

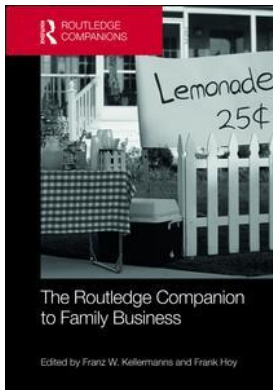
This article was downloaded by: 10.2.97.136

On: 22 Mar 2023

Access details: *subscription number*

Publisher: *Routledge*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: 5 Howick Place, London SW1P 1WG, UK



## **The Routledge Companion to Family Business**

Franz W. Kellermanns, Frank Hoy

### **Innovation and Family Business Research**

Publication details

<https://test.routledgehandbooks.com/doi/10.4324/9781315688053.ch11>

Nils D. Kraiczy, Andreas Hack

**Published online on: 29 Sep 2016**

**How to cite :-** Nils D. Kraiczy, Andreas Hack. 29 Sep 2016, *Innovation and Family Business Research from: The Routledge Companion to Family Business* Routledge

Accessed on: 22 Mar 2023

<https://test.routledgehandbooks.com/doi/10.4324/9781315688053.ch11>

**PLEASE SCROLL DOWN FOR DOCUMENT**

Full terms and conditions of use: <https://test.routledgehandbooks.com/legal-notices/terms>

This Document PDF may be used for research, teaching and private study purposes. Any substantial or systematic reproductions, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The publisher shall not be liable for an loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

## PART II

# Entrepreneurship

*This page intentionally left blank*

# 11

## INNOVATION AND FAMILY BUSINESS RESEARCH

### A Review and Future Directions

*Nils D. Kraiczy and Andreas Hack*

#### **Introduction**

Research on innovation in family firms is continuously increasing and has recently reached a peak of attention. The leading academic journal on innovation research, the *Journal of Product Innovation Management*, has published a special issue on this topic, which shows that research on innovation in family firms has started to attract attention not only of the family business research community but also of the innovation research community. Additionally, one of the leading general management journals, the *Academy of Management Journal*, has recently published a meta-analysis on innovation input and output in family firms (Duran et al. 2015), which further shows the great interest in this topic. However, this meta-analysis only includes studies published through 2012, which omits the recent results of an increasing number of studies.

This is not a surprising development because the ability to be innovative in niche markets has been identified as a characteristic of the strong, or even dominant, competitive positions of “Hidden Champions” in their industries. “Hidden Champions” are successful small and medium-sized enterprises, 70 percent of which are family firms (Simon 2009). The driver of this innovation success may well be the family, which distinguishes family firms from nonfamily firms. However, how can a family influence innovation in a family firm, and does the firm always benefit from family influence?

In their attempts to answer this question, family business researchers have analyzed family influence spanning the innovation process. A review of technological innovations in family firms by De Massis, Frattini, and Lichtenthaler (2013) applied an input-mediation-output (IMO) framework to structure relevant literature concerning family influence on innovation inputs, innovation activities, and innovation outputs. The authors analyzed 23 studies that were published through 2012. Since 2012, the number of studies focusing on innovation in family businesses has increased dramatically. Hence, a review may help structure the literature and derive gaps and future research.

First, we briefly describe the method used to identify the existing literature on innovation in family businesses. In the literature review, we examine the theoretical frameworks that have been applied in the context of innovation in family business. Second, we adopt the IMO approach used by De Massis, Frattini, and Lichtenthaler (2013) to structure the literature concerning family influence on innovation spanning the innovation process. Third, we move one step forward

by analyzing the studies from an ability-willingness perspective that may help explain family firm innovative behavior (Chrisman et al. 2015; De Massis et al. 2014). Last, we discuss limitations of the current state of research and present avenues for future research.

## Method

To review the research on innovation in family business, we focused on studies in which innovation is central to the article. We searched for articles in the Web of Science, a database by Thomson Reuter. To consider only high-quality research, we restricted our search to journals ranked grade 3 or higher in the subject areas entrepreneurship and small business management, general management, ethics and social responsibility, innovation, organization studies, and strategy in the recently published ABS Academic Journal Guide (42 journals in total). Additionally, we included journals from the Financial Times 45-journal ranking that were not included in the chosen subject areas of the ABS Academic Journal Guide and journals that focus specifically on family firms (i.e., *Journal of Family Business Strategy*, and *Journal of Family Business Management*). All journals appear in the Appendix.

To be considered, the articles had to meet three criteria: (1) one or more keywords related to family business research, including the article title, topic, and abstract (i.e., “family business,” “family firm,” “family enterprise,” “familiness,” “family-owned,” “family-managed,” “non-family,” or “nonfamily”); (2) one or more keywords related to innovation including the article title and abstract (i.e., “innovation,” “innovativeness,” “innovative,” “R&D,” “new product,” “technology,” “ambidexterity,” “absorptive capacity,” or “patent”); and (3) publication on or before May 2015. In addition to the electronic database search, we conducted a manual title search for each journal considered to ensure inclusion of all relevant articles.

Our initial search resulted in a total of 95 articles. After reading the abstract of each article, 56 articles were excluded because the research was not focused on innovation in family firms. For example, we excluded studies that largely focused on the entrepreneurial orientation (EO) construct, which includes innovativeness but only as a subdimension of EO. We also excluded qualitative studies with only a single case study. Hence, our search resulted in 39 articles in 15 different journals: *Academy of Management Journal* (2), *Academy of Management Review* (1), *Entrepreneurship Theory and Practice* (4), *Family Business Review* (7), *Journal of Business Ethics* (2), *Journal of Business Research* (1), *Journal of Business Venturing* (1), *Journal of Family Business Management* (2), *Journal of Family Business Strategy* (4), *Journal of Product Innovation Management* (8), *Journal of Small Business Management* (3), *Research Policy* (1), *Small Business Economics* (2), and *Strategic Management Journal* (1).

Table 11.1 presents the different types of studies that were found. Most studies (20) are empirical and quantitative and compare family firms with nonfamily firms.

## Theoretical Perspectives

Family business research focusing on innovation has used a number of well-established theories to explain the differences between family firms and nonfamily firms as well as differences within the group of family firms concerning their innovation behavior. We provide a brief description of each theory and its application in the context of innovation in family firms in the following. Table 11.2 presents the theories and the frequency of their application to family business innovation research.

### Agency Theory

Agency theory is theoretically based on divergent interests, opportunistic behavior, and asymmetric information; it addresses the conflict of interest between a principal and an agent.

Table 11.1 Type of Studies

<i>Type of Study</i>		<i>#</i>	<i>Comparative Studies (Family and Nonfamily Firms)</i>	<i>Non-comparative Studies (Only Family Firms)</i>
Non-empirical	Conceptual	5	-	5
	Commentary	1	-	1
	Review	1	1	-
	Sum	7	1	6
Empirical	Qualitative	3	1	2
	Quantitative	28	20	8
	Meta analysis	1	1	-
	Sum	32	22	10
Total		39	23	16

Table 11.2 Theoretical Perspectives

<i>Theoretical Perspective</i>	<i>Frequency</i>
Agency theory	7
Resource-based view	5
Behavioral agency model	5
Socioemotional wealth	4
Upper echelon theory	3

An agency problem may occur, for example, if the agent has better information than the principal (i.e., the problem of asymmetric information) or if the informed agent may fear the costs associated with a decision and therefore favor less risky decisions over risky decisions (i.e., problem of moral hazard).

In family firm research, agency cost considerations are ambiguous. Some authors suggest that agency problems are mitigated in family firms because ownership and management are often not separated or that family firm owners have a strong incentive to monitor their agents because most of their wealth is invested in the family firm and they intend to transfer the firm to the next generation (Chrisman, Chua, and Litz 2004). However, other authors argue that agency problems increase due to altruism and less self-control (Schulze, Lubatkin, and Dino 2003b, a, 2002).

In the context of innovation and family firms, agency theory is often used when analyzing R&D investments as input to the innovation process. For example, Block (2012) applies agency theory in his study and argues that due to the uncertainty concerning the outcome of R&D investments, investments in R&D may lead to an agency problem between the owners and the managers of a family firm.

### ***Resource-Based View***

Another theoretical perspective that has often been used in family business innovation research is the resource-based view (RBV). The RBV suggests that resources that are valuable, rare, inimitable, and non-substitutable can result in a competitive advantage for the firm. Family

firms possess a unique bundle of resources, the so-called “familiness,” which is distinctive to a firm because of family involvement. Sirmon and Hitt (2003) identify five family firm-specific resources that have the potential to provide competitive advantages for family firms. These resources are human capital, social capital, survivability capital, patient financial capital, and governance structure.

In the context of innovations, family firms offer unique resources that can improve innovative projects. In particular, the human capital of the family and the ownership structures of family firms are unique resources that bring knowledge to create new ideas and financial capital to develop these ideas into innovations.

