to the firm through dynastic succession.

2.3 Resource-based view

The interplay between family and business also provides family firms unique resources and capabilities (Sirmon and Hitt, 2003, Zahra et al., 2004). More specifically, they have unique human, social, and financial capital that can be leveraged to support innovation activities and invest in long-term projects (Llach and Nordqvist, 2010). Their long-term orientation contributes to building long-lasting relationships with both their external and internal stakeholders. When it comes to human capital, this translates, for instance, into long tenures (Röd, 2016, Lopez-Fernandez et al., 2016), job security and high satisfaction (Huang et al., 2015, Gómez-Mejía et al., 2023), and “*superior employee relations*” (De Massis et al., 2018). Family firms’ employees are even considered as “*pseudo-family*” (König et al., 2013). Thus, by fostering a culture that contributes to employee collaboration and commitment, family firms create a work environment that is conducive to innovation and generates mutual gains for both the firm and their employees (Rondi et al., 2022). In addition, family businesses allocate a significantly higher proportion of their human capital to R&D activities relative to nonfamily firms, getting a further advantage over this latter (Llach and Nordqvist, 2010). Nevertheless, as previously highlighted, a specific treatment of kin might lead to a lack of qualified employees, which can be detrimental to innovation. The necessity to have specialized human capital devoted to innovation activities might reduce family firms’ incentives to innovate, especially if they are reluctant to rely on external sources of knowledge to avoid losing control and reducing their SEW.

At the same time, another key resource of family firms that might help to solve such human capital issues is social capital (Llach and Nordqvist, 2010). Social interactions, especially with non-family members, are perceived as crucial for innovation (Duran et al., 2016, Röd, 2016, Rondi et al., 2019, Sanchez-Famoso et al., 2019). Indeed, family firms can rely on their social network to benefit from external human capital and balance the lack of specific skills among family members (Laforet, 2013). While having a non-family CEO contributes

to bringing more diverse networks (Sirmon and Hitt, 2003), Laforet (2013) suggests that the succession process enables family firms to extend their networks to external members in later stages. Nevertheless, more research is still needed to improve our understanding of family executives' contribution to innovation through their social capital (Calabrò et al., 2019).

Regarding their financial capital, it would be difficult to argue that family firms are advantaged compared to nonfamily firms in terms of the financing of innovation activities. To retain control of their firm and avoid any possible dilution, family firms primarily rely on self-financing and are reluctant to accept external capital. Therefore, despite their patient capital, they might have limited funds to undertake significant innovation activities (Muñoz-Bullón and Sanchez-Bueno, 2011). In line with this, Schäfer et al. (2017) argue that family firms face a comparative disadvantage due to higher financial constraints, making them more likely to have latent innovation projects compared to nonfamily firms

2.4 Summary

Table 1 summarizes the expected effects of family involvement on innovation following the different theoretical perspectives reviewed in this section: agency theory, stewardship theory, socioemotional wealth (SEW) approach, and resource-based view (RBV). For each theory, it presents the main drivers of the corresponding effect and reveals the difficulty of reaching a clear and unique prediction about how family involvement would affect innovation.

Table 1: Family involvement and effects on innovation from different theoretical perspectives

Theoretical perspective	Mechanism	Effect on innovation
Agency theory	Alignment of managers' and shareholders' interests	+
	New agency costs absent in nonfamily firms	-
Stewardship theory	Managers behave in the family's interest	+
	Managers exhibit cautious attitude (risk aversion, conservatism, resistance to change)	-
SEW approach	Strategic actions to preserve SEW	+ / -
RBV	<i>Human capital</i> : work environment and culture/management practices favorable to family members	+/-
	<i>Social capital</i> : interactions with nonfamily members	+
	<i>Financial capital</i> : self-financing +++, against external capital	-

3 Family involvement and innovation

This section focuses on the results of different studies analyzing family firms from an innovation angle. It first provides an overview of family businesses' investments in innovation inputs and their production of outputs (Section 3.1). It then describes more specifically the type of innovation family firms consider (Section 3.2) and concludes by concentrating on the existing heterogeneity within family firms (Section 3.3).

