



This article forms part of the Special Issue on Strategic Leadership & Radical Innovation

Resource orchestration, socioemotional wealth, and radical innovation in family firms: Do multifamily ownership and generational involvement matter?

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ARTICLE INFO

Keywords:

Radical innovation
Strategic leadership
Resource orchestration
Socioemotional wealth
Multifamily ownership
Generational involvement

ABSTRACT

We draw from resource orchestration and socioemotional wealth (SEW) arguments to examine radical innovation in multifamily firms. We theorize that the weak coordination mechanism associated with multifamily ownership has a negative effect on the positive SEW-radical innovation relationship. Additionally, we argue that low generational involvement – the number of family generations involved simultaneously in the family firm's top management team – mitigates the negative moderating effect of multifamily ownership. Low generational involvement is a mobilizing mechanism that ensures that the family firm uses its SEW to produce radical innovation. We use a sample of Spanish firms to test our expectations. Our results show that firms realize the positive effect of SEW on radical innovation in concert with the leadership governance mechanism of multifamily ownership and low generational involvement. These results are important in that evidence suggests that radical innovation plays a strong role in family firms' long-term survival, success, and renewal. We conclude our paper with a discussion of the study's theoretical contributions and opportunities for future research.

1. Introduction

In today's business environments, firms must adapt quickly through radical innovation – a type of innovation resulting in major transformations of existing products that often make prevailing knowledge obsolete – to exploit identified opportunities as a path to competitive success (Bergek et al., 2013; Covin et al., 2016; Subramaniam and Youndt, 2005). Radical innovation is particularly critical for the long-term survival, success, and renewal of family-owned firms (Heider et al., 2022; Webb et al., 2010). Family-owned firms are a prevalent organizational form generating entrepreneurial activity across the world (Hoskisson et al., 2017; Johnson et al., 2008) and producing more than half of the world's gross domestic product (Combs et al., 2023). In addition to their significance as an organizational form and despite the general belief that they are risk averse (see, e.g., Hoskisson et al., 2017),

family firms are a prominent source of innovation. For example, evidence suggests that "...more than half of the most innovative large European firms are controlled by family owners" (Duran et al., 2016, p. 1224). Overall, family firms, which demonstrate considerable heterogeneity (Daspit et al., 2018), are a unique context for studying radical innovation in that they are a product of overlapping sociological systems—the family and the business (De Massis et al., 2022). This overlap creates complex entities that can be challenging to lead and manage (Kudrats et al., 2019). In particular, multifamily firms – firms owned by multiple and unrelated families that are neither related by blood or marriage (Duran and Ortiz, 2019; Kudrats et al., 2019) – are an intriguing context for our study in that they are a product of heterogeneous teams of unrelated founders and families with different foci spanning different generations.

Foundational to research examining radical innovation is the

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<https://doi.org/10.1016/j.respol.2024.105106>

Received 30 November 2022; Received in revised form 28 July 2024; Accepted 30 August 2024

Available online 13 September 2024

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suggestion that resources – assets that potentially drive value creation (Barney, 1991; Sirmon et al., 2007, 2011) – and corporate governance – the leadership system on which leaders rely to develop a strategic lens and take actions to direct, manage, and control the firm (Finkelstein et al., 2009; Hitt et al., 2011; Ireland and Hitt, 2005; Luciano et al., 2020) – are critical for radical innovation success (e.g., Connelly et al., 2010; König et al., 2013). The majority of the research concerned with issues that are germane to our study focuses on how CEO characteristics and the resources CEOs manage as strategic leaders affect radical innovation processes and outcomes (e.g., Barker III and Mueller, 2002; Cho and Kim, 2017; Georgakakis et al., 2022). Overlooked by researchers is the interplay of multiple actors in addition to the CEO as the central strategic leader (see, e.g., Cortes and Herrmann, 2021; Dura et al., 2022). Connelly et al. (2010, p. 1561) speak to this issue by suggesting that a “firm’s owners [are] an increasingly important and influential group” that governs managers’ actions (Daily et al., 2003; Filatotchev and Nakajima, 2010; Lozano et al., 2016). It is important to examine the research gap Connelly et al. (2010) identified given that assessing radical innovation’s outcomes accurately requires an understanding of owners’ decisions and leaders’ actions (Daily et al., 2003; Filatotchev and Nakajima, 2010; Van Doorn et al., 2022). Given the prevalence and economic importance of family-owned firms, in our study, we focus on single and multifamily ownership as a diffuse leadership governance mechanism (Brigham and Payne, 2015; Neckebrouck et al., 2018) with the capacity to support or hinder radical innovation. Our research setting is intriguing in that as Fries et al. (2021, p. 2) note, “[l]eadership in family firms is different from that in other firms, given the emotional considerations of family firm leaders...and their high levels of influence...and tenures.”

We integrate the resource orchestration literature (Helfat et al., 2007; Sirmon et al., 2007, 2011) with the socioemotional wealth (SEW) perspective (Gómez-Mejía et al., 2011; Hoskisson et al., 2017) to develop a theoretical framework as the foundation for advancing relationships to test. Resource orchestration addresses the importance of managing resource-related decisions effectively to achieve desired outcomes (Helfat et al., 2007; Sirmon et al., 2007). Firms rely on coordination and mobilizing mechanisms to manage their resource-oriented choices and decisions. Coordination “keep(s) co-specialized assets in value-creating co-alignment” (Helfat et al., 2007, p. 28) while mobilizing “provides a plan or vision for capabilities” to develop (Sirmon et al., 2011, p. 1392). Based on these expectations, we propose that the family firm’s SEW – a non-pecuniary endowment that a family or coalition of families have in the firm along with its five dimensions (cf. FIBER; Berrone et al., 2012; Naldi et al., 2024) – serves as a firm-specific resource stock (Chua et al., 2015; Combs et al., 2023; Neacsu et al., 2016) from which to draw to develop radical innovation. We contend, however, that as a coordination mechanism, family ownership becomes less effective and promotes goal divergence and path dependency when multiple unrelated families own the business (Brigham and Payne, 2015; Pieper et al., 2015) with the result being a weakening of the SEW-radical innovation relationship. Therefore, we argue that deriving full benefits from the expectation surrounding the family firm’s SEW on radical innovation in multifamily firms occurs only with the presence of a small number of family generations that are part of the firm’s TMT (generational involvement; Ling and Kellermanns, 2010). When effective, this level of involvement helps to form a mobilizing vision that supports efforts to use the family firm’s SEW in ways that foster radical innovation. Using a sample of Spanish firms, we examine the joint effect of multifamily ownership and generational involvement on a firm’s ability to convert the family firm’s SEW into radical innovation.

Our work yields several contributions. First, in contrast to most studies focusing on the family firm’s orientation concerning loss aversion (e.g., Chrisman and Patel, 2012; Hoskisson et al., 2017), we depict SEW as a strategic resource for firms seeking to produce radical innovation. Consistent with others (e.g., Black and Boal, 1994; Chi, 1994), we consider a strategic resource (family firm’s SEW in our case) to be one

that is valuable, rare, difficult to imitate, and for which substitution is difficult (Barney, 1991). Moreover, we specify multifamily ownership and generational involvement as important contingencies. These arguments and the tests associated with them allow us to contribute to the literature addressing the intersection of SEW as a resource, leadership governance, and radical innovation in family firms (Combs et al., 2023; Diaz-Moriana et al., 2020). Second, we contribute to the emerging, yet scarce literature dealing with multifamily firms in which different families hold a proportion of company shares. Finally, we highlight that family firms and their leaders take different strategic actions to produce radical innovation (Calabrò et al., 2019). Across family firms, there are differences in ownership structures and generational involvement at the managerial level, resulting in variant abilities among firms seeking to translate ideas into actions. By focusing on the interplay among multiple actors, our study shows why some family firms, but not others, produce radical innovation (Chrisman et al., 2015a; Daspit et al., 2021).

2. Theoretical framework

2.1. Radical innovation

Radical innovation, which features great uncertainties (Hu and Hughes, 2017), changes existing products significantly in all types of companies including family firms (Hu et al., 2022; Subramaniam and Youndt, 2005). Often, consumers experience these transformations in the form of advancements in product functionality (Slater et al., 2014). Radical innovation, with the potential to be both disruptive and discontinuous within firms (Chirico et al., 2022), is the foundation for firms being able to introduce novel products into a marketplace and reduce the speed and severity of product obsolescence (Delgado-Verde et al., 2016; Evanschitzky et al., 2012). Influences on a family firm’s efforts to produce radical innovation include the level of a family’s involvement in the firm’s ownership and the family’s resources, knowledge, and experience as well as its goals (Hu and Hughes, 2017; Hu et al., 2022).

Radical innovation differs from incremental innovation in its fundamental nature and impact. While incremental innovation involves relatively modest enhancements to existing products or processes, radical innovation represents profound shifts, often disrupting established markets or creating new ones (Acemoglu et al., 2022). Unlike incremental changes, which refine current models, radical innovation demands a reevaluation and significant change of existing organizational strategies, structures, and processes (McDermott and O’Connor, 2002; Slater et al., 2014). Previous studies also emphasize that radical innovation requires a distinctive set of capabilities and is more likely to occur in firms able to manage a variety of heterogeneous yet complementary resources, including human and social capital (Garcia and Calantone, 2002; Makri et al., 2010; Slater et al., 2014; Wilden et al., 2023; Zhou and Li, 2012). Subramaniam and Youndt (2005, p. 454) note, for example, that “[w]hile human capital provides organizations with a platform for diverse ideas and thoughts, social capital can help connect them to make unforeseen and unusual combinations for radical breakthroughs.” The resource orchestration literature (e.g., Helfat et al., 2007; Sirmon et al., 2007, 2011) includes insights about an array of actions leaders can take to help manage their firm’s resources effectively as a path to producing radical innovation.

2.2. Resource orchestration

Drawing from the resource-based view (Barney, 1991), resource management arguments suggest that valuable, rare, inimitable, and non-substitutable resources support firms’ efforts to produce outcomes including radical innovation. However, possessing resources alone is insufficient. Instead, a firm must be able to orchestrate its resource portfolio as a foundation for creating value (Andersen and Ljungkvist, 2021; Sirmon et al., 2007). Hansen et al. (2004, p. 1280) suggest that

“what a firm *does* with its resources is at least as important as *which* resources it possesses” (*italics* in original). Resource orchestration, which is attracting considerable attention from researchers studying radical innovation (Andersen and Ljungkvist, 2021; Chirico et al., 2023), is the process by which managers make, build, acquire, deploy, and redeploy their resources (Pitelis and Teece, 2010). Overall, resource orchestration speaks to the issue of what a firm does with its resource portfolio to build a competitive advantage, for instance, through the development of radically new products (Sirmon et al., 2011). In fact, given that radical innovation is a resource intense set of activities that involves uncertainty, firms orchestrate their resources to promote their efficient use and to reduce uncertainty when seeking to produce radical innovation (Andersen and Ljungkvist, 2021; Candi and Beltagui, 2019).