For example, Matzler et al. (2015) use the RBV to explain how capabilities shape innovation because families may have particular capabilities that enable them to be more effective in their innovation efforts than a nonfamily firm would be. Furthermore, they argue that the deployment of idiosyncratic resources unique to family firms requires a strong involvement of families in management and governance. Hence, having more family members involved in management and governance increases the likelihood that a firm can deploy these family-specific resources.

### ***Behavioral Agency Model***

Building on agency and prospect theory, the behavioral agency model (BAM) suggests that executive risk-taking varies across and within different forms of monitoring and that agents may exhibit risk-seeking and risk-averse behaviors (Wiseman and Gómez-Mejía 1998). Furthermore, the BAM suggests that the behavioral preferences of individuals are shaped by problem framing and loss aversion (Kahneman 1991; Wiseman and Gómez-Mejía 1998). Although loss aversion implies that individuals are more concerned with avoiding losses than with obtaining gains, problem framing implies that choices are viewed from a perspective of gains or losses, usually in reference to current asset endowments (Kahneman and Tversky 1979) or, in family firms, in reference to socioemotional wealth (Gómez-Mejía et al. 2007). The BAM helps overcome the limitations of agency theory and explain the risk-taking behavior of family firms because this theory does not imply that family firms are inevitably risk averse or that their risk preferences are constant (Chrisman and Patel 2012).

In the context of innovation, the BAM suggests that to preserve socioemotional wealth (SEW), loss-averse family firms usually invest less in R&D than nonfamily firms. For example, Chrisman and Patel (2012) apply the BAM and extend this theoretical perspective with the myopic loss-aversion framework. They show that family firms usually invest less in R&D than nonfamily firms but that the variability of their investments is greater due to differences in the compatibility of long- and short-term family goals with the economic goals of a family firm. Additionally, their study indicates that when the performance of a family firm is below aspiration levels, family goals and economic goals tend to converge. In this situation, the R&D investments of family firms increase and the variability of those investments decreases compared with nonfamily firms.

### ***Socioemotional Wealth***

In family firms, the primary reference of potential gains or losses is SEW (Gómez-Mejía et al. 2011). SEW describes nonfinancial aspects of a firm that meet the family’s affective needs such as identity, the ability to exercise family influence, and the perpetuation of the family dynasty. Hence, it describes the utility family owners derive from the noneconomic aspect of a firm. Gómez-Mejía et al. (2007) introduced SEW based on the BAM and assumed that the risk-taking behavior of family owners is affected by how their decisions might affect their SEW. Accordingly, SEW and the BAM

are closely related theoretical concepts and cannot be clearly separated from one another. However, whereas most studies that apply BAM as a theoretical framework also use SEW, not all of the studies that apply SEW as a theoretical framework also use the BAM explicitly. Because innovation is always related to risk, SEW has recently been applied to predict family firm innovative behavior.

For example, Kraiczy, Hack, and Kellermanns (2015) explore how the organizational context (i.e., ownership by top management team family members and the generation in charge of the family firm) of family firms interacts with CEO risk-taking propensity to affect new product portfolio innovativeness. Their results show that the organizational context of family firms affects the positive relationship between CEO risk-taking propensity and new product portfolio innovativeness. Specifically, the relationship between CEO risk-taking propensity and new product portfolio innovativeness is weaker if levels of ownership by top management team (TMT) family members are high, which would indicate high levels of SEW; thus, SEW is a strong and important reference point. Additionally, the effect of CEO risk-taking propensity on new product portfolio innovativeness is stronger in family firms at earlier generational stages, which is also related to high levels of SEW, making SEW a strong and important reference point.

### ***Upper Echelon Theory***

Recently, upper echelon theory (UET) has been applied in the context of innovation in family firms. UET is an information processing theory that explains how executives act under conditions of bounded rationality (Hambrick and Mason 1984). Based on their interpretation of situations, executives make decisions that are influenced by their experience, personality, and values. According to UET, executives' personalized interpretations of situations directly affect their strategic choices and behaviors.

Because of the discretion of the executives, these choices and behaviors are reflected in innovation-related decisions such as R&D investments and go/kill decisions on innovation projects.

For example, Kraiczy, Hack, and Kellermanns (2014) investigate interaction effects between TMT innovation orientation and two family firm-specific sources of TMT diversity: the number of involved generations and the ratio of family members in the TMT. Their results show that although TMT innovation orientation has a more positive influence on new product portfolio performance when multiple generations participate in the TMT, a more negative influence on new product portfolio performance exists when the ratio of family members in the TMT is high. The results indicate that family firm-specific TMT diversity needs careful analysis because each source of TMT diversity may affect family firm performance differently.

### **Conclusion**

Based on this plurality of theoretical perspectives, research on innovation in family firms has pursued different topics spanning the innovation process. Most of these theories can be applied to predict both positive and negative effects of family influence on innovation. For example, the RBV suggests that family firms can benefit from a unique resource bundle but, conversely, that family firms have also been characterized by resource scarcity. Similarly, agency theory predicts that agency conflicts may arise between the family firm owner and the manager, which may mitigate innovation but, conversely, when the family firm is managed by a family member these agency conflicts should disappear, which may have a positive effect on innovation. Taken together, from a theoretical perspective, it is difficult to predict the effect of family influence on innovation. Specifically, according to SEW and the BAM, effects can be contradictory. In the next step, we examine the empirical evidence that is based on the different theoretical perspectives presented above.



## Research Review

### *Input-Mediation-Output Framework*

De Massis, Frattini, and Lichtenthaler (2013) reviewed and systemized 23 peer-reviewed journal articles on technological innovation in family firms with the use of an innovation inputs-innovation activities-innovation output-framework. The results of this literature review show that family influence has direct effects on innovation inputs (e.g., R&D investments), innovation activities (e.g., a new product development process), and innovation outputs (e.g., number of new products), and moderating effects on the relationships between these steps of technological innovation.

Because we focused our review only on articles published in high-ranked journals and did not restrict it to technological innovation, not all papers reviewed by De Massis, Frattini, and Lichtenthaler (2013) are included in this study, and vice versa. In a first step, we assign the studies according to the IMO framework used by De Massis, Frattini, and Lichtenthaler (2013). We distinguish between studies that compare family with nonfamily firms and studies that focus only on family firms. In a second step, we apply the ability-willingness perspective to extend previous findings and explain why results have been inconsistent.

Except for the meta analysis by Duran et al. (2015), Table 11.3 presents all of the empirical studies included in the review (N = 31) and provides detailed information for each study.

### *Studies Focusing on Differences between Family and Nonfamily Firms Concerning Innovation*

Most of the articles reviewed in this study applied comparative research designs (67.74 percent 20 quantitative studies and 1 qualitative study) to identify differences between family and nonfamily firms in their analyses.

### *Innovation Inputs*

Our review shows that most studies focus on family influence on R&D-related measures such as R&D investment (Chrisman and Patel 2012; Gómez-Mejía et al. 2014; Patel and Chrisman 2014; Sirmon et al. 2008), change in R&D investment (Kotlar, De Massis, et al. 2014; Kotlar, Fang, et al. 2014), and R&D intensity (Block 2012; Muñoz-Bullón and Sanchez-Bueno 2011; Schmid et al. 2014; Sciascia et al. 2015) as innovation input. All of these studies use objective measures and analyze solely family influence on this input factor, not examining how these investments transform in innovation activities or innovation outcomes. Considering only direct effects, family influence, which is primarily measured by family ownership and management, on R&D-related measures is negative (e.g., Muñoz-Bullón and Sanchez-Bueno 2011; Sciascia et al. 2015). Adding context variables changes this effect. For example, when the gap between aspirations and performance (i.e., gap between current performance and both historical performance and competitors' performance) is negative, family firms increase R&D investments more than nonfamily firms do (Chrisman and Patel 2012). Furthermore, research shows that when institutional ownership and diversification increase, family firms are more likely to invest in R&D (Gómez-Mejía et al. 2014). Analyzing threats of imitation, Sirmon et al. (2008) show that family-influenced firms are less rigid in their responses to threats of imitation and reduce their R&D investments and internationalization significantly less than firms without family influence.