3.1 Innovation inputs and outputs

To uncover the effects of family involvement on innovation from an empirical perspective, scholars have especially concentrated on innovation inputs and outputs with a slight addi-

tional focus on innovation activities (De Massis et al., 2013). Innovation inputs are essentially measured as research and development (R&D) expenses and intensity⁴ while outputs refer to patents quantity and quality⁵; product innovation (Gudmundson et al., 2003, De Massis et al., 2016) and discontinuous technology adoption (König et al., 2013). A few studies have also focused on processes and strategies involved in innovation (Craig and Dibrell, 2006, Hsu and Chang, 2011, De Massis et al., 2015b) but more research is needed regarding these innovation activities (De Massis et al., 2013).

While findings related to innovation inputs almost consistently show that family firms invest fewer resources in innovation compared to their nonfamily counterparts (e.g., Chen and Hsu, 2009, Munari et al., 2010, Muñoz-Bullón and Sanchez-Bueno, 2011, Block, 2012, Chrisman and Patel, 2012, Gómez-Mejía et al., 2014, Nieto et al., 2015, Matzler et al., 2015, Sciascia et al., 2015, Brinkerink and Bammens, 2018), contradictory results regarding innovation outputs make it challenging to reach strong conclusive evidence on family firms' effect on innovation in general (De Massis et al., 2013, Calabrò et al., 2019, Rondi et al., 2019, Block et al., 2023). Indeed, some studies establish a negative relationship between family influence and innovation outputs (e.g., Chin et al., 2009, Czarnitzki and Kraft, 2009, Block et al., 2013, Decker and Günther, 2017) while others support the opposite (e.g., Gudmundson et al., 2003, Classen et al., 2014, Matzler et al., 2015, Duran et al., 2016). Some studies even argue that family firms are more efficient than nonfamily firms as they convert lower levels of innovation inputs into outputs (e.g., Bughin and Colot, 2010, Tsao et al., 2015, Duran et al., 2016, Carney et al., 2019). When taking a broader approach (not limited to innovation inputs and outputs as abovementioned), the existing evidence also suggests that family firms are more innovative than nonfamily firms thanks to their unique resources (Llach and Nordqvist,

⁴Sirmon et al. (2008), Chen and Hsu (2009), Munari et al. (2010), Muñoz-Bullón and Sanchez-Bueno (2011), Block (2012), Chrisman and Patel (2012), Gómez-Mejía et al. (2014), Sciascia et al. (2015), Nieto et al. (2015), Matzler et al. (2015), Tsao et al. (2015), Brinkerink and Bammens (2018), Liu et al. (2017), Manzanque et al. (2020), etc.

⁵Chin et al. (2009), Czarnitzki and Kraft (2009), Block et al. (2013), Duran et al. (2016), Decker and Günther (2017).

2010) or organizational structures (Craig and Moores, 2006, Craig and Dibrell, 2006). In addition, according to Mazzelli et al. (2018), family and nonfamily firms react differently to social pressure, and such pressure has a positive influence on family firms' innovation behavior.

3.1.1 Innovation inputs

Focusing on innovation inputs, Chen and Hsu (2009) find that family ownership is negatively associated with the level of R&D investments in listed Taiwanese firms from the electronic industry. Nevertheless, the authors do not exclude the possibility that family firms have a more efficient use of their R&D investments. While confirming that family ownership is also negatively related to R&D intensity for large, public U.S. companies, Block (2012) further analyzes R&D productivity but does not observe that it is affected by family ownership or management.⁶ Even in high-technology sectors for which R&D investments are critical, publicly traded U.S. family firms have a lower propensity to invest in R&D than nonfamily firms (Gómez-Mejía et al., 2014). Studying publicly traded Canadian companies, Muñoz-Bullón and Sanchez-Bueno (2011) find similar results.

This negative association of family ownership with R&D investments is also noticed for publicly traded European firms⁷ (Munari et al., 2010). However, in this study, the authors highlight an important concern: R&D disclosure. They find that companies controlled by large shareholders, especially family firms, are, on average, less likely to report R&D investments in financial statements compared to widely-held firms. This evidence suggests that family firms may be more opaque than their nonfamily peers, making it more difficult to properly assess their innovativeness based on financial statements. The idea of family firm opacity also finds support in Anderson et al. (2009) for large publicly traded U.S. companies. The authors show that founder and heir firms are characterized by significantly higher

⁶Nevertheless, ownership by lone founders is shown to affect both R&D intensity and productivity positively.