Structuring, bundling, and leveraging are resource orchestration's three key processes (Sirmon et al., 2007, 2011). Given that the leveraging process (with coordination, mobilizing, and deploying as subprocesses) involves actions firms take to introduce new products to the market, often ones grounded in radical forms of innovation, our study focuses on this specific process to predict the relationships we theorize. Through coordination, firms seek to manage resources effectively (Helfat et al., 2007; Sirmon et al., 2011). However, a “vision” (Helfat et al., 2007) or a set of intentions as to how the firm should use its resources (Sirmon et al., 2011), must exist to guide actions firms take to coordinate resources. Sirmon et al. (2011) refer to this process, which firms use to convert resources into capabilities, as mobilizing. Finally, deploying is the process through which a firm engages with a market. Introducing new products that are transformational, relative to existing ones, is an example of such engagement (see Sirmon et al., 2007, 2011).

Orchestrating resources is particularly important for firm efforts taken to produce radical innovation (Keupp and Gassmann, 2013; Subramaniam and Youndt, 2005; Zhou and Li, 2012). Effective alignment also ensures that firms have the capacity to use resources efficiently and effectively. For example, by aligning resources effectively, firms improve their ability to manage the risks associated with radical innovation (e.g., Slater et al., 2014; Teece, 2018). In so doing, firms can invest in market research to understand potential opportunities and challenges, allocate resources to firm-specific actions with the highest potential to yield breakthrough developments, and ensure that there is a balance between projects with more predictable outcomes and those with the highest levels of novelty and risk (Lee et al., 2015; Lin et al., 2014). Effective leadership of a firm's governance mechanism facilitates efforts to recombine resources to produce radical innovation (e.g., Hussinger et al., 2018). As noted earlier, a family firm's ownership structure represents a leadership governance mechanism with potential to enable and support actions taken to recombine resources, given family firms' unique social context (Eddleston et al., 2008; Sirmon and Hitt, 2003).

2.3. Family firms and socioemotional wealth

A family business is a “business held by a dominant coalition controlled by members of the same family [single-family firm] or a small number of families [multifamily firm]” (Chua et al., 1999, p. 25). Family firm members place high value on nonfinancial outcomes that are related to “the family's affective needs” (Gómez-Mejía et al., 2007, p. 106) as well as financial outcomes. A family firm's SEW includes dimensions such as family control and influence over strategic decisions; identification and emotional attachment of the family to the business; social ties within and outside the business; and intergenerational continuity (cf. FIBER; Berrone et al., 2012; Naldi et al., 2024). Jointly, these dimensions represent a pool of assets or resource stocks (Chua et al., 2015; Combs et al., 2023) that the family seeks to preserve (Gómez-Mejía et al., 2007); however, family firms can also choose to use these assets to invest in value-creating opportunities (Carney, 2005; Eddleston et al., 2008; Sirmon and Hitt, 2003). For example, family influence, identification, and emotional attachment foster efforts to create and

develop human capital; binding social ties favor the emergence of social capital; and a long-term orientation ensures the availability of patient and survivability forms of capital (Combs et al., 2023; Herrero, 2018; Sanchez-Famoso et al., 2015; Sirmon and Hitt, 2003). These elements are key to activities taken to achieve positive firm outcomes such as innovation (e.g., Calabrò et al., 2021; Muñoz-Bullón et al., 2020; Sanchez-Famoso et al., 2019), especially radical innovation (e.g., Broekaert et al., 2016; Covin et al., 2016; Hu et al., 2022). When used to create value, SEW becomes a strategic resource—one that is valuable, rare, difficult to imitate, and for which substitution is difficult (Combs et al., 2023).

However, despite sharing common features (Arregle et al., 2007; Sirmon and Hitt, 2003; Zellweger and Sieger, 2012), family firms lack homogeneity, meaning that there is variance among them. We see this variance in many ways, such as how firms pursue goals, how they engage with change and innovation-related activities, and so forth (Hoskisson et al., 2017). Additionally, the ownership structure of family firms varies. Evidence suggests that an observable percentage of family firms has an ownership structure with shares owned by two or more unrelated families within or across multiple generations (see, e.g., Brigham and Payne, 2015). We find such an ownership structure to be an interesting context to explore the relationship between a family firm's SEW and radical innovation. The reason for this is that this context combines the positive features associated with the social setting of family businesses (Arregle et al., 2007; Eddleston et al., 2008; Sirmon and Hitt, 2003) with the potentially undesirable effects of path-dependent behaviors and goal diversity that may exist among unrelated controlling families across generations (Brigham and Payne, 2015; Pagliarussi and Rapozo, 2011; Pieper et al., 2015). Leaders from the owning family have the primary responsibility to prevent the occurrence of divergent and negative path-dependent behaviors.

3. Hypotheses development

We follow the logic of resource orchestration to construct our hypotheses. Using theoretical insights, we develop our main hypothesis which involves a three-way interaction. Based on resource orchestration tenets, we suggest that firms maximize their efforts to deploy (radical innovation) their key strategic resource (SEW) through coordination (multifamily ownership) and mobilizing (generational involvement). Specifically, we theorize that, contrary to existing predictions (e.g., Calabrò et al., 2019; Gómez-Mejía et al., 2011; Hoskisson et al., 2017), SEW is a strategic resource for radical innovation. However, multiple, unrelated owning families hinder coordination efforts by promoting goal divergence and path dependencies, thus weakening the SEW-radical innovation relationship. But, low generational involvement across unrelated owning families mitigates goal divergence and path dependencies while the presence of multiple owning families brings heterogeneous, yet complementary knowledge to the firm's decision-making process. These conditions combine to strengthen the SEW's effect on a family firm's efforts to develop radical innovation. That is, SEW leads to increased radical innovation when multifamily ownership is present and generational involvement is low. We explore these expectations next.

3.1. Socioemotional wealth and radical innovation

In general, the literature views SEW as a factor hindering radical innovation within family firms (e.g., Calabrò et al., 2019; Chrisman and Patel, 2012; Gómez-Mejía et al., 2011). Some propose that family firms' aversion to SEW losses reduces the propensity to commit to risky R&D investments (Chrisman and Patel, 2012), acquire external technology (Kotlar et al., 2013), and ultimately, commit to developing breakthrough innovations (Kotlar et al., 2020; Patel and Chrisman, 2014). We contend though that SEW is a strategic resource that enhances family firms' radical innovation while outweighing its potential negative effects

(Kellermanns et al., 2012). This is because when implementing and leveraging strategies with a focus on sustaining the family business, “[f]amily firms do not just ‘do it differently’ to *preserve* SEW,” but they also “do it better’ because of SEW” (Combs et al., 2023, p. 576; *italics* in original). Herein, we depict SEW with its dimensions (family control and influence, identification, emotional attachment, social ties, and intergenerational continuity) as a stock of family-specific resources (Chua et al., 2015; Combs et al., 2023; Hoskisson et al., 2017) that strategic leaders, as decision makers, can deploy to pursue radical innovation. In this sense, SEW is a strategic resource firms manage as part of their resource orchestration efforts to produce radical innovation.

With respect to the importance of including SEW as part of a firm's resource orchestration processes to produce radical innovation, we note first that family members' control of and influence on the firm affect the choices when making strategic decisions and the firm-specific outcomes resulting from them. With high family involvement, where individuals exercise control and influence by using both formal and informal positions of power and control, the “family has control and discretion over resource accumulation, use, and disposal” to pursue radical innovation (Hu et al., 2022, p. 265). Second, family members' identification and emotional attachment, based on a family history and knowledge of shared experiences and common language, help them view the firm as an extension of the family (Gómez-Mejía et al., 2011; Patel and Fiet, 2011). Shared experiences should enhance the family's ability to absorb new ideas and rely on individual family members' domain of specialization when seeking to develop radically new products (Hoskisson et al., 2017; Patel and Fiet, 2011). Importantly, shared experiences and using a common language, based on family identification and affective priorities, improve the efficiency of knowledge sharing that is a part of firms' efforts to produce radical innovation (Colombo et al., 2017; Slater et al., 2014; Wilden et al., 2023). This happens because sharing common experiences and similar ways of thinking facilitate rapid and effective exchanges among individuals, avoiding the need to translate ideas into a higher-level language for exchange purposes (Chirico and Salvato, 2016; Tagiuri and Davis, 1996).

Third, strong family ties with a grounding in social interactions have the potential to be a “source of competitive advantage” for a firm (Eddleston et al., 2008, p. 26). This advantage develops when family ties promote shared values, cooperative norms, trust, and a sense of reciprocity (Combs et al., 2023); all of these are conditions that facilitate development of breakthrough solutions (Covin et al., 2016; Patel and Fiet, 2011; Subramaniam and Youndt, 2005; Wilden et al., 2023). Similarly, strong external ties with stakeholders such as customers, suppliers, and potential partners (e.g., research institutions and technology laboratories), are important sources of knowledge—knowledge that facilitates a family firm's efforts to produce radical innovations and then introduce them into new markets in the form of novel products (e.g., Cuevas-Rodríguez et al., 2014; Nieto and Santamaria, 2007; Zhang et al., 2018). Finally, the more robust is the family firm's SEW, the stronger is its long-term orientation toward intergenerational continuity (Combs et al., 2023). This relationship finds family members committed to providing both patient capital and survivability capital to the firm. Patient capital refers to financial resources that family members invest with a long-term horizon while survivability capital is the set of resources family members are willing to contribute, share, or loan to the family firm (Habbershon and Williams, 1999; Sirmon and Hitt, 2003). Because of their attributes, patient and survivability capital can support risky activities and efforts to produce radical innovation. These outcomes accrue to firms because individuals providing these types of capital are willing to accept longer term payoffs and tolerate uncertainty and even losses in the short term (Alexander and Knippenberg, 2014). Indeed, radical innovation typically demands substantial resources and a significant investment of time. A long-term perspective allows the firm to allocate its resources with the understanding that the benefits of radical innovation likely will unfold over an extended period (Slater et al., 2014). This perspective finds family leaders and their firms

shifting their focus from short-term setbacks to pursuing learning opportunities with a transformative (i.e., radical) purpose (Chirico et al., 2022; Hu et al., 2022). Considered jointly, these are all conditions associated with SEW being a strategic resource that helps the family firm produce radical innovation through a cohesive group of family members acting in mutual interdependence. As such, we predict:

Hypothesis 1. A family firm's SEW is positively related to radical innovation.