Table 11.3 Empirical Studies Analyzed in the Review

#	Author (Year)	Sample	Theoretical Framework	Research Design	Innovation Measure	Input, Activity, Output	Willingness to Innovate	Ability to Innovate	Key Findings
1	Allison, McKenny, and Short (2014)	149 S&P 500 firms, USA, various industries, only family firms	-	Quantitative, panel data, hierarchical linear modeling	Organizational ambidexterity (exploration, orientation), R&D intensity	Activity	High willingness due to economic goals	High ability due to management, low levels of turnover and the presence of strong familial bonds	Family firm ambidexterity is stable over time, but is punctuated by dramatic changes. Level of innovation required to compete in an industry is a predictor of changes in exploration versus exploitation over time among family firms.
2	Beck et al. (2011)	111 family firms, SME, Belgium and Netherlands, various industries, only family firms	-	Quantitative, multiple regression analysis	Innovation	Construct including output	Low willingness of later generations due to greater conservatism, focus on preserving family wealth	High ability of later generations due to an innovation-oriented culture, equal and participative involvement in decision making and professionalism	Market orientation mediates the relationship between generational stage and innovation. Later generations have a negative effect on market orientation, which reduces innovation.
3	Block (2012)	154 S&P 500 firms, USA, R&D-intensive industries, family and nonfamily firms	Agency theory	Quantitative, panel data regression	R&D intensity	Input	-	High ability due to ownership and management	Family ownership is negatively associated with the level of R&D
4	Block and Spiegel (2013)	326 German regions with the locations of 526 medium-to large-scale family firms in innovative industries, only family firms	-	Quantitative, multiple regression analysis	Regional innovation activity measured by the number of granted patents	Output	High willingness due to long-term orientation and strong local roots	High ability due to ownership	Regions with a higher family firm density also show higher levels of innovation output, as measured by the number of successful patent applications

(Continued)

#	Author (Year)	Sample	Theoretical Framework	Research Design	Innovation Measure	Input, Activity, Output	Willingness to Innovate	Ability to Innovate	Key Findings
5	Block et al. (2013)	248 S&P 500 firms, USA, various industries, family and nonfamily firms	Socioemotional wealth	Quantitative, count data regression	Patent citations	Output	Low willingness due to pursuit of SEW	High ability due to ownership and management	Family-managed firms receive fewer patent citations compared with other firms
6	Chrisman and Patel (2012)	965 S&P 1500 firms, USA, manufacturing industry, family and nonfamily firms	Behavioral agency model, myopic loss aversion framework	Quantitative, panel data regression	R&D investment	Input	Low willingness due to loss aversion with respect to their socioemotional wealth and focus on short-term family goals	High ability due to ownership, management, and governance	Family firms generally invest less in R&D. Family firms increase R&D investments more than nonfamily firms when the gap between aspirations and performance is negative. The variability of investments in R&D is greater among family firms than among nonfamily firms.
7	Classen et al. (2012)	167 firms, SME, Belgium and Netherlands, manufacturing industry, family firms and nonfamily firms	Behavioral theory of the firm	Quantitative, multiple regression analysis	Search breadth	Activity	Low willingness due to maintenance of SEW	High ability due to ownership and management Low ability due to their limited cognitive diversity and absorptive capacity	Performance below aspirations reduces the variability of investments in R&D more in family firms than in nonfamily firms. Family firms have a lower search breadth than nonfamily firms.

8	Classen et al. (2014)	2087 firms, SME, Germany, various industries, family and nonfamily firms	Exploratory	Quantitative, CDM model	Probability of investing in innovation, innovation intensity, product innovation output, process innovation output	Input and output	-	High ability due to ownership	Family firms have a higher propensity to invest in innovation at all. Conditional on investing in innovation, these firms do so less intensively than nonfamily firms do. Family firms tend to outperform nonfamily firms in terms of process innovation outcomes when controlling for innovation investment. Given the level of product and process innovation, family firms underperform concerning labor productivity in comparison to nonfamily firms.
9	Craig and Dibrell (2006)	391 firms, SME, USA, various industries, family and nonfamily firms	Stewardship theory	Quantitative, multiple regression analysis	Firm innovation	Construct including input, activity, and output	-	High ability due to ownership and management High ability due to more flexible structures and decision-making processes and less formal monitoring and control mechanisms	Family firms are able to facilitate environmentally friendly firm policies associated with improved firm innovation and greater financial performance more effectively than nonfamily firms can.
10	Craig, Dibrell, and Garrett (2014)	359 firms, USA, food processing industry, family and nonfamily firms	Resource-based view, upper echelon theory	Quantitative, structural equation modeling	Firm innovativeness	Construct including input, activity, and output	-	High ability due to family mission, family control, and family culture High ability due to flexible planning systems	Family influence positively influences family culture; that family culture improves the ability of families to be strategically flexible. This flexibility positively affects firm innovativeness, subsequently benefiting firm performance.

(Continued)

#	Author (Year)	Sample	Theoretical Framework	Research Design	Innovation Measure	Input, Activity, Output	Willingness to Innovate	Ability to Innovate	Key Findings
11	De Massis et al. (2015)	10 firms, Italy, various industries, family and nonfamily firms	Resource-based view, agency theory, stewardship theory, behavioral theory	Qualitative, exploratory	Product innovation process (strategy, organization, climate)	Activity	-	High ability due to ownership and management	Family firms differ from nonfamily firms concerning product innovation strategies and organization of the innovation process. Family firms are less prone to invest in R&D compared with nonfamily firms. As institutional ownership increases, family firms are more likely to invest in R&D. As related diversification increases, family firms are more likely to invest in R&D. Values related to a firm's context, influenced by the divesting party and by the choice of successor, create inertia to the extent that only minor changes in innovation orientation are possible. External owners may focus largely on growth and new ways of innovating, whereas family-controlled firms diversify to avoid abandoning previous businesses. Intermediating factors, such as customer involvement, type of SME, and the acquirers' motives, influence the innovative organizational culture and create explanatory links to innovation intensity and methodologies of innovation.
12	Gómez-Mejía et al. (2014)	610 firms, USA, high-technology industries, family and nonfamily firms	Behavioral agency model, mixed gamble	Quantitative, panel data regression	R&D investment	Input	Low willingness due to loss aversion with respect to their socioemotional wealth	High ability due to ownership and management	
13	Grundström, Öberg, and Öhrvall Rönnbäck (2012)	10 firms, SME, Sweden, manufacturing industry, only family firms	-	Qualitative, multiple case study	Innovativeness, innovation intensity	Output	Low willingness due to retention of family tradition	High ability due to family member as successor (ownership, management)	

14	Hauck and Prügl (2015)	81 firms, Austria, tourism industry, only family firms	Socioemotional wealth	Quantitative, multiple regression analysis	Perceived suitability of the succession phase for innovation activities	Output	High willingness due to family adaptability	High ability due to family member as successor (ownership, management)	Socioemotional factors have both dark and bright sides in the context of innovation. Family adaptability and a family member's closeness to the firm are positively associated with perceiving the succession phase as an opportunity for innovation.
15	Kammerlander and Ganter (2015)	7 firms, Germany, consumer goods industry, only family firms	Attention-based view, sense-making theory	Qualitative, multiple case studies	Family firms' adaptation to discontinuous technological change	Activity	Willingness depends on the noneconomic goals of the family CEO	High ability due to ownership and management	Family CEO's specific noneconomic goals determine whether the CEO assesses a discontinuous technology as sufficiently relevant to warrant a reaction from the firm and constrain the set of considered responses. The outcome of this sense-making process determines the organization's response.
16	Kashmiri and Mahajan (2014)	107 firms, USA, various industries, only family firms	Social-identity theory	Quantitative, event study, panel data regression	Shareholder value impact of firms' new product introductions	Output	High willingness due to motivation to protect firm reputation	High capability to translate strong motivation into their firm's more trustworthy product-related behavior	Over time, family CEOs might re-evaluate the emerging trend based on their goals and adapt organizational moves accordingly. Presence of the founding family's name as part of a family firm's name acts as a valuable firm resource, increasing the abnormal stock returns surrounding the firm's new product introductions.

(Continued)

#	Author (Year)	Sample	Theoretical Framework	Research Design	Innovation Measure	Input, Activity, Output	Willingness to Innovate	Ability to Innovate	Key Findings
17	Kodlar et al. (2013)	1540 firms, Spain, manufacturing industry, family and nonfamily firms	Behavioral agency model	Quantitative, panel data regression	External technology acquisition (R&D contracting)	Input	Low willingness due to perseverance of authority and identity foundations of socioemotional wealth	High ability due to ownership and management	Superior returns to family-named firms' new product introductions are partially mediated by these firms' history of ethical product-related behavior: family-named firms, particularly those with corporate branding, and those wherein a founding family member holds the CEO or chairman position, are more likely to exhibit a history of avoiding such product-related controversies as product safety issues and deceptive advertising. Family firms are generally more reluctant to acquire external technology, and the effect of negative aspiration performance gaps becomes less relevant as family management is higher. Family firms become more favorable to considering the adoption of an open approach to technology development when some protection mechanisms increase the managers' perceptions of control over the technology trajectory. Family firms are less likely to change their level of R&D investments across periods. This general tendency is moderated by the influence of reference points distributed along internal and external reference dimensions.
18	Kodlar, De Massis, et al. (2014)	437 firms, Spain, manufacturing industry, family and nonfamily firms	Strategic reference point theory	Quantitative, panel data regression	Change in R&D investment	Input	Low willingness due to pursuitance of family-centered goals	High ability due to ownership and management	

Unabsorbed slack resources exert a negative influence on change in R&D investments and internal performance hazard positively affects change in R&D investments, whereas family management positively moderates both of these relationships. External performance hazard positively influences change in R&D investments, whereas competitors' market power, buyers' and suppliers' bargaining power negatively influence change in R&D investments. However, family management negatively moderates the effect of external performance hazard and positively moderates the effect of competitors' market power, buyers' and suppliers' bargaining power. Family firms react more strongly to increasing supplier bargaining power when their profitability reference points have been reached. For family firms, a negative profitability–aspiration gap negatively moderates the positive effect of a change in supplier bargaining power on R&D investment variation, such that the effect is weaker.