⁷The study focuses on six European countries: France, Germany, Italy, Norway, Sweden, and the U.K.

corporate opacity compared to diffuse shareholder firms. In addition, they emphasize that among the former, those that benefit from better performance or valuation premiums are the transparent ones. Thus, results on family firms derived from financial statements should be carefully considered. To overcome this disclosure problem, Schmid et al. (2014) propose to examine accounting data along with survey data collected for listed German firms. The authors confirm the existence of an “opacity effect” responsible for an underestimation of R&D intensity. When using the survey-based R&D personnel variable, they find evidence of a higher R&D intensity for firms actively managed by the family. On the contrary, when using information from financial statements, the observed family management effect no longer exists. Their analyses further reveal that the under-reporting issue essentially exists for financially constrained firms (to potentially attract outside investors). The authors also specifically look at family control (via voting rights) and find a negative but insignificant effect on R&D activities. Although not using survey data but concentrating on publicly traded German firms as well, Matzler et al. (2015) further disentangle the effects of family ownership from management (fraction of the top management positions held by family members) and governance (fraction of the supervisory board directors that are family members). They find a negative impact of family involvement in management and governance on innovation input, but they do not find a significant effect for family ownership.

Using survey data and respectively focusing on Spanish firms and privately held SMEs in the Netherlands, Nieto et al. (2015) and Brinkerink and Bammens (2018) provide supplementary evidence of family firms’ lower R&D intensity compared to other firms. However, the measures of R&D activities used in these studies might still be inferred from financial statements as they rely on R&D spending and sales. Brinkerink and Bammens (2018) additionally contribute to prior studies by closely looking at the firms’ socioemotional considerations such as concern for control, extended preservation, organizational reputation, and values and traditions. They underline that the firms’ concerns about extended preservation constitute the main reason behind their lower investments in R&D. On the contrary,

concerns for organizational reputation, and for values and traditions encourage R&D activities. While confirming that family firms invest less in R&D than nonfamily firms in a sample of S&P's 1500 firms, Chrisman and Patel (2012) underline the tendency of family firms to increase R&D investments to a greater extent compared to other firms whenever their performance is below their aspiration level. Thus, when their socioemotional wealth is at risk, family firms are ready to shift their behavior and take different actions. Consistent with this finding and within a sample of Spanish manufacturing firms, Manzaneque et al. (2020) notice that family firms are also more efficiently converting their innovation inputs into outputs when their performance falls below their aspiration levels.

- *Family firms are shown to invest less in innovation inputs than non-family firms.*
- *However, family firms' potential opacity might bias these findings. In addition, most of the results are derived from data on publicly-traded firms.*

3.1.2 Innovation outputs

Whether the efficiency of family firms in converting innovation inputs into outputs is a general characteristic of these firms remains an open question. Indeed, studies on innovation outputs yield contradictory findings in this regard. Although not focusing on family firms specifically, Czarnitzki and Kraft (2009) highlight that companies with dispersed ownership are more innovative than those with concentrated ownership, suggesting that family firms would be less active in innovation. Chin et al. (2009) further confirm this suggestive evidence from German manufacturing firms by studying Taiwanese family firms. They show that family control is negatively associated with both the quantity and quality of patents received. However, disentangling family ownership, management, and governance leads to different results. Studying publicly traded U.S. firms, Block et al. (2013) show that both family ownership and management hurt patent citation. In contrast, Matzler et al. (2015)

do not find any significant effect of family ownership on innovation output when analyzing publicly traded large German companies. Concentrating on small and medium-sized German manufacturing companies, Decker and Günther (2017) further argue that what matters in reducing innovation outputs in family firms is the degree of family ownership and not family ownership per se. As far as family management and governance are concerned, Matzler et al. (2015) observe a positive correlation with innovation outputs (Matzler et al., 2015).

Several other studies take a more positive view on family firms' effect on innovation outputs. When analyzing the implementation of new ideas in Midwestern companies, Gudmundson et al. (2003) observe that family-owned businesses implement more innovations than nonfamily businesses. Studying German SMEs, Classen et al. (2014) not only find that family firms invest more in innovation but also stress that they are more effective than other firms regarding process innovation. With respect to product innovation, they show that family businesses are at least as effective as their nonfamily counterparts. Conducting a meta-analysis approach, Duran et al. (2016) argue that family firms invest less in innovation but have a higher conversion of innovation inputs into outputs, such as new products or patents, compared to nonfamily firms. Thus, they suggest that family firms are more likely to make efficient use of their limited investments to generate higher innovation output. Aiello et al. (2021) add to these findings by focusing on the use of external R&D and showing that family businesses also have a better ability to convert external R&D into innovation outputs (measured as innovative sales) compared to their nonfamily peers. Looking at Taiwanese firms, Tsao et al. (2015) attribute the higher efficiency of family firms to the greater sensitivity of CEO compensation to R&D investments in these firms. Asaba and Wada (2019) further stress that family firms have better innovation productivity than nonfamily firms even in R&D-intensive industries such as the pharmaceutical sector. Moreover, taking a broader approach with private Belgian firms, Bughin and Colot (2010) suggest that family firms have a more efficient use of both their R&D and patent investments to generate profitability. Nevertheless, more recently, Block et al. (2023) challenged these findings on