3.2. Single and multifamily firms

Consistent with resource orchestration arguments, research suggests that an effective coordination mechanism benefits firms (Connelly et al., 2010; Sirmon et al., 2007, 2011), especially in the context of radical innovation (Li et al., 2017). Studies concerned with radical innovation emphasize coordination's key role in enabling flexible allocations of diverse resources to novel combinations (see, e.g., Li et al., 2010). In a family firm context, such a mechanism comes into play primarily at the ownership level, where owners, as strategic leaders, form and prioritize their goals related to the family firm's SEW. In a single-family firm, where coordination is particularly effective (Arregle et al., 2007), translating SEW into radical innovation is likely to be more successful compared to the results achieved in a multifamily firm. That is, a business owned by a single family is likely to manage the dimensions of its SEW (family control and influence, identification, emotional attachment, social ties and intergenerational continuity) more effectively when seeking to develop ‘novel,’ that is radical, products (Sirmon and Hitt, 2003). As such, we expect that in a single-family firm, the stronger common shared experience and language developed within one dominant family coalition with strong social ties and the relationships resulting from them enhance a firm's ability to make long-term investments to support efforts to produce radical innovation. With a streamlined approach to innovation, driven by a strong, shared family focus on desired outcomes (Slater et al., 2014; Wilden et al., 2023), these firms are more likely to undertake bold, market-disrupting initiatives. This unified approach often translates into faster decision making and a greater willingness to invest in high-risk, high-reward breakthrough innovative projects. For instance, Chrisman et al. (2021) theorize that single-family firms can better prioritize nonfinancial goals such as transgenerational control toward long-term investments and outcomes. Further, Barney et al. (2003, p. 294) view “family ties as a special type of ‘strong’ ties” [for recognizing and exploiting new opportunities] that result from the embedded unique and rich social context of the single-family firm. As a coordination mechanism, a single-family ownership structure thus strengthens the link between a firm's SEW and radical innovation, allowing family members to agree on their SEW goals and priorities while discussing and exchanging information easily and rapidly through established patterns of collective behavior (Patel and Fiet, 2011; Tagiuri and Davis, 1996). Rapid exchange of information is crucial for coordinating resources to produce radical innovation, as it allows for agile responses to market opportunities and the ability to capitalize on emerging trends quickly (e.g., Oltra et al., 2022). In sum, the single-family firm structure is one potential coordination mechanism needed to increase the potential of a family's unique SEW to support efforts to produce radical innovation.

We predict though that these benefits will likely be offset in a multifamily firm where multiple unrelated families own the business. In such an instance, effective coordination becomes more difficult because of the need to manage an additional, higher-coordination level involving ownership, management, and relationships among multiple and unrelated owning families. In a multifamily firm, although SEW-related resources may be potentially richer (Brigham and Payne, 2015), family members' goals and priorities require continuous negotiation among unrelated owning families (Duran and Ortiz, 2019; Kotlar et al., 2014; Pagliarussi and Rapozo, 2011; Pieper et al., 2015). In this case, a lack of

consensus among unrelated family owners, acting as strategic leaders, likely will dampen efforts to translate the family firm's SEW in ways that lead to radical innovation with strong commercial potential. Differences within the goal systems that are important to the unrelated owning families may increase "the potential for harmful conflict" (Pieper et al., 2015, p. 1314). Indeed, pursuing radical innovation in multifamily firms can influence members of the multifamily coalition differently. The group of owning families may agree about the importance of seeking to reach noneconomic and economic goals; however, each family might assign a different level of importance and weight to individual goals (Bertrand et al., 2008; Eddleston and Kellermanns, 2007; Zellweger and Kammerlander, 2015). Variance among the weights assigned to goals (e.g., focusing on current versus future financial and nonfinancial wealth; Chrisman et al., 2021; Gómez-Mejía et al., 2018) by different owning families may, in turn, create frictions. This may lead to fewer outcomes in the form of radical innovation because of a diluted strategic focus and prolonged decision-making process (Edmondson et al., 2003; Reid and De Bentrani, 2010; Slater et al., 2014).

Overall, compared to a single-family firm, we expect that a diverse set of goals has an undesirable effect on the relationship between SEW and radical innovation in multifamily firms. To avoid conflicts, family owners may conclude that limiting risk by pursuing actions requiring little to no debate and with which they are familiar are appropriate decisions (Duran et al., 2016). Thus, multiple and unrelated family owners may choose a logic that leads the firm toward path dependence, causing family owners to search for solutions from the existing set and limiting "alternative ways of doing things, producing collective blindness" (Nahapiet and Ghoshal, 1998: p. 245). Path-dependent behaviors may create a desirable degree of familiarity for multifamily owners—individuals who might envision past solutions as being less risky compared to attempting new solutions. In these instances, multifamily owners would view radical innovation as a threat (König et al., 2013). As such, we expect that the presence of multiple unrelated families as owners will constrain a family firm's efforts to use its SEW to pursue radical forms of innovation that have less potential to align with the diverse interests of the multiple owning families. That is, multifamily ownership has a negative moderating effect on the relationship between a family firm's SEW and radical innovation. In formal terms, we predict:

Hypothesis 2. Multifamily ownership negatively moderates the relationship between a family firm's SEW and radical innovation such that the effect of SEW on radical innovation is lower in multifamily firms compared to single-family firms.

3.3. Generational involvement

However, as strategic leaders, some multifamily firm owners achieve above-average outcomes/returns while leading their firms (Duran and Ortiz, 2019). Through their decisions and actions, they reduce goal divergence and mitigate the pursuit of path dependencies. Resulting from these efforts is the unlocking of the heterogeneous yet complementary knowledge multifamily ownership produces to engage in radical innovation. Examining this issue requires considering the interaction between the ownership level, where negotiations and specifications about strategic goals often occur, and the TMT level, so that choices are made regarding actions to take to implement the firm's strategy as a path to achieving valued goals. With the involvement of multiple-owning families within a firm, family members' knowledge likely becomes more heterogeneous and thus richer while being based on a common, deep recognition and valuing of the complementarity of both the business and the family and the interactions between them (Sirmon and Hitt, 2003).

Following resource orchestration logic, we argue that a common vision (Helfat et al., 2007), that is, a set of intentions about resource use (cf. mobilizing; see Sirmon et al., 2011), is critical to efforts to unlock multifamily ownership's potential value and ensure leaders'

commitment to organizational change; this commitment plays a critical role in a firm's efforts to develop radical innovation (e.g., Alexander and Knippenberg, 2014; Slater et al., 2014; Wilden et al., 2023). When in place, this vision reduces the likelihood that goal divergence and path dependencies will surface, while mitigating the potential negative impact of multifamily ownership on the SEW-radical innovation relationship. We contend that a lower number of family generations involved in the family firm's TMT (generational involvement; Kellermanns and Eddleston, 2006; Ling and Kellermanns, 2010) results in a common vision, potentially overcoming the multifamily ownership limitations discussed earlier. A generation is a birth cohort that is "... based on membership in an age group [in our case, within the family] that shares collective memories during formative years of life" (Joshi et al., 2010, p. 395). We thus contend that the relationship between the family firm's SEW and radical innovation in multifamily versus single-family firms is contingent on generational involvement.

In particular, generational involvement, which is the number of family generations involved in a family firm's TMT, is a proxy for family firms' knowledge diversity with the potential to result in more informed perspectives about entrepreneurial practices to follow in single-family firms (Kellermanns and Eddleston, 2006; Ling and Kellermanns, 2010; Zahra et al., 2007). For instance, in single-family firms, Kellermanns and Eddleston (2006, pp. 813–814) theorize that the presence of multiple generations tends to "push for new ways of doing things" adding "fresh momentum to the entrepreneurial endeavors." In the context of multifamily firms though, high generational involvement likely will increase the complexity of managing resources effectively across multiple generations; in turn, greater complexity may heighten conflicts over different unrelated owning families' goals and priorities (e.g., in relation to long-term investments; Chirico and Salvato, 2016; Davis and Harveston, 1999; Ling and Kellermanns, 2010). In this context, differences in viewpoints among multigenerational family executives are more likely to be "perceived as personal attacks" by members of unrelated owning families (Jehn, 1997, p. 532), thus "hamper[ing] constructive debate (i.e., task conflicts) and [breakthrough forms of] innovation" (Sciascia et al., 2013, p. 73; see also Slater et al., 2014). That is, the emergence of relational conflicts may prevent a unified vision from forming (cf. mobilizing; see Sirmon et al., 2011), as well as reconciling the potential divergent goals surfacing at the family ownership level. In turn, this impedes efforts to mobilize SEW as a resource to support producing radical innovation in multifamily firms.

In contrast, we argue that low generational involvement can facilitate the forming of a common and unified vision about how to use SEW as a resource in a multifamily firm. Such a vision is vital if a firm is to unlock the potential value offered by multifamily ownership for using SEW to develop radical innovation. Low generational involvement among multifamily members mitigates the effects of potentially divergent goals and path dependencies that may occur within multiple-owning families (König et al., 2013; Miller et al., 2003). This relationship also helps owning families develop novel products (Kellermanns and Eddleston, 2006; Mazzelli et al., 2018; Wilden et al., 2023). Some research suggests that within a single generation, family members may be better able to direct the family firm's SEW toward producing breakthrough innovation (Calabrò et al., 2019; Miller et al., 2015) by channeling their unified vision and commitment, long-term orientation, and control over resources including SEW, toward radical innovations. Also, evidence reveals that low generational involvement has a negative relationship with conflicts, myopic, path-dependent behaviors, and goal diversity (Cirillo et al., 2021; Kellermanns and Eddleston, 2004; Salvato and Melin, 2008). Thus, a lower presence of family generations in the TMT can mitigate the possibility of goal divergence and path dependencies developing from multifamily ownership while unlocking the positive effect of multifamily ownership on the SEW-radical innovation relationship. Accordingly, we theorize that when generational involvement is high, it is more likely that multi-owning families will focus on preserving the firm's existing competitive advantage. In contrast, when

generational involvement is low, multiple-owning families may adopt a leveraging strategy to exploit their SEW as a strategic resource to produce radical innovation. Formally, we posit that:

Hypothesis 3. The three-way interaction among the family firm's SEW, multifamily ownership, and low generational involvement has a positive effect on radical innovation in family firms.

4. Methodology

To construct our sample, we identified firms included in the SABI (the Iberian Balance Sheet Analysis System) Spanish dataset. Multifamily ownership occurs commonly in Spanish companies (Bolsa de Madrid, 2023; Spanish Family Enterprise Institute, 2021), making this an ideal context for testing our hypotheses.¹ Following prior studies (Deephhouse and Jaskiewicz, 2013; Gómez-Mejía et al., 2001; Miller et al., 2013; Pérez-González, 2006), we specified family firms as those where two or more shareholders share a family name. We excluded companies from the sample with certain characteristics, such as insolvency, engaging in a winding-up process, and liquidation or zero activity. We also did not include listed companies in the sample or those for which data were missing.