(Continued)

19 Kodar, Fang, et al. (2014)  
431 firms, Spain, manufacturing industry, family and nonfamily firms

Behavioral theory of the firm, resource dependency theory

Quantitative, panel data regression

Change in R&D investment

Input

Low willingness due to noneconomic goals

High ability due to ownership and management



#	Author (Year)	Sample	Theoretical Framework	Research Design	Innovation Measure	Input, Activity, Output	Willingness to Innovate	Ability to Innovate	Key Findings
20	Kraiczy, Hack, and Kellermanns (2014)	77 firms, SME, Germany, manufacturing industry, only family firms	Upper echelon theory	Quantitative, multiple regression analysis	New product portfolio performance	Construct including output	High willingness due to multiple generations in the TMT Low willingness due to high ratio of family members in the TMT	High ability due to CEO's discretion	Results indicate that family-induced diversity in the TMT has opposing moderating effects. A positive relationship exists between TMT innovation orientation and new product portfolio performance when multiple generations are involved in the TMT TMT innovation orientation and new product portfolio performance experience a negative relationship when the ratio of family members in the TMT is high. CEO risk-taking propensity has a positive effect on new product portfolio innovativeness. The relationship between CEO risk-taking propensity and new product portfolio innovativeness is weaker if levels of ownership by family members on the TMT are high (high SEW). The effect of CEO risk-taking propensity on new product portfolio innovativeness is stronger in family firms at earlier generational stages (high SEW). Family firms have a significantly higher reduction of R&D in a recession environment than nonfamily firms do.
21	Kraiczy, Hack, and Kellermanns (2015)	114 firms, SME, Germany, manufacturing industry, only family firms	Socioemotional wealth, upper echelon theory	Quantitative, multiple regression analysis	New product portfolio innovativeness	Construct including output	Low willingness due to high levels of ownership by family members on the TMT High willingness due to closeness to founding generation	High ability due to CEO's discretion	
22	Llach et al. (2012)	88 firms, Spain, manufacturing industry, family and nonfamily firms	-	Quantitative, matched-pair design	Reduction of R&D other innovation dimensions in a recession	Input and output	Low willingness due to risk aversion	High ability due to ownership	

23	Matzler et al. (2015)	134 firms, Germany, various industries, family and nonfamily firms	Resource-based view, agency theory	Quantitative, panel data regression	Innovation input (R&D intensity), innovation output (patents intensity, citation intensity)	Input and output	Low willingness due to risk aversion (innovation input)	High ability due to ownership, management and governance High ability due to unique social capital building (innovation output)	Family participation in management and governance has a negative effect on innovation input and a positive influence on innovation output.
24	Muñoz-Bullón and Sánchez-Bueno (2011)	736 firms, Canada, various industries, family and nonfamily firms	Agency theory	Quantitative, panel data regression	R&D intensity	Input	Low willingness due to risk aversion	High ability due to ownership and control Low ability due to limited access to human and financial resources, CEO tenure and age, the agency costs of possible altruism, the relationship between family members and minority shareholders	Family firms in record lower R&D intensity compared with nonfamily firms
25	Nieto, Santamaria, and Fernandez (2015)	15,173 observations, Spain, various industries, family and nonfamily firms	Agency theory	Quantitative, panel data regression	Innovation behavior (innovation effort, R&D), sources of innovation (internal, external), innovation result (incremental, radical)	Input, activity, and output	Low willingness due to risk aversion	High ability due to ownership and management Low ability due to agency costs and resource constraints	Family firms make fewer innovation efforts and are less inclined to turn to external sources of innovation such as technological collaboration than nonfamily firms. Family firms are more likely to achieve incremental than radical innovations.

(Continued)

#	Author (Year)	Sample	Theoretical Framework	Research Design	Innovation Measure	Input, Activity, Output	Willingness to Innovate	Ability to Innovate	Key Findings
26	Patel and Chrisman (2014)	874 S&P 1500 firms, USA, various industries, family and nonfamily firms	Behavioral agency theory, risk abatement	Quantitative, panel data regression	R&D investment	Input	Willingness depends on the aspiration level	High ability due to ownership and management	When performance is above aspiration levels, the investments in R&D of family firms will decrease the variability of sales more than will the investments in R&D of nonfamily firms. When performance is below aspiration levels, the investments in R&D of family firms will increase the variability of sales more than will the investments in R&D of nonfamily firms. R&D intensity is higher in firms that are actively managed by the family.
27	Schmid et al. (2014)	641 firms, Germany, various industries, family and nonfamily firms	Agency theory	Quantitative, panel data regression	R&D intensity	Input	High willingness due to long-term orientation	High ability due to control, management, and supervision	This positive effect disappears if we follow previous research and use R&D information from financial statements. Family-managed firms report too conservative R&D expenditures, particularly if they face financial constraints. This leads to an under-estimation of R&D intensity in these firms if accounting figures are used.

28	Sciascia et al. (2015)	240 firms, SME, Italy, various industries, family and nonfamily firms	Behavioral agency model, socioemotional wealth	Quantitative, multiple regression analysis	R&D intensity	Input	Willingness depends on the overlap between family wealth and firm equity	High ability due to ownership	In SMEs in which there is a high overlap between family wealth and firm equity, the relationship between family ownership and R&D intensity is negative due to family owners' greater desire to protect SEW. If the overlap between family's total wealth and single firm equity is low, the relationship between family ownership and R&D intensity is positive because the low overlap reduces the family's loss aversion propensity, fostering R&D intensity.
29	Sirmon et al. (2008)	2531 firms, SME, France, manufacturing industry, family and nonfamily firms	Resource-based view, threat rigidity	Quantitative, multiple regression analysis	R&D investment	Input	High willingness to innovate in threat situations due to long-term orientation and higher incentives to monitor. Both reduce persistence and overemphasis on efficiency	High ability to innovate in threat situations due to higher particularism, extensive interactions between family owners, favor for open communication and preference of organic organizational structures	Family-influenced firms are less rigid in their responses to threats of imitations, reducing their R&D investments and internationalization significantly less than firms without family influence.

(Continued)

#	Author (Year)	Sample	Theoretical Framework	Research Design	Innovation Measure	Input, Activity, Output	Willingness to Innovate	Ability to Innovate	Key Findings
30	Spriggs et al. (2013)	199 firms, USA, various industries, only family firms	Resource-based view, agency theory	Quantitative, multiple regression analysis	Innovative capacity	Activity	-	High ability to benefit from innovative capacity if ownership dispersion is high due to higher information exchange Low ability due to more difficult goal alignment, higher probability of ownership conflicts, and diminished flexibility and speed in decision making – and vice versa if ownership dispersion is low	Innovative capacity has a positive effect on small family firm performance. This effect is stronger if concentrated ownership is combined with high collaborative network orientation or dispersed ownership is combined with low collaborative network orientation.
31	Wagner (2010)	252 S&P 500 firms, USA, various industries, family and nonfamily firms	-	Quantitative, panel data regression	Innovation with high social benefits (environmental innovation, CSR innovation, part of firm's mission is the provision of products or services for the economically disadvantaged)	Output	High willingness to innovate with high social benefits due to (1) long-term orientation, (2) concern about ones positive reputation, and (3) supportiveness of protecting the environment and other social issues	High ability to innovate with high social benefits due to higher organizational flexibility	Being a family firm positively moderates the relationship between corporate social performance and innovation with high social benefits.

Three studies focus not only on innovation inputs but also on outputs (Llach et al. 2012; Classen et al. 2014; Matzler et al. 2015). In an exploratory study, Classen et al. (2014) find that family firms have a higher propensity to invest in innovation at all; however, conditional on investing in innovation, these companies do so less intensively than their nonfamily counterparts do. Furthermore, family firms tend to outperform nonfamily firms in terms of process innovation outcomes when controlling for innovation investment. Given the level of product and process innovation, family firms underperform concerning labor productivity in comparison to nonfamily firms. Llach et al. (2012) show that family firms only differ from nonfamily firms in R&D efforts because family firms decrease R&D-related measures, whereas nonfamily firms increase them. For other indicators of innovation, such as product innovation, cooperation, organizational innovation and product-related services, no differences were found. The study by Matzler et al. (2015) analyzes R&D intensity (innovation input), patents intensity and citation intensity (innovation outputs) and finds that family participation in management and governance has a negative effect on innovation input and a positive influence on innovation output.