family firms' innovation efficiency by extending the analysis of Duran et al. (2016) and reporting no significant difference between family and nonfamily firms in terms of innovation outputs. Therefore, the literature still suffers from a lack of consensus on whether family firms are more or less innovative than nonfamily firms. Further analyses of cross-country variations and differences between private and public firms can be helpful to draw more unified conclusions.

- *While most studies suggest that family firms are more efficient in converting innovation inputs into outputs compared to other firms, there is no consensus in the literature.*

It is also worth noting that these studies do not all rely on the same definition of family firms, potentially widening the gap in observed results and leading to misinterpretations. For instance, some definitions of family firms also encompass founder firms⁸ while others do not. Separating founder-managed firms from family-managed firms (where family members other than the founder run the firm) in their sample of publicly traded U.S. firms, Block et al. (2013) show that, as opposed to family-managed firms, founder-managed firms are more entrepreneurial-oriented and benefit from higher patent citations than other firms. Prior to this study, Block (2012) also pointed out a positive relationship between ownership by lone founders and R&D intensity and productivity. Focusing on large, publicly listed U.S. firms as well, Fahlenbrach (2009) underlines that founder CEOs differ from successor-CEOs in their investment behavior. More specifically, the author finds that founder CEOs invest more in R&D and have higher capital expenditures. When comparing firms managed by founder CEOs to those run by professional CEOs, Lee et al. (2020) also support that founder CEOs play a critical role in innovation. They show that an exogenous replacement of a founder CEO by a professional one is followed by a decline in the firm's innovation performance.

⁸Among other definitions, family firms can be defined as firms with one or more members of the owner family in the management and include founder firms. Similarly, firms in which the founder or the family members hold the majority control are also defined as family firms.

While they do not find that founder CEOs invest more in R&D activities than professional CEOs, the authors suggest that founder CEOs contribute to innovation performance through their higher risk-taking propensity: they are more inclined to pursue explorative innovation. Overall, these results are aligned with the literature on CEO characteristics and innovation. Given their entrepreneurial nature, founders are generally perceived as risk-takers and overconfident individuals (e.g., Cooper et al., 1988, Camerer and Lovo, 1999, Busenitz and Barney, 1997, Cassar, 2010, Townsend et al., 2010, Puri and Robinson, 2007, Astebro et al., 2014). Both of these attributes are particularly important for innovation performance (Galasso and Simcoe, 2011, Hirshleifer et al., 2012). In addition, founders consider their firm as a critical achievement in their life, and this intrinsic motivation combined with a long-term vision reduces agency issues even more in the case of founder CEOs. Nevertheless, as their firm grows, founder CEOs might lack the skills required to manage larger and more established companies, making professional CEOs better suited to take the lead (Hellmann and Puri, 2002, Wasserman, 2003). Thus, family firms' contribution to innovation might evolve over their life-cycle with the arrival of new generations (see Section 3.3.1), nonfamily managers but also through their transition from private to public firm (Bernstein, 2015).⁹

3.2 Innovation type

After reviewing the effects of family involvement on innovation inputs and outputs in the previous section, in this section, we will narrow our focus and analyze whether and how family firms differ regarding the type of innovation they produce. We will specifically concentrate on the degree of innovation they engage in (radical vs incremental innovation) and their approach to external and open innovation.

⁹Bernstein (2015) do not specifically focus on family firms but shows that going public changes firms' innovation strategies, decreasing the internal production of innovation while leading to its external acquisition. Future analyses of differences between private and public family firms can further investigate whether family firms behave differently when going public.

