

Relating Risk-Taking and Proactiveness to Innovation Output: A Comparison between Family and Non-Family Firms

Sascha Kraus

University of Liechtenstein (FL)

Mikko Pohjola

University of Turku (FIN)

Dodijn Velema

Utrecht University (NL)

Justin Craig

Bond University (AUS)

Matthias Filser

Montpellier Business School (FR) & Utrecht University (NL)

Abstract

Research on EO and its dimension with regard to various aspects and outcomes is a well-investigated construct within entrepreneurship literature. Although, family firms represent a significant share of the economic output we still lack a clear understanding of the innovation characteristics of these firms. Especially there have been only a few studies that examine the impact of risk taking and proactiveness on innovation in the context of family firms. Therefore this study uses a unique Finnish dataset of 532 firms to analyze the effects of the EO dimensions risk-taking and proactiveness on innovation output. We study whether the relationship differs between family and non-family owned firms. Our results give support to previous literature by showing that family firms and non-family firms differ according to the effects of the EO dimensions (for instance Naldi et al., 2007). Thus the here realized investigation shows that family firms consider proactiveness as decisive for innovation output while non-family firms determine risk-taking as

crucial. Finally our study furthers the understanding of the contingencies related to this relationship and the differences in consideration of family and non-family firms.

Discussion statements:

1. The three core dimensions of entrepreneurial orientation should be regarded as hierarchically structured. Innovativeness resembles innovation output to a greater extent than proactiveness and/or risk taking.
2. Risk-taking and proactiveness both positively influence innovation. However, their effect is context-sensitive and doesn't always lead to a positive result.
3. Why do family and non-family firms differ regarding the aforementioned drivers of innovation? Can family firms overcome their disadvantage regarding risk taking? (If yes, what could be an approach to solution?).

1. Introduction

Entrepreneurship and innovation are commonly seen as the major keys to success, especially in a fast-changing world. Compared to conservative firms which operate in a contrasting fashion, an entrepreneurial organization has a tendency to behave innovatively, with a high amount of risk, and proactively (Miller, 1983; Covin & Slevin, 1991; Lumpkin & Dess, 1996). Family firms are traditionally viewed as conservative, slow changing and non-innovative. On the other hand, these characteristics can create a competitive advantage in an era of economic turmoil where firms may benefit from a long-term perspective. In this paper we aim to shed light on how these two central concepts of entrepreneurship and innovation are related to each other in the context of family firms.

The literature on corporate entrepreneurship has introduced the concept of entrepreneurial orientation (EO). The three dimensions of innovation, risk-taking and proactiveness together form this widely accepted concept. A recent meta-analysis of 53 studies showed a positive correlation between the EO of a firm and its performance, examining several performance measures (Rauch *et al.*, 2009). Recent literature has started to go into more detail on the different dimensions of EO and its relationship towards the performance of firms (e.g. Lumpkin & Dess, 2001; Naldi *et al.*, 2007, Richard *et al.*, 2004). Wiklund & Shepherd (2011) suggest that EO may actually increase the *variance* of performance, not the mean. In line with this idea of “EO as experimentation”, the relationship between the EO dimension of risk taking and proactivity and innovation has also been reconsidered. Innovative activity is by definition an experimental process. For example, a recent study by Pérez-Luño *et al.* (2011) used risk taking and proactivity to predict innovation output of firms and showed that both of the predicting dimensions positively influence innovation generation, but not the adoption of innovation. It has also been suggested that EO differs according to the organizational characteristics, i.e. the type of the firm (e.g. Shepherd & Wiklund, 2003). Recently, the scholarly interest in research on EO and innovation in family firms has increased, and it has been generally shown that the effect on performance varies according to the different dimensions of EO (e.g. Kellermanns *et al.*, 2008, 2010; Stam & Elfring, 2008; Casillas & Moreno, 2010; Casillas *et al.*, 2010).