Consistent with other studies (Arzubiaga et al., 2018; Fernhaber and Patel, 2012; Lee and Miozzo, 2019; Ling and Kellermanns, 2010; Steen and Weaver, 2017), we addressed the difficulty of accessing primary data in private firms by using a single respondent survey that we directed to key informants. Specifically, we adopted a key informant design (Kumar et al., 1993) in which family CEOs or family senior-level executives were the target respondents. These individuals were the targets given that their vision for the firm and their understanding of its strategies result in them likely being their firm's most critical decision makers (Bianchi et al., 2019; Chirico et al., 2011; Fernhaber and Patel, 2012; Gedajlovic et al., 2012; Wiklund and Shepherd, 2003; Zahra et al., 2007). Furthermore, CEOs and senior-level executives are thought to possess valuable and rich knowledge that allows them to play a central role in both the strategic and day-to-day leadership and management of their businesses (Calabrò et al., 2019; Eddleston et al., 2012; Fernhaber and Patel, 2012; Hoskisson et al., 2017). In turn, this knowledge has a strong link with the issues we examine in this study. As Zahra et al. (2007), p. 1074 explain, "CEOs or highest senior executives...are usually the most informed people about their companies' technological choices and investment" (see also Zahra and Covin, 1993; Zahra, 2005). Importantly for our work, our target respondents have deep familiarity with strategic issues that refer explicitly to radical innovation (Cho and Kim, 2017; Slater et al., 2014; Subramaniam and Youndt, 2005; Tonoyan and Boudreaux, 2023; Zahra, 2005).

To enhance the participation rate among the target respondents, we

¹ Additionally, even though the literature tends to coalesce around the view that family firms are risk averse and do not invest significantly in radical innovation (Calabrò et al., 2019), some evidence related to firms' actions does not support this expectation. For instance, within the context of our study (Spain), according to data from the National Institute of Statistics (INE), Spain recorded in the last years high investment growth in research and development, and a higher rate of growth than nominal GDP (InvestinSpain, 2023). Moreover, in Spain, family firms invest 66 % more in innovation than nonfamily firms, creating the view that family firms are an engine for innovation and future development (Instituto de la empresa familiar, 2022; see also Cruz-Cázares et al., 2013; Muñoz-Bullón et al., 2020; Ruiz-Roso, 2023). In the book of the "100 families that changed the world," 17 of them are Spanish family firms (Tapies et al., 2014). Similarly, the Boston Consulting Group indicates a strong presence of family firms among their ranking of the 50 most innovative organizations worldwide (Boston Consulting Group, 2021). Forbes (2018) also reports that owning families control the majority of the most innovative European companies that are investing significantly to produce radical innovation.

informed them about the study prior to their participation. We did this by sending a letter to each person, describing the study and its importance. To protect anonymity for respondents, we noted in the cover letter that participants' names would remain confidential. In the survey's first question, we asked participants to confirm that their firm was indeed a family firm (owned by one or multiple families) (Chua et al., 1999; De Massis et al., 2021; Uhlaner et al., 2021; Zahra et al., 2007). Our final sample included 1312 non-listed Spanish family firms. A total of 236 family firms – in which a family or a group of families held the majority of the firm's ownership compared to other shareholders – completed and submitted their surveys to us²; this is a 17.99 % response rate. We compared the means of the respondents and non-respondents in terms of age, industry, and size. To determine if the respondent group represented the initial population, we employed a *t*-test and a chi-square test. The results from these tests revealed no significant differences. Also, there were no significant differences between the answers from early and late respondents.

We completed several tests to address the possibility of common methods bias (CMB). First, we conducted a Harman's one-factor test; we identified six factors with eigenvalues exceeding one. Combined, these factors explain 57.36 % of the variance with the first factor accounting for 12.34 % of the variance and the remaining factors accounting for 45.02 %. Thus, the results of the unrotated factor analysis show that no single factor is dominant. This finding suggests that the factor structure in place is not an artifact of the measurement process (Podsakoff and Organ, 1986). Second, we followed Podsakoff et al.'s (2003) suggestion to measure data with the unmeasured latent factor method approach. This approach allows all self-reported items to load both on their theoretical constructs and on an uncorrelated method factor. We compared the model results (CFI: 0.540; IFI: 0.548; TLI: 0.409; SRMR: 0.074; RMSEA: 0.175; Normed χ^2 (35 d.f.): 302.11) with our four-factor measurement model (generational involvement, radical innovation, SEW, and multifamily ownership) without the latent method factor (CFI: 0.972; IFI: 0.972; TLI: 0.956; SRMR: 0.035; RMSEA: 0.048; Normed χ^2 (29 d.f.): 45.53). Resulting from this procedure is the finding that adding the latent factor to the analysis does not show a significant improvement in the fit of the measurement model. Moreover, all factor loadings that are a part of the measurement model remained statistically significant at $p < 0.001$. These results further indicate that there is little likelihood that CMB influenced our results. Third, we used Lindell and Whitney's (2001) method, employing a marker construct in the process of doing so. To conduct the marker construct test (Podsakoff et al., 2003), we relied on the scale on 'satisfaction with the work-life balance' from Valcour (2007) (Alpha = 0.96; AVE = 0.86). If the results show that there is a correlation between any latent variables and the marker variable exceeding 0.30, CMB is an issue (Cohen, 1992; Gkorezis et al., 2016; Tehseen et al., 2017). In our study, the correlations between the latent variables and the marker variable were lower than 0.30 (corr. with multifamily: -0.008, ns; corr. with radical innovation: 0.009, ns; corr. with generational involvement: 0.100, ns; corr. with SEW: 0.010, ns). Third, for the control variables of age, size, and industry, we employed objective secondary data.

4.1. Constructs

We completed several steps to develop the study's survey. Initially, we employed English to develop the questionnaire based on existing scales. We translated the questionnaire into Spanish in the second step. We did this using a translation and back-translation procedure completed by two university academics with fluency in Spanish and

² We received a total of 249 responses. We excluded 13 firms because of their failure to answer positively whether the family(ies) was/were the largest owner group. Also, all family firms in our sample report some family involvement in management.

English. We then pilot tested the questionnaire. Three executives and five academics, all possessing expertise in research methodology and family firms, completed the pilot test. We used these individuals' feedback about the survey instrument's item wording, content, and terminology to revise it. During the revision process, our commitment was to interpret items unambiguously as a foundation for them being able to display high content validity. Next, we used a sample of 20 Spanish family firms to pilot test the items that we refined in response to the feedback received from the previous respondents.³ In combination, these procedures allowed us to create a highly reliable instrument (Cronbach's α ranging from 0.78 to 0.93). We use a five-point scale (strongly disagree/strongly agree, much weaker/much stronger than competitors) and refer to the last three years as a time frame (Tonoyan and Boudreaux, 2023; Wales et al., 2013; Zahra et al., 2007; Zahra, 2010) to measure responses and to report the results.

We used confirmatory factor analysis (CFA) to assess the construct validity of the items associated with the study's main constructs. The CFA of all items (radical innovation, SEW, multifamily ownership and generational involvement) yielded results that demonstrate a clear replication of our intended four-factor structure. That is, all items loaded clearly on their intended factor, with each loading being above 0.40 (Bagozzi and Yi, 1988). The CFA we completed resulted in a model with acceptable fits with the data (as reported before: CFI: 0.972; IFI: 0.972; TLI: 0.956; SRMR: 0.035; RMSEA: 0.048; Normed χ^2 (29 d.f.): 45.53). In this analysis, we constrained items so each one would load only on the factor for which it was the proposed indicator. Also, all item loadings were as proposed and significant, and the CRs (radical innovation: 0.88; SEW: 0.91) were all above the recommended threshold of 0.70. There is a 0.50 recommended cutoff with this test; the results show that all AVEs exceeded this recommendation. These results support the existence of convergent validity (radical innovation: 0.71; SEW: 0.61) (Anderson and Gerbing, 1988; Fornell and Larcker, 1981).

Next, we compared the fit of the primary, four-factor model versus alternative models with two or three factors. The first three factor model combined radical innovation and SEW into a single composite measure (CFI: 0.538; IFI: 0.548; TLI: 0.350, SRMR: 0.139; RMSEA: 0.184; Normed χ^2 (32 d.f.): 300.42). The second three factor model included generational involvement and radical innovation to form one composite measure (CFI: 0.924; IFI: 0.924; TLI: 0.913, SRMR: 0.079; RMSEA: 0.084; Normed χ^2 (32 d.f.): 147.32). The third three factor model combined generational involvement and SEW into one composite measure (CFI: 0.920; IFI: 0.921; TLI: 0.908, SRMR: 0.082; RMSEA: 0.092; Normed χ^2 (32 d.f.): 149.38). The two-factor model combined radical innovation, SEW, and generational involvement into one composite measure (CFI: 0.538; IFI: 0.547; TLI: 0.389, SRMR: 0.95; RMSEA: 0.178; Normed χ^2 (34 d.f.): 302.11).

The CFA results suggest the superiority of the fit of the four-factor model with the data compared to the fit with the data and the alternative models. We also examined discriminant validity to determine the extent to which each latent variable is distinct from the model's other constructs (Fornell and Larcker, 1981; Hair et al., 2017). We calculated the square root of the AVE for each construct that needs to be greater

³ After the pilot studies, we made a few changes to the survey items to increase clarity. For example, in the radical innovation scale, we changed the word "product" to the word "good." In the question about multifamily ownership, we explained further that family relationships exist within the same family but not across different and unrelated families. In the SEW scale, we changed three items (1) "The board of directors is mainly composed of family members" became "The board of directors and/or top management team are mainly composed of family members"; (2) "Customers often associate the family name with the family business's products and services" became "Customers and other stakeholders often associate the family name with the family business's products and services;" and (3) "Protecting the welfare of family members is critical to us, apart from personal contributions to the business" became "Protecting the welfare of family members is critical to us."

than the correlations of the other constructs (Fornell-Lacker criterion; Fornell and Larcker, 1981; Hair et al., 2017). The heterotrait-monotrait (HTMT) ratio is an additional criterion. In general, scholars believe that the HTMT ratio is a superior method to use to assess discriminant validity compared to other, more traditional tests (Henseler et al., 2015). An HTMT value above 0.85 suggests that there is a lack of discriminant validity (Hair et al., 2017). In Table 1, we present evidence of discriminant validity as assessed by the Fornell-Larcker criterion and by the HTMT criterion.