3.2.1 Radical vs incremental innovation

An important aspect of innovation is the degree of novelty it brings. Firms can exploit their established knowledge and capabilities to introduce incremental changes to existing products and processes (*incremental innovation*), or they might explore novelties outside of the firm's boundaries to enter into unknown markets and/or introduce new products (*radical innovation*). Based on the type of innovation targeted, the level of risk involved and the organizational and managerial capabilities required will be different. Developing incremental innovations is usually less risky than engaging in radical innovations since the decisions are made in line with the established trajectory of the company. On the contrary, following a radical innovation strategy might require substantial changes, restructuring in the organization, and even external resources. Thus, family firms can associate such a strategy with additional risks of jeopardizing the family control or SEW and, therefore, prefer to engage in incremental innovations (Block et al., 2013). Their long-term orientation can also contribute to such a preference as they can rely on their long-term relationships to satisfy their client's needs.

In line with these views, the literature on family firms and innovation has so far revealed that, compared to their nonfamily peers, family businesses are more inclined to undertake exploitative activities and produce incremental innovation (De Massis et al., 2015b, Nieto et al., 2015, Asaba and Wada, 2019, Hu and Hughes, 2020). Using a multiple case study approach of small Italian firms, De Massis et al. (2015b) observe that family firms essentially focus on incremental product innovation while nonfamily firms engage more in radical innovations. Analyzing a large sample of Spanish manufacturing firms, Nieto et al. (2015) find that family firms are more likely to generate incremental innovations than radical innovation and also more likely to produce incremental innovations compared to nonfamily firms. Studying Japanese pharmaceutical firms to understand how family firms survive in such an R&D-intensive industry, Asaba and Wada (2019) stress the importance of family

firms’ distinctive innovation strategies and “signature moves” that explain their focus on incremental innovations. These latter refer to the fact that family firms leverage their tradition to innovate (De Massis et al., 2016) and favor narrow and internal searches to preserve their socioemotional wealth (Classen et al., 2012). Therefore, these “signature moves” justify why family firms favor incremental innovations over radical innovations that suppose broad searches and shifts from traditions.

Family firms are more inclined to pursue incremental innovations rather than radical innovations.

Nevertheless, the literature remains very scarce on this topic, and future research should elaborate more on the strengths and weaknesses associated with such innovation strategies in family firms. In addition, while scholars have explored the role of different generations in family firms’ innovation (see Section 3.3.1), our understanding of the interplay between generations and the innovation type is limited. Based on survey data from small and medium German manufacturing firms, Kraiczy et al. (2015) find that CEOs’ risk-taking propensity contributes more to the innovativeness of a firm’s product portfolio in earlier generations than later generations. Yet, their study does not provide more insights into differences between generations with respect to radical or incremental innovation strategies. Analyzing surveys from private family firms in the UK, Scholes et al. (2021) observe a positive relationship between exploration and next-generation members’ involvement along with family councils. However, they find that the next generation’s sole involvement positively relates to exploitation. Thus, all this evidence suggests that the focus of family firms on specific innovation strategies can also be a matter of the generation at control and necessitates more research.

Similarly, the role of nonfamily managers can be further studied. Indeed, focusing on digital innovation (i.e., innovation that relies on digital technology), Bornhausen and Wulf (2024) point out the existing heterogeneity in German family firms’ approach to such in-

novation. More specifically, the authors argue that having nonfamily managers might help foster investments in digital innovation as these latter do not have a stake in the firm and do not share concerns such as the preservation of SEW that would prevent family firms' openness to novelties. As mentioned in Section 3.1.2, the results might be different when only comparing founder-managed firms to firms managed by non-family members. Indeed, Lee et al. (2020) argue that founder CEOs undertake more risk and are, thus, more inclined to pursue explorative activities to innovate compared to professional CEOs. A CEO with hands-on experience with innovation can also make a difference regarding the type of innovation. Islam and Zein (2020) suggest that inventor CEOs are more likely to pursue radical innovation than non-inventors. In contrast, Harrison et al. (2024) argue that inventor CEOs will push their firm toward more exploitative innovation due to their broad range of responsibilities. They show that internally promoted inventor CEOs and especially founders are more likely to behave as such, while outsiders might bring more novel ideas. Thus, it would be interesting to investigate more managers' characteristics, their influence on the type of innovation pursued, and how they contribute to explaining variations within family firms (see Section 3.3).