This article bases itself upon the so-far under-researched relationship between EO and innovation, empirically investigating whether a difference exists between entrepreneurially-oriented family and non-

family firms in their ability to generate innovation output. Literature has shown that both FFs and NFFs benefit from innovation, which is again thought to be essential in a dynamic and hostile world (Baumol, 2002; Cefis & Marsili, 2006; Schumpeter, 1983[1934]). The relationship between innovation and its determinants is complex, and the type of organization could very well influence this relationship (Damanpour, 1991). FFs form a distinct organizational type which could very likely have an impact on innovation (Roessl *et al.*, 2010). They have also been associated with being conservative (Habbershon *et al.*, 2003), having limited access to capital markets (Kets de Vries, 1993), being less risk-friendly (Naldi *et al.*, 2007), and less eager to grow (Poza *et al.*, 1997) and/or be less innovative than NFFs overall. But recently, evidence has been found that the influence of FFs could increase innovation (Margaret, 2008) and its impact on growth (Casillas & Moreno, 2010). Although “the degree to which extended families are an important source of the oxygen that fuels the fire of entrepreneurship” (Rogoff & Heck, 2003, p. 561) is becoming increasingly clear, a considerable gap remains concerning literature on innovation in FFs (Gudmundson, 2003; Craig & Moores, 2006).

On the other hand, differences in EO and the effects of the different dimensions of EO between FFs and NFFs tend to exist. Family firms have resources that can be leveraged to utilize entrepreneurial activities, although FFs can also be hindered because of their familiness. This is reflected in the complex relationship of EO and innovation with performance in FFs. It has been shown that strong family involvement in management, generational influence, concentration of ownership, and perception of the environment influence the relationship between EO and performance. Furthermore, it is unclear how FFs innovate and whether innovation output is influenced by the strategy pursued. Previous literature on family firms has delivered ambiguous results on whether the family firm characteristics may or may not harm a firm’s innovativeness.

This paper aims to further explore the influence of FFs on the ability to generate new product innovation, and investigates in particular whether a difference exists between entrepreneurially-oriented family and NFFs and their ability to generate innovation output. The following study pursues two main goals. First, we want to increase our understanding of the differences between family and NFFs with regard to innovation. Second, we aim to contribute to the literature in terms of the innovation dimension of EO.

Research in EO has established that innovation is positively associated with proactivity and risk-taking. However, we conceptualize the dimensions of proactivity and risk-taking to hierarchically precede innovation (e.g. Richard *et al.*, 2004, Tang *et al.*, 2008). These goals are pursued through an extensive literature review of the research on innovation and entrepreneurial orientation in family firms. The literature suggests that FFs and NFFs differ according to proactivity and risk-taking. The results, based on the structural equation modeling of survey data from 532 Finnish firms, support this hypothesis. Our results also support the view which suggests that the relationship between proactivity, risk-taking and innovation is not as clear-cut as previous literature has assumed (Pérez-Luño *et al.*, 2011).

2. Entrepreneurial behavior in FFs

2.1. Family firms and their characteristics

Family firms form a distinct type of organization because they have to deal with family and business matters at the same time. Most SMEs are FFs, and most FFs are SMEs. And although they are very large, old FFs do in fact still exist. The exact number of FFs and their economic contribution can vary, as until now no generally accepted definition of FFs has existed (Block, 2009). A variety of family firm definitions have been put forth with the central idea basically being consistent (e.g. Astrachan *et al.*, 2002, Poutziouris *et al.*, 2004). A firm is perceived as a family firm if the majority of ownership and control are in the hands of a single family. In this study we incorporate a somewhat simplified definition of a family firm, where we rely on two dimensions: ownership and subjective perception. A firm is a family firm if over 50% of the shares are in the hands of the family and if the CEO or owner manager perceives that she/he is working in a family firm.¹

From a strategic management perspective, FFs can have advantages and disadvantages compared to NFFs (Chrisman *et al.*, 2010). Involvement and the influence of FFs can be the sources of entrepreneurship, providing advantages and disadvantages. Kets de Vries (1993) have described long-term orientation, culture,

¹ The official definition of family firms in Finland is based on three criteria: 1) The company is perceived as a family business by the firm, and at least two family members are owners, and the founders, parents, children, spouses or heirs have a direct or indirect majority of votes (25% in listed companies) and 2) at least one representative of the family or kin is in control, has a management function and 3) at least two members of the family work in the business (KMU Forschung Austria, 2008).

resilience, flexibility and knowledge as sources that provide advantages. Limited access to capital markets, paternalistic practices, psychological issues, and favoritism in FFs can hinder entrepreneurial activities. Agency theory and the resource-based view (RBV) deal with this idea, assuming that the structure of the family firm as well as the individuals within it can weaken and strengthen the position of the company. From a RBV perspective, the term “familiness” is applied to clarify the idea that FFs are different from NFFs. Familiness emphasizes the distinct resources and capabilities resulting from interaction between business and family which might enable the firm to generate advantages (Habbershon *et al.*, 2003; Pearson *et al.*, 2008).