4.2. Dependent and independent variables

We used Subramaniam and Youndt's (2005) three-item scale to measure radical innovation. This scale determines a firm's radical innovation in the form of products (goods and services) that the firm introduces to a market. The three items are: (1) "Innovations that make your prevailing good/service lines obsolete," (2) "Innovations that fundamentally change your prevailing goods/services," and (3) "Innovations that make your existing expertise in prevailing goods/services obsolete" (Alpha = 0.78). We assessed family firm's SEW with the FIBER scale (26 items) from Berrone et al. (2012) and its five dimensions (see Appendix 1). We used all the items from the FIBER scale except the one related to "affective considerations are often as important as economic considerations" (E4; see Appendix 1) given its low loading ($\beta < 0.1$). The CFA for the FIBER scale yielded to an acceptable fit of the scale (CFI, IFI

Table 1
Discriminant validity (Fornell-Larcker criterion and HTMT₈₅ criterion).

	Radical innovation	SEW	Generational involvement	Multifamily ownership
Radical innovation	<i>0.835</i>	0.043	0.093	0.108
SEW	-0.020	<i>0.709</i>	0.061	0.070
Generational involvement	-0.083	-0.066	<i>1</i>	0.085
Multifamily ownership	-0.102	-0.088	0.085	<i>1</i>

Note: The diagonal represent the square root of AVEs in italic. The Fornell-Larcker criterion appears below the diagonal and the HTMT₈₅ criterion appears above the diagonal.

and TLI = 0.9; SRMR: 0.06; RMSEA: 0.07; Normed χ^2 (289 d.f.): 591.87) (Alpha = 0.93) (Hair et al., 2014). To measure multifamily ownership, we asked respondents the following question: "How many unrelated families own the business"? (Duran and Ortiz, 2019; Pieper et al., 2015); we coded answers as 1 if >1 family owns the family business, otherwise we coded it as 0.⁴ We measured generational involvement as the number of family generations involved in the TMT (Eddleston and Kellermanns, 2007; Kellermanns and Eddleston, 2006).

4.3. Control variables

We control for a number of variables in this study (firm age, firm size, performance, R&D investments, R&D expenditures, knowledge integration, family members' working experience in the family business, family members' university-level education, family ownership, family CEO, percentage of family executives, environmental dynamism, and

⁴ Family members within individual families have a family relationship; however, family members across different and unrelated families do not have such a relationship (Brigham and Payne, 2015; Duran and Ortiz, 2019; Pieper et al., 2015).

industry).⁵ The *company age* measure is the number of years of the family firm's existence. Company age is important given that older firms may lack the ability to develop radical innovation, largely because of the possibility of developing a conservative orientation over time (Leonard-Barton, 1992). Second, we use the number of full-time employees in a firm to measure *company size*. The reason to control for size is that larger companies may have superior access to valuable external resources (Zahra and Nielsen, 2002) and a greater number of opportunities to form alliances (Harrison et al., 2001). Access to these possibilities may result in a positive effect on firms' innovation abilities. Third, there is evidence suggesting that a company's performance can generate additional slack resources. Firms may choose to use some of these resources to support desired outcomes, including those of enhancing the breadth, depth, and quality of the training made available to employees. Through additional training, employees increase their knowledge, some of which may support efforts to produce radical innovation (Zahra and Nielsen, 2002). In line with Wiklund and Shepherd (2003), we used four financial measures – net profit, sales growth, cash flow, and growth of net worth in relation to competitors (Alpha = 0.86) – to measure *firm performance*. Fourth, we controlled for *R&D investments*, which proxies the firm's ability to acquire external knowledge for innovation proposes (Cohen and Levinthal, 1990; Sciascia et al., 2015). We used a four-item scale: "R&D spending is high," "R&D investments are taken into high consideration in our company," "R&D investments are vital for our company's success," and "We invest resources in R&D" (Alpha = 0.92) (Sciascia et al., 2013). Relatedly, we also controlled for *R&D expenditures* as a percentage of firm sales (the ratio of the firm's R&D expenditures to total sales; Duran et al., 2016). Fifth, we controlled for *knowledge integration* through a four-item scale from Tiwana and Mclean (2005) and Tiwana (2008) to measure the ability of family members to integrate their knowledge: "Family members competently blend new project-related knowledge with what they already know," "Family members span several areas of expertise to develop shared project concepts," "Family members synthesize and integrate their individual expertise at the project level," and "Family members can see clearly how different pieces of a project fit together" (Alpha = 0.87). Sixth, we controlled for *family members' working experience in the family business* in terms of total number of years given the potential effect of this proxy on radical innovation (Subramaniam and Youndt, 2005) and *family members' university-level education* in terms of the number of family members with a university-level degree (Segarra-Blasco and Arauzo-Carod, 2008). Seventh, research suggests that the *percentage of family ownership* and the *percentage of family members in the TMT*, as well as the presence of a *family CEO*, may affect family firms' radical innovation (Calabrò et al.,

⁵ First, the family generation in control may also affect a family firm's radical innovation (Calabrò et al., 2019; Duran et al., 2016). Because of this, we controlled for the generation in control. The results are that this variable is not significant; and, including it did not affect the other results. However, we did discover a high correlation between the generation in control and firm age; this is a result we anticipated. Additionally, we ran the analysis without firm age but with the generation in control. As before, the generation in control was not significant and including it did not change the results. Given these findings, we did not include the family generation in control among the control variables in our analyses. Second, to consider the percentage of representation from each family in ownership and in management, we also computed a composite measure of the Herfindahl Index of ownership and management (as the standardized values of the sum of the squares of the percentages of ownership representation for each family + the standardized values of the sum of the squares of the percentages of management representation for each family) which is a common measure of concentration/dispersion of power in governance studies (see e.g., Miller et al., 2013). We controlled for it in our main analyses and results remained substantially similar (H1: 0.13, $p = 0.015$; H2: 0.24, $p = 0.047$; H3: -0.46 , $p = 0.046$). Yet, as expected, given its high correlation with the measure of multifamily ownership, we did not include this additional control in the main analyses.

2019; Duran et al., 2016; Lin and Hu, 2007); thus, we controlled for these variables. Eighth, firms that operate in dynamic environments are likely to be technologically intense (Zahra and Bogner, 2000). As such, we controlled for *environmental dynamism*. We measure this factor with a five-item index taken from Jansen et al. (2006): "Environmental changes in our local market are intense," "Customers regularly ask for complete new products and services," "In our market, changes are taking place continuously," "There have been changes in our market," and "In our market, the volumes of products and services to be delivered change fast" (Alpha = 0.86). Finally, given that *industry* may affect radical innovation, we controlled for it with multiple dummy variables (minerals, construction, manufacturing, transportation and communication, wholesale and retail trade, the food sector, finance, services, and others; we used the agriculture industry as the comparison).

4.4. Endogeneity

Radical innovation could have an endogenous relationship with the features associated with multiple families owning a business. In slightly different words, factors that could influence the need for radical innovation might also affect the perceived desirability of choosing to maintain the firm as a one-family or a multifamily firm. We employed a two-stage residual inclusion (2SRI) model (see Patel et al., 2018; Terza et al., 2008) to control for potential endogeneity. The 2SRI estimator shares characteristics with the linear two-stage least squares estimator. The difference is that in the second-stage regression, the first-stage predictors do not replace the endogenous variables; instead, the estimator calls for including first-stage residuals as additional regressors. We relied on the degree to which the firm emphasizes resource divestment in terms of a) reducing the size of the firm's workforce, b) selling the firm's equipment/facilities, and c) divesting resources as instrumental variables with the potential to correct for endogeneity. Theoretically, these instruments are not likely to have a direct influence on family firms' radical innovation (Calabrò et al., 2019). Nonetheless, these instruments might affect the existence of a firm owned by one or different families. Indeed, the divestiture research refers to families' reluctance to divest resources, particularly when there is a concentration of ownership within a single family (Chirico et al., 2020; Feldman et al., 2016; Filser et al., 2018). As expected, we found a correlation in our sample between the three instruments and the measure of multifamily ownership but not with the radical innovation variable. We employed the instrumental variables in the first stage to compute the estimated values of the problematic predictor. The second stage found us using those computed values as antecedents of radical innovation (Kennedy, 2008; Wooldridge, 2002). As such, we controlled for the endogeneity score in the analyses (see Table 3; Chrisman and Patel, 2012).

5. Results

We used regression analysis to test our hypotheses. In Table 2, we present the variables' descriptive statistics and correlations. First, we note that the variance inflation factors (VIFs) show that multicollinearity is not a concern ($VIFs < 5$). Second, to test for heteroscedasticity, we used the White test and the Breusch-Pagan/Cook-Weisberg test to screen the data. Both tests (White test: $\chi^2 = 275.24$; $p = 0.30$; Breusch-Pagan/Cook-Weisberg test: $\chi^2(1) = 1.74$; $p = 0.19$) show that heteroscedasticity is not a concern (Kennedy, 2008; Wooldridge, 2002). Prior to creating the interaction terms, we centered the variables to moderate multicollinearity problems, thus overcoming the distortion of the main effects that could surface because of the tendency of main effects and interaction terms to have a high correlation (Aiken et al., 1991). In Table 3, we present the results regarding Hypotheses 1, 2, and 3.

Model 1 includes all control variables. Model 2 shows that SEW affects radical innovation positively, thus supporting Hypothesis 1 ($\beta = 0.13$, $p < 0.05$). Hypothesis 2 predicts that multifamily ownership

Table 2
Descriptive statistics and correlations.

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Radical innovation	3.12	0.59	1.00															
2 Firm age	43.73	28.93	-0.06	1.00														
3 Firm size	103.67	97.93	0.03	0.15	1.00													
4 Performance	3.64	0.74	0.34	-0.01	0.19	1.00												
5 R&D investments	3.15	1.06	0.13	0.05	0.13	0.10	1.00											
6 R&D expenditures	7.98	9.53	0.12	-0.01	0.14	0.11	0.33	1.00										
7 Knowledge integration	3.84	0.69	0.22	0.03	0.16	0.21	0.28	0.19	1.00									
8 Working experience in FB	34.20	27.33	-0.08	0.08	0.15	-0.04	-0.03	0.08	0.01	1.00								
9 University education	2.78	5.06	-0.06	0.34	0.02	0.05	0.12	0.03	-0.03	0.05	1.00							
10 Family ownership	89.74	18.37	-0.01	-0.12	-0.01	0.02	0.11	0.04	0.04	0.10	-0.02	1.00						
11 Family CEO	0.88	0.32	0.05	-0.04	-0.16	-0.09	-0.08	-0.04	0.09	0.02	0.05	0.36	1.00					
12 Percentage of family executives	65.27	32.59	-0.06	-0.11	-0.18	-0.07	-0.15	0.05	0.02	0.05	0.15	0.07	0.07	1.00				
13 Environmental dynamism	2.30	0.78	-0.08	-0.03	0.00	-0.11	-0.01	-0.13	0.02	0.00	0.02	0.09	0.01	0.07	1.00			
14 Socioemotional wealth	4.01	0.73	0.17	0.05	-0.04	0.03	0.07	0.11	-0.03	0.02	-0.07	-0.08	-0.02	0.09	-0.13	1.00		
15 Multifamily ownership	0.31	0.46	-0.04	0.07	0.04	-0.05	-0.13	-0.11	-0.11	0.01	0.02	-0.23	-0.04	0.09	0.11	0.09	1.00	
16 Generational involvement	1.43	0.55	0.05	0.00	0.14	0.08	0.04	0.07	0.15	0.13	-0.02	0.00	0.15	0.10	0.01	-0.04	0.00	1.00

Correlations with values of |0.13| or greater are significant at $p < 0.05$; $N = 236$.