3.2.2 External and open innovation

Partnering with other firms and institutions can have a substantial effect on innovation. It might help access various resources and knowledge that are not available in a firm and, thus, overcome internal limitations to accelerate the innovation process. It might also be viewed as a way of sharing the costs and risks behind innovation. Thanks to their social capital, family firms may have an advantage in engaging in such collaborations and benefiting from greater innovation performance. Indeed, De Massis et al. (2015b) suggest that access to external sources of knowledge and technologies facilitates the innovation process in family firms. In their multiple case study of Italian firms, they observe that family firms are more prone to rely on external collaborations than nonfamily firms. While this goes against family

firms' desire to preserve their SEW and especially to maintain control, the authors argue that the nature of the collaborations may have different effects on potential SEW losses. In their study, collaborations involve universities, public research centers, and suppliers, which are different from competing firms and are less likely to threaten the SEW. Nevertheless, it is also worth noting that their findings are based on a qualitative study of a limited number of firms.

Using larger samples of Spanish manufacturing firms, Kotlar et al. (2013) and Nieto et al. (2015) provide empirical evidence more aligned with the SEW theory. While Kotlar et al. (2013) find that external technology acquisition¹⁰ is more likely to happen when firms' performance falls below their aspiration level, they show that family management negatively affects such a likelihood. They argue that family firms are less open to acquiring technology from external sources, especially due to their desire to control the technology trajectory. Indeed, running in-house activities enables them to keep greater control over these activities and avoid potential leakage of information and intellectual property. Consistent with this argument, the authors find that when protection mechanisms such as patent filing are in place to preserve control, family firms become less reluctant to such acquisitions. Nieto et al. (2015) further confirm that family firms are less inclined to rely on external sources of innovation compared to nonfamily firms. They observe that this is the case for external sources in general (including R&D contracting and different forms of collaboration) but also for collaborations established through technological agreements with other firms and research organizations such as joint ventures or nonequity alliances.

More recently, using a large sample of Spanish manufacturing firms as well, Muñoz-Bullón et al. (2020) show that combining internal and external R&D through outsourcing contributes more to innovation performance in family firms than nonfamily firms. Thus, developing external partnerships might be particularly relevant for family firms in an innovation context.

¹⁰By external technology acquisition, this study essentially refers to R&D contracting with external organizations such as competitors, suppliers, or public research organizations to buy R&D services. However, it does not separately analyze the type of contractors.

Nevertheless, this topic has also received limited attention from scholars in general, and more research is necessary to better understand how family firms can reach their full innovation potential by leveraging external collaborations (Feranita et al., 2017, Muñoz-Bullón et al., 2020). In addition, existing studies are restricted to Spanish manufacturing firms, and external validation with more research on other countries would be relevant. Extending the focus to different forms of innovation and different types of collaborations might also contribute to our understanding of the importance of external sources of innovation for family firms.

- *Family firms have more chances to establish external collaborations and convert them into higher innovation performance compared to nonfamily firms.*
- *At the same time, they are reluctant to collaborate as they do not want to lose control or suffer from information and intellectual property leakages.*

3.3 Heterogeneity within family firms

Although researchers have initially drawn their studies on comparisons between family firms and nonfamily firms, within family firms heterogeneity has also caught some scholars' attention and led to calls for future research (De Massis et al., 2015b, Li and Daspit, 2016, Calabrò et al., 2019, Block et al., 2023). While there might be many different sources of heterogeneity in family firms' approach to innovation, we will focus on some of them that are highlighted in the existing literature. Among others, an important driver of variations within family firms is the generation in control. Whether a firm is owned or managed by its sole founder, early-generation family members, or late-generation family members will have different implications for innovation. Family firms might also differ more generally with respect to their goals and abilities to achieve them.

3.3.1 Innovation through generations

Ensuring the continuity of the business by passing it on to future generations is a key concern for family firms. From an innovation viewpoint, generational transitions are important to study since they can affect the innovation rate over time. New generations can be critical drivers of innovation by bringing fresh perspectives, embracing new practices, and benefiting from the advantages family firms have built over time. Nevertheless, succession can also create some concerns, especially due to divergences in different generations' visions and attachments to the firm. Consistent with these views, some studies support that family firms become less innovative over generations (e.g., Bammens et al., 2010, Beck et al., 2011, Kraiczy et al., 2015, Decker and Günther, 2017) while others suggest that later generations significantly contribute to firms' innovativeness (e.g., Duran et al., 2016, Rondi et al., 2019, Carney et al., 2019).