### *Innovation Activities*

Focusing specifically on innovation activities, studies have analyzed search breadth (Classen et al. 2012) and product innovation process (De Massis et al. 2015). Classen et al. (2012) investigate the differences in the diversity of cooperation partners used for innovation-related activities (i.e., search breadth). Their results show that family firms have a lower search breadth than their nonfamily counterparts. In a qualitative study, De Massis et al. (2015) analyze differences in the product innovation process between family and nonfamily firms. Their analysis shows that family firms differ from nonfamily firms in product innovation strategies, innovation climate, and organization of the innovation process. Specifically, family firms focus on incremental new products by applying an open approach, relying on collaborations with external sources of knowledge and technologies, whereas nonfamily firms invest both in incremental and radical innovations, with only sporadic collaborations with external partners. In family firms, the predominant organizational climate is largely informal, unstructured, and risk averse, whereas nonfamily firms are highly structured and more risk taking.

### *Innovation Outputs*

Two studies focus solely on innovation outputs by using innovation with high social benefits (i.e., environmental innovation, corporate social responsibility innovation, and provision of products or services for the economically disadvantaged) (Wagner 2010) and patent citations (Block et al. 2013) as measures.

The study by Wagner (2010) analyzes an indirect effect of family influence on the link between corporate social performance and innovation. The results show that being a family firm positively moderates this relationship. Block et al. (2013) use the number of patent citations that a patent portfolio receives not only as a measure of economic and technological importance but also as a measure of the radicalness of innovations. Their results show that family-managed firms are less likely to produce innovations of a radical and exploratory nature, whereas, for founder-managed firms, the opposite seems to be true. Even when controlling for R&D spending, family-managed firms produce innovations with low economic and technological importance.

### *Comprehensive Studies*

Nieto, Santamaria, and Fernandez (2015) include in their study measures of innovation input (i.e., R&D intensity), innovation activity (i.e., R&D contracting and technological collaboration), and innovation output (i.e., incremental product innovations and radical product innovations). They find that family firms invest less in R&D and are less inclined to turn to external sources of innovation such as technological collaboration than are nonfamily firms. Furthermore, their results show that family firms are more likely to achieve incremental innovations than radical innovations. Analyzing firm innovation and firm innovativeness, Craig and Dibrell (2006) and Craig, Dibrell, and Garrett (2014) use constructs in their studies, which include items of innovation inputs, activities, and outputs. Craig and Dibrell (2006) find that family firms are better able to facilitate environmentally friendly firm policies associated with improved firm innovation and greater financial performance more effectively than their nonfamily counterparts are. Craig, Dibrell, and Garrett (2014) show that family influence positively influences family culture, which, in turn, improves the ability of families to be strategically flexible and that this flexibility positively affects firm innovativeness.

### ***Studies Focusing on Differences within the Group of Family Firms Concerning Innovation***

#### *Innovation Inputs*

Studies analyzing heterogeneity among family firms with a focus on innovation inputs have not been found. To the best of our knowledge, no research exists on this topic. We discuss this finding as an avenue for future research.

#### *Innovation Activities*

Organizational ambidexterity is defined as the ability of an organization to simultaneously pursue both explorative (discontinuous) and exploitative (incremental) innovation (O'Reilly and Tushman 2004). Exploration and exploitation can be described as innovation activities. Although exploration is related to search, experimentation, and variance increase, exploitation increases productivity and efficiency through improved execution and variance reduction (March 1991). Allison, McKenny, and Short (2014) analyze how family firm ambidexterity changes over time due to temporal-, firm-, and industry-level factors. They find that family firm ambidexterity is stable over time, though it is punctuated by dramatic changes. They also find that the level of innovation required to compete in an industry is a predictor of changes over time in exploration versus exploitation in family firms.

Absorptive capacity (AC) is defined as the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends (Cohen and Levinthal 1990), which is critical to its innovative capabilities. In a conceptual study, Andersén (2015) focuses on the effect of familiness on this innovation activity and argues that due to higher levels of social capital, familiness is positively related to the ability to transform and use external knowledge (i.e., realized AC). Furthermore, he indicates that firms with high levels of familiness are likely to be inferior in acquiring and assimilating external knowledge (i.e., potential AC).

Using multiple case studies, Kammerlander and Ganter (2015) applied a quantitative approach to analyzing how family CEOs' managerial attention response patterns affect family firms' adaptation to discontinuous technological change. Specifically, the study shows that noneconomic goals of the family CEO determine whether he/she assesses a discontinuous technology as sufficiently relevant to warrant a reaction from the firm and constrain the set of considered responses.

### *Innovation Outputs*

Most of the studies analyzing the heterogeneity of family firms with regard to innovation focus on innovation outputs. Block and Spiegel (2013) analyze the regional innovation activity of family firms measured by the number of granted patents. They find that regions with a higher family firm density show higher levels of innovation output. Another objective measure is applied by Kashmiri and Mahajan (2014), who analyze the shareholder value effect of firms' new product introductions. Their results show that the presence of the founding family's name as part of a family firm's name acts as a valuable firm resource, increasing the abnormal stock returns surrounding the firm's new product introductions. Superior returns to family-named firms' new product introductions are partially mediated by these firms' history of ethical product-related behavior; family-named firms, particularly those with corporate branding and those wherein a founding family member holds the CEO or chairman position, are more likely to exhibit a history of avoiding such product-related controversies as product safety issues and deceptive advertising.

Grundström, Öberg, and Öhrwall Rönnbäck (2012) applied a qualitative approach using multiple case studies to analyze family influence on innovation outputs. They analyze succession and the ability to innovate in family firms. Their results show that family firms taken over by family members tend to focus on incremental innovation and showed low innovation intensity. These family firms depended on partners for developing ideas and were, therefore, adopters rather than innovators. Compared with family firms kept within the family, those taken over by external parties that attempted to implement change in the firms tended to be more growth oriented. However, following the succession in a family firm, attitudes toward innovativeness largely remain focused on incremental innovations in established frames, regardless of whether the family firm passes to a family member or an external party. Focusing also on succession, Hauck and Prügl (2015) find that family adaptability and a family member's closeness to the firm are positively related to perceiving the succession phase as an opportunity for innovation.

Three studies use constructs to measure innovation outputs of family firms. While Kraiczy, Hack, and Kellermanns (2014) focus on the performance of the new product portfolio, Kraiczy, Hack, and Kellermanns (2015) focus on the innovativeness of the new product portfolio; both employed self-reported and subjective assessment measures from the executives of the family firm. Kraiczy, Hack, and Kellermanns (2014) analyze the effect of family-induced diversity in the top management team (TMT) on the relationship between TMT innovation orientation and new product portfolio performance. Their results indicate that family-induced diversity in the TMT has opposing moderating effects. Although a positive relationship exists between TMT innovation orientation and new product portfolio performance when multiple generations are involved in the TMT, TMT innovation orientation and new product portfolio performance experience a negative relationship when the ratio of family members in the TMT is high. Kraiczy, Hack, and Kellermanns (2015) focus on



CEOs and the effect of their risk-taking propensity on new product portfolio performance. They find that CEO risk-taking propensity has a positive effect on new product portfolio innovativeness in family firms. More interestingly, their results also show opposing effects of different family influence variables. Specifically, the relationship between CEO risk-taking propensity and new product portfolio innovativeness is weaker if levels of ownership by family members on the TMT are high, which describes a situation in which SEW is a strong reference point. Furthermore, the effect of CEO risk-taking propensity on new product portfolio innovativeness is stronger in family firms at earlier generational stages, which also describes a situation in which SEW is a strong reference point. Beck et al. (2011) analyze the relationship between the generational stage of the family firm and innovation. The results show that later generations are less innovative.

### **Ability-Willingness Perspective**

Although or because various theories have been applied in family business innovation research, results have not always been consistent. Recent research has introduced the ability-willingness framework to explain family firm innovation (Chrisman et al. 2015), which may help to overcome these inconsistencies. Whereas ability describes the discretion of the family to act, willingness describes the disposition of the family to act. Ability includes the latitude in selecting the goals of the firm and in choosing among a wider range of options (Hambrick and Finkelstein 1987, Morck, Shleifer, and Vishny 1988). In contrast, willingness describes “the disposition of the family owners to engage in idiosyncratic behavior based on the goals, intentions, and motivations that drive the owner to influence the firm’s behavior in directions diverging from those of nonfamily firms or the institutional norms among family firms” (Chrisman et al. 2015: 311). In family firms, “ability and willingness are necessary but individually insufficient conditions; sufficiency requires both, not just one or the other” (De Massis et al. 2014: 345).

### **Ability**

Families who are the owners of family firms, have the discretion to direct, allocate, add to, or dispose of available family firm resources to innovate (De Massis et al. 2014). This discretion varies with the degree of family influence and may be affected by context factors.

Two important conditions affect family firms’ ability to influence innovation. First, family ownership, which can be defined as the foundation of family influence, is compulsory to generate discretion. A higher level of family ownership is associated with a higher of level family discretion to affect decisions such as innovation. Second, family management, which describes the active involvement of family members in the top management team, can further increase the discretion to act. If a family is the sole owner of the firm and family members are actively involved in the management, the ability of the family to innovate is highest. Indeed, most studies focus on the ability to act by focusing on family ownership and family management (e.g., Gómez-Mejía et al. 2014; Kotlar, Fang, et al. 2014).