Table 3
Results of regressions.

Variables	Model 1	Model 2	Model 3	Model 4
Firm age	0.00	-0.00	-0.00	-0.00
Firm size	-0.00	-0.00	-0.00	-0.00
Performance	0.25***	0.24***	0.23***	0.23***
R&D investments	0.03	0.02	0.01	0.01
R&D expenditures	0.00	0.00	0.00	0.00
Knowledge integration	0.12*	0.12*	0.14*	0.14*
Working experience in FB	-0.00	-0.00	-0.00	-0.00
University education	-0.01	-0.01	-0.00	-0.01
Family ownership	-0.00	-0.00	-0.00	-0.00
Family CEO	0.15	0.16	0.14	0.15
Percentage of family executives	-0.00	-0.00	-0.00	-0.00
Environmental dynamism	-0.02	-0.01	-0.03	-0.03
Industry dummies	Yes	Yes	Yes	Yes
Socioemotional wealth (SEW)		0.13*	0.14**	0.15**
Multifamily ownership		-0.01	-0.02	-0.01
Generational involvement		0.03	0.01	0.03
Multifamily*SEW			0.24*	0.23+
Multifamily*generational involvement			-0.18	-0.17
SEW*generational involvement			-0.10	-0.12
Multifamily*SEW*generational involvement				-0.46*
Endogeneity score	-0.30	-0.14	-0.10	-0.11
R ²	0.21	0.24	0.26	0.27
Adjusted R2	0.12	0.14	0.15	0.16
F statistic	2.37***	2.37***	2.37***	2.46***
Degrees of freedom	(24, 211)	(27, 208)	(30, 205)	(31, 204)
N	236	236	236	236

+ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; $N = 236$.

interacts with SEW to affect radical innovation in family firms negatively. However, Model 3's interaction term (number of owning families * SEW) is positive and significant ($\beta = 0.24$; $p < 0.05$); this result does not support Hypothesis 2. In Fig. 1, we present a graph of the interaction between SEW and multifamily ownership on radical innovation. Contrary to our expectations, the plot reveals that radical innovation benefits from the increase in SEW in multifamily ownership settings. Hypothesis 3 proposes that the three-way interaction among high SEW, multifamily ownership, and low generational involvement in TMT affects radical innovation positively. The results reveal that this three-way interaction is statistically significant ($\beta = -0.46$, $p < 0.05$; see Model 4). Plotting the interaction (see Fig. 2) confirms that when generational involvement in TMT is low and SEW is high, multifamily ownership results in greater levels of radical innovation. The slope difference test also supports Hypothesis 3 (Table 4).⁶

5.1. Robustness tests

First, apart from the full FIBER scale, there are other scales scholars use to measure SEW: i) the REI scale with 9 items (Hauck et al., 2016); ii) the Refined REI (RREI) scale with 8 items (Gómez-Mejia and Herrero, 2022); iii) the IBER scale with 17 items (Gerken et al., 2022); and iv) the IBER shorter scale with 12 items (Gerken et al., 2022). For each scale,

⁶ Number and percentage of firms in the single-(multi-) family ownership and low generational involvement: # 98 (#42); 42 % (18 %). Number and percentage of firms in the single-(multiple-) family ownership and high generational involvement: #66 (#30); 27 % (13 %). We also checked whether the percentages of single and multifamily firms with low and high generational involvement we found in our data were in line with these from the Spanish family firms included in the IBEX 35 (the benchmark stock market index of the 'Bolsa de Madrid' in Spain). Interestingly, results approximate what we found in our sample. That is, in the IBEX 35, 50 % of the firms have one family generation involved and 30 % have more than one generation involved in single-family firms. In relation to the multifamily firms, about 10 % have one family generation involved, and about 10 % have more than one generation involved.

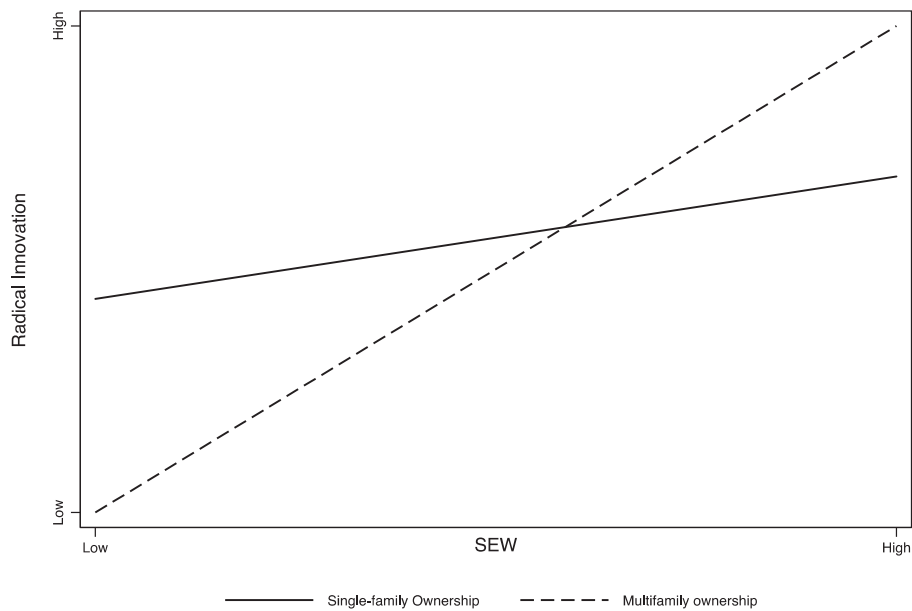


Fig. 1. Two-way interaction effect between socioemotional wealth and multifamily ownership on radical innovation.

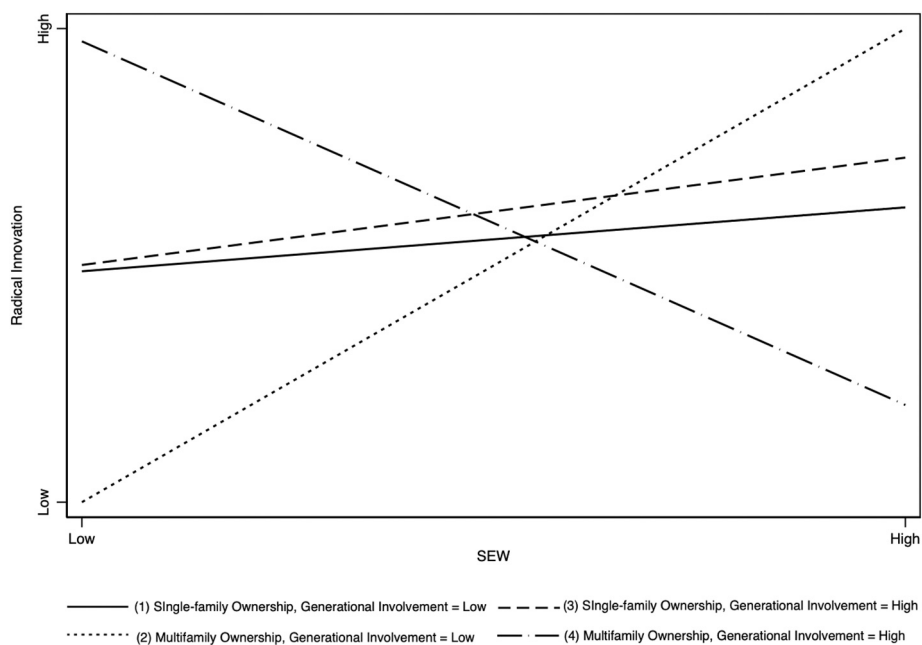


Fig. 2. Three-way interaction effect among socioemotional wealth, multifamily ownership, and generational involvement on radical innovation.

Table 4
Slope difference tests (three-way interaction).

Slope pairs	t-value for slope difference	p-value for slope difference
(1) and (2)	2.389	0.018
(1) and (3)	1.557	0.121
(1) and (4)	2.128	0.035
(2) and (3)	2.758	0.006
(2) and (4)	-2.352	0.020
(3) and (4)	2.367	0.019

and as discussed earlier, we removed item E4 due to its low loading ($\beta < 0.1$) (Hair et al., 2014). All scales have Alphas and CRs higher than 0.70. Accordingly, we ran the analyses with the other four alternative scales; the findings corroborate overall the results obtained with the

FIBER scale. These outcomes show that there is confirmation of our results under different SEW operationalizations. The coefficients for the three-way interaction terms in the full models with the different SEW operationalizations are as follows: REI: -0.40 ; $p = 0.043$; RREI: -0.45 ; $p = 0.024$; IBER 17 items: -0.46 ; $p = 0.034$; IBER 12 items: -0.49 ; $p = 0.021$. Also, we ran the analyses by considering each SEW dimension separately and our results confirm that each dimension (except for intergenerational continuity; 0.05 ; $p = 0.216$) positively affects radical innovation. In relation to the three-way interaction, radical innovation is maximized under the SEW dimensions of high identification (-0.54 ; $p = 0.007$) or high emotional attachment (-0.28 ; $p = 0.097$; although marginally) together with multifamily ownership and low generational involvement. Hypothesis 3 is not confirmed when considering separately the SEW dimensions of family control and influence (-0.19 ; $p =$

0.182), social ties (-0.12 ; $p = 0.593$) or intergenerational continuity (-0.10 ; $p = 0.536$).

Second, we used measures of extended (combination of identification and renewal of family bonds) and restricted SEW (combination of family influence and emotional attachment) (Miller and Le Breton-Miller, 2014) to complete additional tests. Both measures lead to results that are consistent with our main models with a slightly stronger effect for extended SEW over restricted SEW. Third, we used different measures of our dependent variable. No significant results emerge using entrepreneurial orientation or the product innovation dimension of entrepreneurial orientation as alternative measures of innovativeness (Miller, 1983). Similarly, we did not find significant results when using measures of innovation input (R&D investments, R&D expenditures, and willingness to engage in radical innovation; Duran et al., 2016; Sciascia et al., 2013). These robustness checks indicate that our findings are distinctive for radical innovation. Fourth, we ran additional tests with alternative operationalizations of the moderators, using a non-binary measure of multifamily ownership and a dichotomous measure of generational involvement. While the results were again confirmed, the statistical significances were lower.