Based on a two-wave survey of Australian family firms conducted with 10-year intervals, Craig and Moores (2006) state that the level of innovation depends on firms' life stage. They specifically underline that earlier stages are associated with higher levels of innovation. At the same time, early life stages are also associated with founders and early generations, suggesting that the latter might be more innovative than later generations. Bammens et al. (2010) support this idea through a survey of privately-held manufacturing SMEs from Benelux. Focusing on small and medium businesses in Belgium and the Netherlands, Beck et al. (2011) also find that early generations are more innovative than late generations, but they attribute this to the early generations' higher market orientation level compared to the next generations. Taking a different angle and focusing on small and medium German manufacturing firms, Kraiczy et al. (2015) analyze the effect of CEO risk-taking propensity on new product innovativeness. They show that this effect is positive and stronger in the early stages when the controlling generation is closer to the founding generation. While all these studies rely on survey questionnaire-based definitions of innovation, Decker and

Günther (2017) provide consistent evidence by using patent count data and comparing German family and nonfamily firms. They find that second and later-generation family firms are less innovative than their non-family peers while they observe no significant difference between the latter and first-generation family firms. In addition, when showing that family management positively affects R&D intensity, Schmid et al. (2014) further highlight that this positive effect is essentially due to the founders themselves and not to their descendants. In line with these observations, Block (2012) notices that, by contrast to family ownership, lone founders positively affect R&D intensity and productivity. Fahlenbrach (2009) also reveals that in publicly traded U.S companies, founder CEOs invest more in R&D and have higher capital expenditures than successor CEOs.

However, not all scholars share a negative view of late generations. As mentioned in section 3.1, in their meta-analysis, Duran et al. (2016) find that family firms produce more innovation outputs while investing less in inputs compared to other firms. They also stress that this effect is more pronounced when the CEO of the family firm is from a later generation. Conversely, they observe that under founder CEOs' control, the innovation input level is higher, but the output level is lower. Thus, they suggest that later generations contribute to the efficiency of family firms in terms of innovation production. Focusing on a particular context of property right regime change in China and analyzing publicly-listed family firms, Carney et al. (2019) also show that succession can have positive effects on family firms' innovativeness, especially as new generations are more likely to pursue lean innovation strategies. Consistent with Duran et al. (2016), they find that following a succession, family firms are more efficient at converting innovation inputs into outputs. Nevertheless, they also observe that later generations keep conservative attitudes and invest less in high-risk invention patents and more in lower-risk types of patents. Another positive view of late generations' effect on innovation is offered by Rondi et al. (2019). While providing a typology of "*innovation postures*" based on risk-taking propensity and attachment to tradition, the authors describe succession in family firms as an ideal occasion to reconsider their in-

novation posture. In the illustrative examples they present, future generations are depicted as essential contributors to realizing their firms' innovation potential. Collecting data from U.S. manufacturing firms defining themselves as family firms, Zahra (2005) observes that the presence of several generations from the same owner family is positively correlated with innovation. How these generations interact with each other from an innovation perspective remains an underexplored question.

- *Some studies support that family firms' propensity to innovate is reduced over generations.*
- *Others show that new generations increase family firms' efficiency and help convert innovation inputs into outputs.*

3.3.2 Other sources of heterogeneity

Chrisman and Patel (2012) support the idea that family firms exhibit more variability in their R&D investments compared to nonfamily firms. To measure and explain this heterogeneity, they rely on a behavioral agency theory with a myopic loss aversion framework.¹¹ They argue that this high variability is due to families' heterogeneous intentions regarding transgenerational control and performance aspirations, and to the differences in the compatibility of these family goals with the economic goals of the firm. Indeed, focusing on manufacturing firms from the S&P 1500 index, the authors show that whenever the economic performance falls below family firms' aspiration level, i.e., whenever their socioemotional wealth is at risk, family firms respond with a strong reaction by increasing their R&D investment significantly more than nonfamily firms. Thus, there is a level of performance below which family goals and economic goals converge. Gómez-Mejía et al. (2014) provide similar evidence when exploring the heterogeneity in family firms' R&D decisions

¹¹The behavioral agency model is derived from prospect theory (Kahneman and Tversky, 1979). It helps understand the risk attitude of family firms as it supposes that risk preferences are not constant over time and hence, family firms do not always stay risk averse.

for publicly traded high-tech firms. They find that family firms, indeed, invest more in R&D following a shortfall in their performance relative to their competitors.