Additionally, research has described family firms as having further abilities that increase the basic ability to innovate. For example, Sirmon et al. (2008) argue that family firms have a higher ability to innovate in threat situations due to higher particularism, extensive interactions between family owners, a preference for open communication, and a preference for organic organizational structures. Another study by Wagner (2010) assigns a higher ability to innovate with high social benefits to family firms due to their higher organizational flexibility. Similarly,

Craig, Dibrell, and Garrett (2014) find family firms to be more innovative because of their strategic flexibility, which results from the family culture. Spriggs et al. (2013) state that family firms have a higher ability to benefit from innovative capacity if ownership dispersion is high due to higher information exchange. However, such firms also show a lower ability due to more difficult goal alignment, higher probability of ownership conflicts, and diminished flexibility and speed in decision making – and vice versa, if ownership dispersion is low.

Conversely, research also found ability decreasing factors. For example, Andersén (2015) argue that family firms have a low ability to increase potential absorptive capacity due to low external orientation and stability. Classen et al. (2012) find that family firms have a low ability to show high search breadth because of their limited cognitive diversity and absorptive capacity. Muñoz-Bullón and Sanchez-Bueno (2011) state that family firms have a low ability to invest in R&D due to limited access to human and financial resources, CEO tenure and age, the agency costs of possible altruism, and the relationship between family members and minority shareholders. Similarly, Nieto, Santamaria, and Fernandez (2015) describe family firms as having a low ability to be innovative due to agency costs and resource constraints. Furthermore, Allison, McKenny, and Short (2014) argue that low levels of turnover and the presence of strong familial bonds decrease the ability to innovate (i.e., change in family firm ambidexterity over time is gradual and continuous with a linear trend) because these low levels of turnover indicate organizational inertia and strong family bonds may result in less-risky change trajectories.

### ***Willingness***

Whereas the ability to innovate is always considered in the studies because it determines family influence, the willingness of the family to innovate has received less attention in the literature. However, family firms' possession of the ability to innovate does not necessarily indicate that they are also willing to do so. Hence, analyzing willingness is important to understand and predict family firm innovative behavior. The literature has identified factors associated with why family firms are more or less willing to innovate. Specifically, context factors affect the level of family firms' willingness to be innovative. Thus, research has identified factors that describe family firms as having both lower and higher willingness.

Because the literature describes family firms often as risk averse, the preservation of SEW (e.g., Gómez-Mejía et al. 2014; Kraiczy, Hack, and Kellermanns 2015) and risk aversion (e.g., Nieto, Santamaria, and Fernandez 2015; Llach et al. 2012) have been the most often used factors related to a lower willingness of family firms to innovate. For example, Block et al. (2013) analyze patent citations of family and nonfamily firms, which have been shown in the literature to reflect the economic and technological importance of innovations. The authors argue that family firms have a lower willingness to be innovative because they try to preserve SEW by pursuing incremental innovation projects that often are not protected by patent. The uncertainty associated with challenging innovation projects may threaten family control and therefore SEW. Their findings show that with increasing ownership of a family (i.e., increasing ability to innovate), a low willingness of the family to innovate becomes reflected in fewer patent citations. However, this low willingness is only theoretically assumed and not measured in the study. Furthermore, SEW-related factors such as preservation of authority and identity, focus on non-economic goals (Kotlar, Fang, et al. 2014), pursuance of family-centered goals (Kotlar, De Massis, et al. 2014), and retention of family tradition (Grundström, Öberg, and Öhrwall Rönnbäck 2012) have been used to assign a lower willingness to innovate to family firms.

Focusing on risk aversion, Muñoz-Bullón and Sanchez-Bueno (2011) argue that family firms' willingness to invest in R&D is low because these investments are uncertain and risky. Although family firms have the ability to invest in R&D due to ownership and control, the authors assign a low ability to family firms due to limited access to human and financial resources, CEO tenure and age, the agency costs of possible altruism, and the relationship between family members and minority shareholders. Their results indicate that the low willingness and low ability to invest in R&D result in lower R&D intensity compared with nonfamily firms. However, except ownership, ability, and willingness measures were only theoretically applied and not measured in the study.

Conversely, research has also assigned factors to family firms that result in higher willingness to innovate. Most often, the long-term orientation of family firms has been described as a motivator for family firms to innovate (e.g., Wagner 2010; Block and Spiegel 2013). For example, Schmid et al. (2014) argue that family firms are willing to invest more in R&D than nonfamily firms because family firms are long-term oriented. However, this positive effect disappears if R&D information is used from financial statements. It appears that family firms report too conservative R&D expenditures. Furthermore, Sirmon et al. (2008) assume that family firms are more willing to innovate in threat situations due to their long-term orientation and higher incentives to monitor. Their findings show that family firms are less rigid in their responses to threats of imitation and reduce their R&D investments and their internationalization significantly less than nonfamily firms.

Kashmiri and Mahajan (2014) found that the presence of the founding family's name as part of a family firm's name acts as a valuable firm resource, increasing the abnormal stock returns surrounding the firm's new product introductions. They identified the willingness of the family to protect firm reputation as the reason for this result.

Studies by Chrisman and Patel (2012), Kammerlander and Ganter (2015), Patel and Chrisman (2014), and Sciascia et al. (2015) argue that willingness to innovate is dependent on other factors. For example, Chrisman and Patel (2012) assume in their study that family firms have a lower willingness to invest in R&D due to loss aversion with respect to their socioemotional wealth and a focus on short-term family goals. However, this low willingness changes when the performance is below aspiration levels and family goals and economic goals tend to converge. In this situation, family firms are more willing to invest in R&D relative to nonfamily firms. Additionally, focusing on performance aspiration, Patel and Chrisman (2014) find that when performance exceeds aspirations, family firms manage socioemotional and economic objectives by making exploitative R&D investments that lead to more reliable and less risky sales levels. However, performance below aspirations leads to exploratory R&D investments that result in potentially higher but less reliable sales levels. Hence, the willingness of the family to invest in R&D depends on whether the performance is above or below the aspiration level.

Kammerlander and Ganter (2015) assume that willingness to innovate depends on the non-economic goals of the family CEO. Their study shows that the family CEO's specific non-economic goals (i.e., power and control, transgenerational value, maintenance of family reputation, the continuance of personal ties, or personal affect associated with the family business) determine whether the CEO assesses an emerging technology as sufficiently relevant to warrant a reaction from the firm. Specifically, willingness to innovate is high when the goal of the CEO is "family power and control." Sciascia et al. (2015) argue that willingness to invest in R&D depends on the overlap of family wealth and firm equity. In small and medium-sized enterprises with a high overlap between family wealth and firm equity, family ownership has a negative effect on R&D intensity due to family owners' willingness to protect SEW. If the overlap

between a family's total wealth and single firm equity is low, the effect of family ownership on R&D intensity is positive because the low overlap reduces the family's loss aversion propensity, fostering R&D intensity.

These studies reveal the variability in the willingness of family firms to innovate by considering performance aspirations as a context factor. Hence, family firms' willingness to innovate is not likely to be static but rather will be dynamic and depends on context factors.

### **Discussion, Limitations, and Directions for Future Research**

Our review presents the current state of innovation and family business research. As more and more researchers get interested in innovation in family businesses, we provide a comprehensive and up-to-date overview that future research can build on. Compared with the review by De Massis, Frattini, and Lichtenthaler (2013) and the meta-analysis by Duran et al. (2015), which both included studies published in 2012 or earlier, our review considers the recent increase in the number of published studies focusing on innovation topics in family firms by analyzing studies published through May 2015. Furthermore, our review provides an overview of the most applied theories in this area, which has not been done previously. Going one step further, our review extends the IMO approach by De Massis, Frattini, and Lichtenthaler (2013) with an ability-willingness perspective, which analyzes the literature concerning the questions, "Can family businesses innovate?" (ability) and "Are family businesses willing to innovate?" (willingness). This perspective is a recent approach that has been applied to family business research (Chrisman et al. 2015; De Massis et al. 2014) to help increase the understanding of family business behavior.

The current state of research reveals weaknesses that offer promising avenues for future research.

First, most of the studies focus on the effect of family influence on innovation inputs. Innovation inputs are critical for the innovation process because they determine the realization of innovation projects. Hence, the bulk of the research has focused on family influence on R&D-related measures. What we have learned from this research is that family firms invest occasionally more and occasionally less in R&D depending on context factors such as performance aspiration levels. However, what we do not know is how these innovation inputs transform in innovation activities and innovation outputs. A recent meta-analysis by Duran et al. (2015) showed that although family firms invest less in innovation than nonfamily firms, their innovation output of the former is higher. A holistic approach may help increase our understanding of the innovation process in family firms. Therefore, longitudinal research designs appear to be the most promising approaches because these can accompany, for example, a new product project from its funding to its market introduction.

Second, research has often focused on direct effects without considering context variables. As recent research has shown, context variables are likely to change the direction of direct effects. Hence, considering other context variables such as environmental dynamism or competitive pressure may further increase our understanding of family firm innovative behavior.