Finally, to better address the potential problem associated with single-informant bias and be able to infer causality, we collected additional data from a second respondent, approximately 3 years after the first data collection of our dependent variable. In doing this, we aimed at temporally separating the collection of our independent and dependent variables by collecting data in two waves (Kennedy, 2008; Wooldridge, 2002). The literature suggests that the time between surveys is an important factor (see Jansen et al., 2006; Mihalache et al., 2012) to reduce the risk of common method bias because it mitigates concerns related to social desirability bias, reduces biases in the respondents' retrieval process, lessens the respondents' ability to use previous answers to fill in recollection gaps, and makes previous answers less salient to their current responses (Podsakoff et al., 2003). To increase the response rate, the questionnaire used for the second data collection wave was brief and focused on radical innovation. These efforts led to us gathering information on a subsample of 181 firms from additional family senior-level executives. We re-ran the analyses using for the independent variables the data from the first wave of data collection from the first respondent, and for the dependent variable the data from the second wave of data collection from the second respondent. While the effect of SEW on radical innovation was marginally confirmed (0.16 ; $p = 0.060$), the three-way interaction effect of SEW, multifamily ownership and generational involvement on radical innovation led to substantially similar and significant results at the 0.05 level (-0.081) than those from the main analyses.⁷

6. Discussion

Evidence suggests that radical innovation has a relationship with firm survival, success, and renewal (Subramaniam and Youndt, 2005). Given the prevalence and economic importance of family-owned firms worldwide (Neckebrouck et al., 2018), our study focuses on family firms—particularly multifamily firms. The reason for this is that these firms are an important source of radical innovation as they organize as an entity featuring heterogeneous teams of unrelated founders and families (Kudrats et al., 2019).

In this work, we examine factors affecting family firms' ability to produce radical innovation. We find this issue intriguing in that evidence suggests that radical innovation is an important performance outcome for family firm continuity (Diaz-Moriana et al., 2020; Duran et al., 2016; König et al., 2013). However, while family firms seek ways to recognize and exploit *new* opportunities constantly as well as refine existing resources and capabilities as a foundation for being able to

compete successfully against rivals (Zahra, 2005), the literature suggests that in general, family firms demonstrate a stronger focus on producing incremental rather than radical innovation (Calabrò et al., 2019). Additionally, to date, only a small amount of research examines the advantages or disadvantages when one or multiple families own a business within and across multiple generations (Brigham and Payne, 2015; Chirico et al., 2022; Duran and Ortiz, 2019; Pieper et al., 2015). We seek to address this scholarly issue and expand our knowledge about how multifamily firms produce radical innovations.

6.1. Theoretical contributions

Our study yields several theoretical contributions—contributions that improve existing theory by demonstrating that some existing perspectives and related assumptions in family business research are “not quite right” (Reay and Whetten, 2011, p. 106). First, while scholars and the literature recognize SEW's importance, existing studies tend to focus on the family firm's loss aversion aspect (Chrisman and Patel, 2012; Gómez-Mejía et al., 2011; Gómez-Mejía and Herrero, 2022; Hoskisson et al., 2017). This focus accompanies a belief that as noted above, when pursuing innovation, family firms may prefer incremental rather than radical innovation as an outcome of their efforts. In contrast with this expectation and with most previous research, we conceptualize SEW as a critical and potentially strategic resource for firms to use to develop radical innovation.

More specifically, bridging resource orchestration arguments with the family firm SEW literature, our theory and results intriguingly are at odds with received theory, as well as empirical evidence, about SEW's role and influence on family firm strategy. Our theory examines and the empirical results show the joint effect of multifamily ownership and generational involvement on the SEW-radical innovation relationship in multifamily firms. This contingency approach for investigating family firms' radical innovation helps to reconcile the paradoxical arguments regarding the SEW's effect on family owners' strategic actions. To date, the family firm literature advocates strongly for the view that pursuing SEW makes family firms averse to non-financial losses; yet the implications of this loss aversion lack clarity (Hoskisson et al., 2017). Some argue, for example, that family firms are *risk taking* (e.g., focusing more on innovation to increase the family firm's SEW such as the family image, reputation, and longevity (Cucculelli and Peruzzi, 2020; Ortiz-Villajos and Sotoca, 2018; Schmid et al., 2014) while others argue that family firms are *risk adverse* (e.g., focusing less on innovation in general and certainly focusing less on radical innovation because of the risks involved that may jeopardize the family firm's SEW (Chrisman & Patel, 2012; Honoré et al., 2015; Munari et al., 2010). That is, researchers use the same SEW logic to explain the occurrence of either risky or incremental (or more conservative) innovation-related strategic actions in family firms. Doing so seems to distort the underlying mechanisms of the SEW argument to explain contradictory results ex-post. Our work shows instead that the interaction of SEW, multifamily ownership, and low generational involvement maximizes the development of radical innovation. Our results corroborate the logic that to better understand the impact of strategic leadership on radical innovation requires acknowledgment of the interplay between actors at ownership and management levels rather than choosing to focus on the CEO and/or TMT level only (Barker III and Mueller, 2002; Cho and Kim, 2017; Georgakakis et al., 2022; Luciano et al., 2020; Van Doorn et al., 2022). We believe that this is an important insight for the design of future studies concerned with the issues we examine in this work.

Relatedly, our theory and findings extend Combs et al.'s (2023) results by providing empirical evidence that under certain conditions, SEW is a valuable—that is, strategic—resource. Combs et al. (2023) view a firm's SEW endowment as a resource generator although they do not measure its existence empirically. Combs et al. (2023, p. 577, 586) assume that “greater family ownership implies greater ability to build and preserve SEW and, by extension, generate SEW resources,” in terms

⁷ All results are available from authors upon request.

of “favorable reputations, strong stakeholder relationships, and LTO [long-term orientation]—all hallmarks of family firms.” Perhaps because of its reliance on easy-to-obtain archival proxies (e.g., how many shares the family owns, the family’s representation on the top management team), most empirical research assessing SEW treats it as a monolithic construct (see Hoskisson et al., 2017). In this study, we focus instead on the different SEW dimensions (FIBER; Berrone et al., 2012; Naldi et al., 2024); this focus yields a better fit (e.g., the RMSEA for each SEW dimension is higher than 0.10) and stronger results than does a focus on single dimensions.

However, considering each SEW dimension individually yields mixed results. While each dimension (except for transgenerational continuity) shows a positive impact on radical innovation, Hypothesis 3 is confirmed only when considering high identification or high emotional attachment. We find these results intriguing in that they suggest that when considered individually, some SEW dimensions, together with multifamily ownership and low generational involvement, do not influence radical innovation meaningfully. For example, family control and influence, social ties, or intergenerational continuity alone may lead a multifamily firm to focus more on “prudent” investments that do not favor either very low- or high-risk investments (Gómez-Mejía et al., 2023a). We envision prudent investments as ones that seek performance at the “norm.” The orientation of these investments is to avoid losses while not seeking to outperform competitors in a substantial way. In particular, if one generation’s members do not transmit an orientation to radical innovation as well as a set of actions required to produce that type of innovation to the next generation, the members of a new generation may lack a predisposition to emphasize the need for the firm to produce (or not produce) radical innovation even though experiencing a multifamily ownership configuration with a low number of generations involved at the managerial level. Overall, these findings strengthen the importance of treating SEW as a unified and overarching construct that “holistically” captures the socioemotional endowment that emerges from its underlying dimensions (Berrone et al., 2012; Naldi et al., 2024; Swab et al., 2020).

Second, the extant family business research often assumes that a single family, consisting of a homogeneous group of blood-related individuals, participates in operating the firm. However, there are many instances in which two or more founders, with family members’ support, choose to establish and operate a new firm (Pieper et al., 2015). To date though, few studies include multifamily firms in their sample (Chirico et al., 2022). Although our results do not confirm our prediction that multifamily ownership has a negative moderating effect on the relationship between a family firm’s SEW and radical innovation (Hypothesis 2; Fig. 1), Fig. 2 shows that multifamily firms maximize their radical innovation outcomes when the family firm’s SEW is high and generational involvement is low (Hypothesis 3). That is, the *negative* or *positive* effect of multifamily ownership on the SEW-radical innovation relationship is contingent on the number of family generations involved in the TMT across the unrelated owning families. When generational involvement is high, the effect of multifamily ownership is negative (in line with the negative moderation effect of Hypothesis 2); however, when generational involvement is low, the effect of multifamily ownership is positive (in line with Hypothesis 3). On the other hand, when SEW is low, multifamily firms produce more innovation when generational involvement is high. The reason for this could be that when SEW is weak in multifamily firms and, thus, for instance, weak emotional commitment and social ties exist, path dependency and goal divergence may be more prominent. The result is that when SEW is low, a family member group with a limited number of generations holding membership in the firm’s TMT may lack opportunities to drive efforts to produce radical innovation. Instead, in this situation, a multigenerational management team with different knowledge and resources may be the configuration with the highest probability of being able to help the firm produce radical innovation. As such, our study offers important insights about radical innovation in family firms in which SEW,

multifamily ownership, and generational involvement are prominent in producing radical innovation. Our results suggest that SEW per se is not sufficient as a foundation for the emergence of radical innovation. Emotionally committed family members can possess unique resource bases but fail to facilitate radical innovation without the coordination of the multiple-owning families’ heterogeneous, yet complementary knowledge sets across a few generations. Lastly, in line with our arguments, we also find that family firms owned by one family – thus enjoying a more effective coordination mechanism offered by the single-family ownership structure – are better able to capture and leverage from their multigenerational managers’ different knowledge sets and perspectives, such that high generational involvement is positively related to radical innovation (see Fig. 2).

Third, there are calls for scholars to examine issues related to innovation differences across different family firm typologies (Calabrò et al., 2019; Diaz-Moriana et al., 2020). In our study, we demonstrate the extent to which differences in family firm’s SEW, different shareholding ownership structures and diversity with respect to generational involvement help explain why some family firms are more effective producers of radical innovation compared to other family firms. As such, our work contributes to an understanding of the circumstances under which a family firm setting supports radical innovation as a function of the interplay of multiple actors (Chrisman et al., 2015a; Daspit et al., 2021; Erdogan et al., 2020). With respect to Daspit et al.’s (2021) contributions, for example, we believe that our work extends their dialogue. The reason for this is that rather than focusing on an individual dimension of heterogeneity, such as one of the nine Daspit et al. (2021) identify, we examine the interplay of different family players at ownership and management levels. In sum, our work informs the field’s understanding of the different actions taken in multifamily versus single-family firms to translate the family firm’s SEW to radical innovations in single and multigenerational settings. We believe that this contribution yields an important advancement to the field’s knowledge about family firm heterogeneity broadly and multifamily firms specifically.