De Massis et al. (2015a) describe family firm heterogeneity around three factors: family’s willingness that defines where they want to go (goals), how they will use their ability to go there, and the resources and capabilities they will deploy to achieve their goals. They develop the “*Family-driven innovation*” (*FDI*) concept that covers strategic decisions that help family firms get a fit between their unique characteristics and their innovation decisions. Motivated by the mixed evidence on innovation output, Li and Daspit (2016) focus on the heterogeneity of family firms as well to better understand these findings. Building on SEW objectives, they provide a typology of family firm innovation strategies. They describe four types of innovators: the limited innovators, the intended innovators, the potential innovators, and the active innovators. While limited innovators correspond to those who will invest less in innovation and prefer incremental strategies, active innovators will invest more in innovation and prefer radical innovations. Potential innovators and intended innovators are described as having moderate investments in innovation, but the latter are more willing to identify radical innovation opportunities, and the former exhibit a preference for incremental innovations.¹²

As underlined in Section 3.2.1, differences in CEO characteristics might be another interesting source of heterogeneity to further explore in the family firm literature. For instance, inventor CEOs, i.e., CEOs with patenting experience, are shown to contribute more to their firms’ innovation outcomes and to be more efficient in converting inputs into outputs compared to noninventor CEOs (Islam and Zein, 2020, Byun et al., 2021).¹³ Future research can investigate whether and how inventor CEOs can leverage their skills in family firms, especially if they are outsiders. Regarding CEO characteristics, Chen and Hsu (2009) also notice that the separation of the CEO and chairman positions might play an important role in the decision to invest in innovation. They find that, when the CEO is also the chairman, the

¹²See Li and Daspit (2016), Table I p.108 for more details on the different types of innovators.

¹³Notice that in both studies, the observed inventor CEOs’ effect is not driven by founders.

effect on R&D investments is negative and argue that this effect might be reduced under the presence of more independent directors on the board. Related to this latter point, Balsmeier et al. (2017) support that board independence, indeed, increases innovation outcomes in terms of patents, citations, and claims. However, they highlight that the observed positive changes are essentially related to incremental innovations and not to radical innovations.

A few other studies stress that family firms are heterogeneous in their approach to digital innovation and transformation as well (Soluk et al., 2021b,a, Leppäaho and Ritala, 2022, Bornhausen and Wulf, 2024). It is also shown that while crises foster digital innovation in family firms (Leppäaho and Ritala, 2022), they increase the existing heterogeneity (Soluk et al., 2021a). The more general adoption of technologies in family firms and its impact on future innovation constitutes another interesting angle for future research. Although robot adoption is shown to be quite limited compared to digital technologies (Benmelech and Zator, 2022), there is a growing literature on automation, robots, and AI (e.g., Graetz and Michaels, 2018, Acemoglu and Restrepo, 2019, 2020, Acemoglu et al., 2020, 2022, Aghion et al., 2023, Babina et al., 2024). While the main attention of this literature is on the labor market effects, the consequences in terms of future innovation are also significant (Koch et al., 2021, Antonioli et al., 2024, Rammer et al., 2022, Babina et al., 2024) and might be further explored in family firms' context. Overall, despite the increased focus on the heterogeneity of family firms, this remains an understudied topic.

- *Family firms exhibit more heterogeneity with respect to their innovativeness compared to nonfamily firms.*

4 Conclusion

Describing a “*willigness-ability paradox*”, researchers have raised attention on the fact family firms would engage less in innovation than nonfamily firms while being able to do more (De Massis et al., 2014, Chrisman et al., 2015, Ingram et al., 2016). Indeed, family firms

are characterized by unique features that can facilitate but also hurt innovation. Despite their long-term orientation, their specific resources and values that are favorable to innovation, their risk aversion, fear of losing control, desire to protect SEW, and family conflicts prevent them from fully achieving their innovation potential.

The literature consistently shows that family firms invest less in innovation compared to nonfamily firms while suggesting that they might be more efficient in converting innovation inputs into outputs compared to other firms. Nevertheless, there are still contradictory findings regarding their innovation outputs that challenge the understanding of their overall contribution to innovation. At the same time, it is worth noting that there are several variations in these studies that might create inconsistencies and constitute their limitations. First, they do not rely on the same definition of family firms, and many studies use survey data and self-identification of firms as family businesses. Second, these studies cover companies from different countries¹⁴, different industries, sometimes listed and sometimes not. With respect to this, one of the frequent limitations is their focus on a unique country, specific industry, and, most of the time, public companies. Lastly, the measures used to capture innovation inputs and outputs might also vary. While this helps extend the analysis to several aspects of innovation and provide robustness, it might also contribute to explaining the observed inconsistencies. In addition, these limitations also hold for existing research on two topics that need further attention from scholars: the innovation type and the heterogeneity within family firms.

¹⁴Notice that studies covering French companies are quite limited.

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