Third, future research is encouraged to include not only variables that measure the ability of family firms to innovate but also the willingness of family firms to innovate. Most studies use willingness theoretically to predict family firm innovative behavior. Kraiczy, Hack, and Kellermanns (2014) measure in their study top management team innovation orientation, a construct, which may be adapted to the families to determine their attitudes toward innovation. Furthermore, preservation of SEW, which has been often used to describe family firms that have a lower

willingness to innovate, may be directly measured with the FIBER scale developed by Berrone, Cruz, and Gómez-Mejía (2012). Because the importance of SEW may differ among family firms, this heterogeneity must be considered. Kraiczy, Hack, and Kellermanns (2015) used ownership by family members on the TMT and generational stage as proxies for a high relevance of SEW as a reference point for family firms. Future research is encouraged to extend this indirect approach to measuring SEW importance by using direct measurement.

Fourth, research analyzing heterogeneity among family firms has mostly focused on innovation inputs. We encourage future research to investigate differences among family firms concerning innovation activities and outputs. Why are some family firms more innovative or more successful with innovation than other family firms? Where in the innovation process is family influence beneficial and where is it detrimental?

Fifth, current topics in innovation research such as open innovation (West and Bogers 2014), radical product innovation capability (Slater, Mohr, and Sengupta 2014), and social innovation (Schweitzer et al. 2015) must be considered in family business research to follow recent developments in innovation research.

## Conclusion

Research on innovation in family firms has revealed differences between family and nonfamily firms and among family firms. Although we know that family firms are able to innovate, we know little about the willingness of family firms to innovate. Recent research has started to analyze context factors that may help increase our understanding. Additionally, a meta-analysis revealed that family firms are more effective in their innovation endeavors (Duran et al. 2015). Although family firms invest less, they obtain higher innovation outputs. Future research is encouraged to investigate context factors that determine family innovative behavior, to measure family firms' willingness to innovate directly, and to analyze more deeply the transformation of innovation inputs in innovation outputs in family firms.

### *Appendix 11.A Highly Ranked Journals Publishing Family Business Articles*

<i>Grade 3, 4, and 4* Journals of the ABS Journal Ranking 2015</i>	<i># of Relevant Studies</i>	
<i>Entrepreneurship and Small Business Management</i>		
Entrepreneurship Theory and Practice	Grade 4	4
Journal of Business Venturing	Grade 4	1
Strategic Entrepreneurship Journal	Grade 4	-
Entrepreneurship and Regional Development	Grade 3	-
Family Business Review	Grade 3	7
International Small Business Journal	Grade 3	-
Journal of Small Business Management	Grade 3	3
Small Business Economics	Grade 3	2
<i>Journal of Family Business Strategy</i>	<i>Not ranked</i>	4
<i>Journal of Family Business Management</i>	<i>Not ranked</i>	2
<i>General Management, Ethics and Social Responsibility</i>		
Academy of Management Journal	Grade 4*	2
Academy of Management Review	Grade 4*	1
Administrative Science Quarterly	Grade 4*	-

*Innovation and Family Business Research*

<i>Grade 3, 4, and 4* Journals of the ABS Journal Ranking 2015</i>	<i># of Relevant Studies</i>
Journal of Management	Grade 4* -
British Journal of Management	Grade 4 -
Business Ethics Quarterly	Grade 4 -
Journal of Management Studies	Grade 4 -
Academy of Management Perspectives	Grade 3 -
Business and Society	Grade 3 -
California Management Review	Grade 3 -
European Management Review	Grade 3 -
Harvard Business Review	Grade 3 -
International Journal of Management Reviews	Grade 3 -
Journal of Business Ethics	Grade 3 2
Journal of Business Research	Grade 3 1
Journal of Management Inquiry	Grade 3 -
MIT Sloan Management Review	Grade 3 -
<i>Innovation</i>	
Journal of Product Innovation Management	Grade 4 8
Research Policy	Grade 4 1
R and D Management	Grade 3 -
Technovation	Grade 3 -
<i>Organisation Studies</i>	
Organization Science	Grade 4* -
Human Relations	Grade 4 -
Leadership Quarterly	Grade 4 -
Organization Studies	Grade 4 -
Organizational Research Methods	Grade 4 -
Group and Organization Management	Grade 3 -
Organization	Grade 3 -
Research in Organizational Behavior	Grade 3 -
Research in the Sociology of Organizations	Grade 3 -
<i>Strategy</i>	
Strategic Management Journal	Grade 4* 1
Global Strategy Journal	Grade 3 -
Long Range Planning	Grade 3 -
Strategic Organization	Grade 3 -
<b><i>Additional Financial Times Top 45 Journals</i></b>	
Accounting, Organisations and Society	Grade 4* -
Accounting Review	Grade 4* -
American Economic Review	Grade 4* -
Contemporary Accounting Research	Grade 4* -
Econometrica	Grade 4* -
Human Resource Management	Grade 4 -
Information Systems Research	Grade 4* -
Journal of Accounting and Economics	Grade 4* -
Journal of Accounting Research	Grade 4* -

*(Continued)*

Grade 3, 4, and 4* Journals of the ABS Journal Ranking 2015		# of Relevant Studies
Journal of Applied Psychology	Grade 4	-
Journal of Consumer Psychology	Grade 4*	-
Journal of Consumer Research	Grade 4*	-
Journal of Finance	Grade 4*	-
Journal of Financial and Quantitative Analysis	Grade 4	-
Journal of Financial Economics	Grade 4*	-
Journal of International Business Studies	Grade 4*	-
Journal of Marketing	Grade 4*	-
Journal of Marketing Research	Grade 4*	-
Journal of Operations Management	Grade 4*	-
Journal of Political Economy	Grade 4*	-
Journal of the American Statistical Association	Grade 4	-
Management Science	Grade 4*	-
Marketing Science	Grade 4*	-
MIS Quarterly	Grade 4*	-
Operations Research	Grade 4*	-
Organizational Behaviour and Human Decision Processes	Grade 4	-
Production and Operations Management	Grade 4	-
Quarterly Journal of Economics	Grade 4*	-
Rand Journal of Economics	Grade 4	-
Review of Accounting Studies	Grade 4	-
Review of Financial Studies	Grade 4*	-

\* The guide rates a journal 4\* if it is rated in the highest category by at least three out of five non-university based listings (Financial Times 45, Dallas List, VHB, Australian Deans' List, CNRS).

## References

- Allison, T.H., McKenny, A.F., and Short J.C. (2014) 'Integrating time into family business research: Using random coefficient modeling to examine temporal influences on family firm ambidexterity.' *Family Business Review* 27 (1):20–34.
- Andersen, J. (2015) 'The absorptive capacity of family firms.' *Journal of Family Business Management* 5 (1):73–89.
- Beck, L., Janssens, W., Debruyne, M., and Lommelen, T. 2011. 'A study of the relationships between generation, market orientation, and innovation in family firms.' *Family Business Review* 24 (3):252–272.
- Berrone, P., Cruz, C., and Gómez-Mejía, L.R. (2012) 'Socioemotional wealth in family firms: Theoretical dimensions, assessment approaches, and agenda for future research.' *Family Business Review* 25 (3):258–279.
- Block, J.H. (2012) 'R&D investments in family and founder firms: An agency perspective.' *Journal of Business Venturing* 27 (2):248–265.
- Block, J.H., and Spiegel, F. (2013) 'Family firm density and regional innovation output: An exploratory analysis.' *Journal of Family Business Strategy* 4 (4):270–280.
- Block, J., Miller, D., Jaskiewicz, P., and Spiegel F. (2013) 'Economic and technological importance of innovations in large family and founder firms: An analysis of patent data.' *Family Business Review* 26 (2):180–199.
- Chrisman, J.J., Chua, J.H., De Massis, A., Frattini, F. and Wright, M. (2015) 'The ability and willingness paradox in family firm innovation.' *Journal of Product Innovation Management* 32 (3):310–318.
- Chrisman, J.J., Chua, J.H., and Litz, R.A. (2004) 'Comparing the agency costs of family and non-family firms: Conceptual issues and exploratory evidence.' *Entrepreneurship Theory and Practice* 28 (4):335–354.
- Chrisman, J.J., and Patel, P.C. (2012) 'Variations in R&D investments of family and nonfamily firms: Behavioral agency and myopic loss aversion perspectives.' *Academy of Management Journal* 55 (4):976–997.