Finally, our work applies resource orchestration arguments to a family firm context. In doing so, we extend family firm research by addressing specifically how this firm type deploys a strategic resource – SEW – as part of its efforts to achieving optimal “synchronization” across different components of the resource management process (Sirmon et al., 2007, p. 287). Our results also yield suggestive evidence supporting Sirmon et al.’s (2007) intuition that although the link between resources and their leveraging “is at least partially sequential in nature,” “the management of resources is dynamic” (Sirmon et al., 2007: 275). In this regard, our work shows that leveraging in terms of coordination (multifamily ownership) and mobilizing (generational involvement) affects the resource (SEW)-deployment (radical innovation) relationship.

6.2. Practical and policy implications

Our results provide several guidelines for managerial practice and insights with policy implications. We believe that adhering to the managerial guidelines that our study suggests has the potential to support family firms’ efforts to produce more radical innovations, leveraging their unique strengths and characteristics to do so. Subsequently, these outcomes should increase the likelihood that family firms can achieve a sustained competitive advantage. The policy implications that our results suggest could incentivize and support the managerial practices for family firms that our results suggest.

With respect to managerial practice, we note first that our results suggest that family firms should prioritize and enhance their SEW to drive radical innovation. These actions may include fostering a strong sense of family identity within the firm, emphasizing the firm’s legacy, and creating a culture that values emotional ties and long-term commitment. Family firms should also consider expanding ownership to include multiple families. Having multiple families as firm’s owners

can diversify perspectives, which, when combined with a high SEW, can lead to more radical innovation. Our results also suggest that a decision to limit the involvement of multiple generations in decision-making processes can generate benefits. Indeed, focusing on a single generational cohort can streamline decision-making processes and foster a unified approach toward radical innovation. Overall, family firms should invest in leadership development programs emphasizing the importance of SEW and its role in radical innovation. Participating in these programs can prepare future leaders to maintain and leverage SEW effectively. Similarly, family firms can establish internal programs and initiatives that specifically support and fund radical innovation projects, ensuring that these projects align with the firm's SEW and strategic goals.

With respect to policy implications, we note first that our results suggest that governments and policymakers should consider establishing incentives for family firms to invest in innovation, perhaps especially radical innovation. A path to doing this is for policymakers and their agencies to provide financial grant opportunities to family firms wishing to adopt a multifamily ownership structure; relatedly, some agencies could provide legal advice and counsel to firms seeking to become a multifamily firm. These actions and efforts could include offering insights and guidance about governance structures that facilitate effective multifamily collaborations. Similarly, governments and industry bodies could develop educational programs with a focus on the unique dynamics of multifamily firms and the importance of SEW to them. These programs could have the potential to help those leading family firms understand how to leverage SEW to produce radical innovations. Agencies could also develop policy guidance to describe effective succession planning processes in family firms; this guidance could help family firms navigate generational transitions smoothly while maintaining a focus on radical forms of innovation.

6.3. Limitations and future directions

Our study is not without limitations. First, we do not theorize about the existence of potentially different reference points in family firms' SEW. Restricted and extended SEW are examples of different reference points scholars could examine in greater detail (Miller and Le Breton-Miller, 2014). Restricted SEW encompasses pursuing family-centric priorities at the expense of the family business' long-term viability and the interests of non-family stakeholders. In contrast, extended SEW adopts a view that is more favorable to stakeholders in that this perspective calls for a long-term orientation with a focus on priorities benefitting the firm's stakeholders as well as its long-term sustainability. Restricted and extended SEW may lead to different predictions in relation to radical innovation outcomes (e.g., Li and Daspit, 2016; Yang et al., 2022); however, our robustness test led to similar results. Future research could explore whether and how an emphasis on restricted versus extended SEW may affect a family firm's ability to attract and retain the 'talent' necessary to produce radical innovation (Du et al., 2024), or whether and how a more extended SEW orientation can facilitate certain strategic decisions that are essential for radical innovation, such as investing in R&D or choosing to form strategic partnerships (e.g., Lin et al., 2023; Yang et al., 2022). Overall, we believe that our conceptualization of SEW as a strategic resource can stimulate additional studies to better understand if prioritizing either restricted or extended SEW can influence key conditions necessary for radical innovation, such as resource allocation, organizational culture, talent management, external collaborations, risk tolerance, agility, openness to disruption, and integration of external knowledge.

Second, we do not use direct measures of either path dependency or goals within the family firm; rather, we posit that multifamily ownership is the possible cause of these conditions. Using finer-grained measures in future research is appropriate and might yield outcomes in which we could have greater confidence. In future work, scholars could also seek to measure both the family's willingness and ability to engage with and

produce radical innovation (Chrisman et al., 2015b). Relatedly, to account for the potentially different perceptions of SEW from each owning family, which is a limitation of our study, future research should employ a qualitative method design, interviewing multiple family members belonging to the firm's different owning families. In future studies, researchers could extend our focus on the multifamily firm to analyze ownership and governance constellations involving shareholders' coalitions and the effect those constellations have on leaders' behaviors and outcomes (e.g., DesJardine et al., 2023; Zhang et al., 2018). With specific reference to radical innovation, possible directions of investigation could examine how family business governance and leadership processes are affected by the presence of multiple families with potentially different SEW priorities in relation to radical innovation. These possibilities include: understanding processes used to resolve conflicts and how those processes facilitate or hinder radical innovation; analyzing the trade-offs and synergies that emerge when different families prioritize extended SEW versus restricted SEW values, generating heterogeneous interests and diverse risk attitudes; and investigating how governance structures and mechanisms in multifamily firms facilitate or impede radical innovation, considering the role of family councils, boards, and other governance bodies.

Third, we depict generational involvement as a crucial differentiator across multifamily firms with respect to their capability to produce radical innovation. However, there may be an optimal level of generational involvement beyond or below which a family firm's SEW and the amount of radical innovation their firm produces diminishes. Scholars could examine this possibility in future research. Our results should also encourage additional in-depth studies regarding multifamily dynamics, especially in relation to the possible uncertainties and misalignment in the choice and timing of the next generation's involvement in the business. For example, future research could focus on how different models of succession planning in multifamily firms correlate with the firm's success with radical innovation efforts. Issues to consider in this regard include: studying the effects of leadership transition styles (e.g., gradual vs. abrupt, single vs. shared) on facilitating or hindering the organizational conditions for radical innovation (e.g., Colombo et al., 2017); analyzing how the heterogeneity in the characteristics of successors in multi-generational, multifamily firms – such as their educational background, industry experience, exposure to external business environments, and attitudes toward risk – influence their propensity to engage in radical innovation (e.g., Zyburá et al., 2021); and studying the multiple family dynamics during the succession process and how these dynamics affect decisions related to radical innovation (e.g., Dorsch et al., 2023). This could also involve exploring issues of power struggle, conflict resolution, and consensus-building.

Fourth, although Spain is a dynamic and appropriate context to investigate family firms' radical innovation, seeking to validate or compare our findings by investigating our predictions in developed economies (e.g., Australia, the United States) as well as in emerging economies (e.g., Mexico, Thailand) where multifamily ownership tends to vary significantly. For example, Gómez-Mejía et al. (2023b) emphasize that different cultural contexts present distinct family structures and kinship systems that in turn may influence "SEW intensity" (the degree of preservation and enhancement of various aspects of SEW) and "SEW sensitivity" (the degree of firm responsiveness to external factors that are SEW relevant), thus impacting decision-making processes and outcomes. Fifth, an issue we do not explore is how multifamily ownership and generational involvement may differ across industries. In this study, we control for industry; however, to gain an enhanced understanding of the differences, scholars could analyze family firms competing in different industries separately. Sixth, we focus on radical innovation; it is possible, though, that examining other types of innovation could lead to different results. As an example, we suggest that 'green' innovation, which is innovation grounded in an orientation to preventing or reducing pollution as a path to tackling environmental challenges (Schiederig et al., 2012), has the potential for researchers to find

outcomes that differ from our results. Seventh, future work could attempt to identify the configuration among a firm's SEW, multifamily ownership, and generational involvement in the TMT that results in the most robust commercial monetization of a firm's radical innovations. Finally, despite being a common means of conducting survey research, we based our measures on respondents' perceptions. This method creates a degree of subjectivity in our analyses.

In summary, we believe that the results from our study yield insights with the potential to stimulate additional research to examine the intersection of SEW, multifamily ownership, and generational involvement as predictors of family firm radical innovation.

CRediT authorship contribution statement

Francesco Chirico: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **R. Duane Ireland:** Writing – review & editing, Writing – original draft, Supervision, Resources, Project administration, Investigation, Conceptualization. **Daniel Pittino:** Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Methodology, Investigation, Formal

analysis, Data curation, Conceptualization. **Valeriano Sanchez-Famoso:** Writing – review & editing, Visualization, Validation, Software, Methodology, Funding acquisition, Formal analysis, Data curation.

Declaration of competing interest

No conflict of interest from the authorship's team.

Data availability

The authors do not have permission to share data.

Acknowledgements

The authors received financial support from the Australian Research Council (Discovery Project, ID DP230101282) and Basque Government (Grant number IT1641-22). We also highly appreciate the institutional support received from Macquarie University (Innovation, Strategy and Entrepreneurship Research Group), Jonkoping University (Centre for Family Entrepreneurship and Ownership) and the Family Business Centre at the UPV/EHU in collaboration with the DFB/BFA.

Appendix 1

Indicators	Items
F1	The majority of the shares in my family business are owned by family members
F2	In our family business, family members exert control over the company's strategic decisions
F3	In our family business, most executive positions are occupied by family members
F4	In our family business, nonfamily managers and directors are named by family members
F5	The board of directors and/or top management team are mainly composed of family members
F6	Preservation of family control and independence are important goals for our family business
I1	Family members have a strong sense of belonging to our family business
i2	Family members feel that the family business's success is their own success
I3	Our family business has a great deal of personal meaning for family members
I4	Being a member of the family business helps define who we are
I5	Family members are proud to tell others that we are part of the family business
I6	Customers and other stakeholders often associate the family name with the family business's products and services
B1	Our family business is very active in promoting social activities at the community level
B2	In our family business, nonfamily employees are treated as part of the family
B3	In our family business, contractual relationships are mainly based on trust and norms of reciprocity
B4	Building strong relationships with other institutions (i.e., other companies, professional associations, government agents, etc.) is important for our family business
B5	Contracts with suppliers are based on enduring long-term relationships in our family business
E1	Emotions and sentiments often affect decision-making processes in our family business
E2	Protecting the welfare of family members is critical to us
E3	In our family business, the emotional bonds between family members are very strong
E4 (deleted)	In our family business, affective considerations are often as important as economic considerations
E5	Strong emotional ties among family members help us maintain a positive self-concept
E6	In our family business, family members feel warmth for each other
R1	Continuing the family legacy and tradition is an important goal for our family business
R2	The family is less likely to evaluate their investment on a short-term basis
R3	Family members would be unlikely to consider selling the family business
R4	Successful business transfer to the next generation is an important goal for family members

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