- Classen, N., Carree, M., Gils, A., and Peters, B. (2014) 'Innovation in family and non-family SMEs: An exploratory analysis.' *Small Business Economics* 42 (3):595–609.
- Classen, N., Gils, A.V., Bammens, Y., and Carree, M. (2012) 'Accessing resources from innovation partners: The search breadth of family SMEs.' *Journal of Small Business Management* 50 (2):191–215.
- Cohen, W.M., and Levinthal, D.A. (1990) 'Absorptive Capacity: A New Perspective on Learning and Innovation.' *Administrative Science Quarterly* 35 (1):128–152.
- Craig, J.B., and Dibrell, C. (2006) 'The natural environment, innovation, and firm performance: A comparative study.' *Family Business Review* 19 (4):275–288.
- Craig, J.B., Dibrell, C., and Garrett, R. (2014) 'Examining relationships among family influence, family culture, flexible planning systems, innovativeness and firm performance.' *Journal of Family Business Strategy* 5 (3):229–238.
- De Massis, A., Frattini, F., and Lichtenthaler, U. (2013) 'Research on technological innovation in family firms: Present debates and future directions.' *Family Business Review* 26 (1):10–31.
- De Massis, A., Frattini, F., Pizzurno, E., and Cassia, L. (2015) 'Product innovation in family versus nonfamily firms: An exploratory analysis.' *Journal of Small Business Management* 53 (1):1–36.
- De Massis, A., Kotlar, J., Chua, J.H., and Chrisman, J.J. (2014) 'Ability and willingness as sufficiency conditions for family-oriented particularistic behavior: Implications for theory and empirical studies.' *Journal of Small Business Management* 52 (2):344–364.
- Duran, P., Kammerlander, N., van Essen, M., and Zellweger, T. (2015) 'Doing more with less: Innovation input and output in family firms.' *Academy of Management Journal*, doi: 10.5465/amj.2014.0424.
- Gómez-Mejía, L.R., Campbell, J.T., Martin, G., Hoskisson, R.E., Makri, M., and Sirmon, D.G. (2014) 'Socioemotional wealth as a mixed gamble: Revisiting family firm R&D investments with the behavioral agency model.' *Entrepreneurship Theory and Practice* 38 (6):1351–1374.
- Gómez-Mejía, L.R., Cruz, C., Berrone, P., and De Castro, J., (2011) 'The bind that ties: Socioemotional wealth preservation in family firms.' *Academy of Management Annals* 5 (1):653–707.
- Gómez-Mejía, L.R., Haynes, K.T., Núñez-Nickel, M., Jacobson, K.J.L., and Moyano-Fuentes, J. (2007) 'Socioemotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills.' *Administrative Science Quarterly* 52 (1):106–137.
- Grundström, C., Öberg, C., and Rönnbäck, A.Ö. (2012) 'Family-owned manufacturing SMEs and innovativeness: A comparison between within-family successions and external takeovers.' *Journal of Family Business Strategy* 3 (3):162–173.
- Hambrick, D.C., and Finkelstein, S. (1987) 'Managerial discretion: A bridge between polar views of organizational outcomes.' *Research in Organizational Behavior* 9 (2):369–406.
- Hambrick, D.C., and Mason, P.A. (1984) 'Upper echelons: The organization as a reflection of its top managers.' *Academy of Management Review* 9 (2):193–206.
- Hauck, J., and Prügl, R. (2015) 'Innovation activities during intra-family leadership succession in family firms: An empirical study from a socioemotional wealth perspective.' *Journal of Family Business Strategy*, doi: 10.1016/j.jfbs.2014.11.002.
- Kahneman, D. (1991) 'Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias.' *The Journal of Economic Perspectives* 5 (1):193–206.
- Kahneman, D., and Tversky, A. (1979) 'Prospect theory: An analysis of decision under risk.' *Econometrica* 47 (2):263–291.
- Kammerlander, N., and Ganter, M. (2015) 'An attention-based view of family firm adaptation to discontinuous technological change: Exploring the role of family CEOs' noneconomic goals.' *Journal of Product Innovation Management* 32 (3):361–383.
- Kashmiri, S., and Mahajan, V. (2014) 'A rose by any other name: Are family firms named after their founding families rewarded more for their new product introductions?' *Journal of Business Ethics* 124 (1):81–99.
- Kotlar, J., De Massis, A., Fang, H., and Frattini, F. (2014) 'Strategic reference points in family firms.' *Small Business Economics* 43 (3):597–619.
- Kotlar, J., De Massis, A., Frattini, F., Bianchi, M., and Fang, H. (2013) 'Technology acquisition in family and nonfamily firms: A longitudinal analysis of Spanish manufacturing firms.' *Journal of Product Innovation Management* 30 (6):1073–1088.
- Kotlar, J., Fang, H., De Massis, A., and Frattini, F. (2014) 'Profitability goals, control goals, and the R&D investment decisions of family and nonfamily firms.' *Journal of Product Innovation Management* 31 (6):1128–1145.



- Kraiczy, N.D., Hack, A., and Kellermanns, F.W. (2014) 'New product portfolio performance in family firms.' *Journal of Business Research* 67 (6):1065–1073.
- Kraiczy, N.D., Hack, A., and Kellermanns, F.W. (2015) 'What makes a family firm innovative? CEO risk-taking propensity and the organizational context of family firms.' *Journal of Product Innovation Management* 32 (3):334–348.
- Llach, J., Marquès, P., Bikfalvi, A., Simon, A., and Kraus, S. (2012) 'The innovativeness of family firms through the economic cycle.' *Journal of Family Business Management* 2 (2):96–109.
- March, J.G. (1991) 'Exploration and exploitation in organizational learning.' *Organization Science* 2 (1):71–78.
- Matzler, K., Veider, V., Hautz, J., and Stadler, C. (2015) 'The impact of family ownership, management, and governance on innovation.' *Journal of Product Innovation Management* 32 (3):319–333.
- Morck, R., Shleifer, A., and Vishny, R. W. (1988) 'Management ownership and market valuation: An empirical analysis.' *Journal of Financial Economics* 20 (1/2):293–315.
- Muñoz-Bullón, F., and Sanchez-Bueno, M.J. (2011) 'The impact of family involvement on the R&D intensity of publicly traded firms.' *Family Business Review* 24 (1):62–70.
- Nieto, M.J., Santamaria, L., and Fernandez, Z. (2015) 'Understanding the innovation behavior of family firms.' *Journal of Small Business Management* 53 (2):382–399.
- O'Reilly, C.A., and Tushman, M.L. (2004) 'The ambidextrous organization.' *Harvard Business Review* 82 (4):74–81.
- Patel, P.C., and Chrisman, J.J. (2014) 'Risk abatement as a strategy for R&D investments in family firms.' *Strategic Management Journal* 35 (4):617–627.
- Schmid, T., Achleitner, A.-K., Ampenberger, M., and Kaserer, C. (2014) 'Family firms and R&D behavior – New evidence from a large-scale survey.' *Research Policy* 43 (1):233–244.
- Schulze, W.S., Lubatkin, M.H., and Dino, R.N. (2002) 'Altruism, agency, and the competitiveness of family firms.' *Managerial and Decision Economics* 23 (4/5):247–259.
- Schulze, W.S., Lubatkin, M.H., and Dino, R.N. (2003a) 'Exploring the agency consequences of ownership dispersion among the directors of private family firms.' *Academy of Management Journal* 46 (2):179–194.
- Schulze, W.S., Lubatkin, M.H., and Dino, R.N. (2003b) 'Toward a theory of agency and altruism in family firms.' *Journal of Business Venturing* 18 (4):473–490.
- Schweitzer, F., Rau, C., Gassmann, O., and van den Hende, E. (2015) 'Technologically reflective individuals as enablers of social innovation.' *Journal of Product Innovation Management*, doi: 10.1111/jpim.12269.
- Sciascia, S., Nordqvist, M., Mazzola, P., and De Massis, A. (2015) 'Family ownership and R&D intensity in small- and medium-sized firms.' *Journal of Product Innovation Management* 32 (3):349–360.
- Simon, H. (2009) *Hidden champions of the twenty-first century*, doi. New York: Springer.
- Sirmon, D.G., Arregle, J.-L., Hitt, M.A., and Webb, J.W. (2008) 'The role of family influence in firms' strategic responses to threat of imitation.' *Entrepreneurship Theory and Practice* 32 (6):979–998.
- Sirmon, D.G., and Hitt, M.A. (2003) 'Managing resources: Linking unique resources, management, and wealth creation in family firms.' *Entrepreneurship Theory and Practice* 27 (4):339–358.
- Slater, S.F., Mohr, J.J., and Sengupta, S. (2014) 'Radical product innovation capability: Literature review, synthesis, and illustrative research propositions.' *Journal of Product Innovation Management* 31 (3):552–566.
- Spriggs, M., Yu, A., Deeds, D., and Sorenson, R.L. (2013) 'Too many cooks in the kitchen: Innovative capacity, collaborative network orientation, and performance in small family businesses.' *Family Business Review* 26 (1):32–50.
- Wagner, M. (2010) 'Corporate social performance and innovation with high social benefits: A quantitative analysis.' *Journal of Business Ethics* 94 (4):581–594.
- West, J., and Bogers, M. (2014) 'Leveraging external sources of innovation: A review of research on open innovation.' *Journal of Product Innovation Management* 31 (4):814–831.
- Wiseman, R.M., and Gómez-Mejía, L.R. (1998) 'A behavioral agency model of managerial risk taking.' *Academy of Management Review* 23 (1):133–153.