On the positive side, FFs are capable of leveraging their human capital, social capital, patient financial capital, survivability capital, and governance structures (Sirmon & Hitt, 2003). Human capital can be beneficial because it forms an opportunity to obtain deep firm-specific knowledge, higher commitment, and friendly relationships. On the other hand, human capital can enhance the preference of FFs to employ family members instead of better-suited external professionals. Social capital reflects a network based on obligations, norms and trust embedded in the family firm. A strong network facilitates communication and provides financial and knowledge resources. Further, FFs have lower access to external finances because they are less eager to share equity with externals. But with that being said, FFs actually have a stronger incentive to effectively manage their capital as they conduct business. Also, FFs do not have to display short-term success, and this long-term orientation enables them to manage their finances more effectively. Survivability capital results from the first three capital resources, while enabling a firm to survive in a period of scarcity. Finally, governance structures of FFs could influence the costs to monitor processes (so-called *agency costs*). The intangible capital sources described could be leveraged to overcome family firm weaknesses. Agency theory provides a closer look at the differences in monitoring costs between FFs and NFFs. Monitoring costs result from a separation between ownership and control combined with conflicting goals and information asymmetry. It is expected that owner-managers in the family firm have a stronger incentive to efficiently monitor because they are the only ones who bear costs (Jensen & Meckling, 1976). On the other hand, costs could arise from conflicting interests between family members and other shareholders (Gómez-Mejía *et al.*, 2001). Cost can be further enhanced by family members pursuing non-economic goals such as the protection of their own reputation.

Family firms thus have the potential for competitive advantages and disadvantages. From the RBV, it could be stated that a family firm has to find the optimal strategy to develop, maintain, combine, and especially leverage its resources. A minimal amount of literature exists on the best strategy to leverage resources and create value (Sirmon & Hitt, 2007). And when it comes to FFs, little is known about strategic orientations and the ability of the family firm to add value, although previous literature has in fact supported the idea that effective innovation plays a key role in firm performance (e.g. Craig & Dibrell, 2006).

2.2. Literature review

The following describes a two-step literature review based on studies that deal with EO and innovation in FFs. The analysis covers articles that exhibit “entrepreneurial orientation” or “innovat*” + “family firm/business/enterprise” in their titles.² A total of 29 articles were discovered using leading academic databases, indicating the lack of research that exists on innovation in FFs.

2.2.1. Entrepreneurial orientation in FFs

Compared to NFFs, FFs show lower levels of risky, proactive, and autonomous behavior. Family firms do not differ in innovative and competitive behavior (Short *et al.*, 2009). A characteristic that could explain the high level of innovativeness is the long-term orientation of FFs. As FFs aim to protect family wealth for future generations, risk is carefully managed and minimized (Thomas & Graves, 2005). Linking EO with expansion abroad, Thomas & Graves (2005) found that innovation positively relates to internationalization. The authors also state that in order to capture the benefits from internationalization via innovation, family members should be able to act autonomously. Further, proactivity was found to be present in all firms, which could indicate that managers are able to make strategic decisions, and have the willingness to do so (Thomas & Graves, 2005). Yordanova (2011) stated that adopting a growth strategy could enhance the overall level of EO, and Pistrui *et al.* (2000) proposed that cooperation between East and West German entrepreneurs could enhance their EO. Further, Cruz & Nordqvist (2010) reveal that the generation in charge matters when

² Details of the literature review can be found in Tables 1 and 2 in Appendix 1.

analyzing the relationship between external and internal factors of the firm with the level of EO: only from the third generation onwards can non-family managers in top management enhance EO. From the second generation onwards, the competitive environment positively influences EO. Casillas *et al.* (2011) also point to different internal characteristics and external characteristics that could lead to differences in entrepreneurial behavior: a hostile environment enhances risk and decreases proactiveness. A dynamic surrounding moderates the influence of generation that family members have on EO.

Looking at the EO-performance relationship, one can find contradicting statements about the desired level of EO in FFs. Taking all dimensions of EO together, Zainol & Ayadurai (2010) conclude that FFs' performance is enhanced by higher levels of EO. On the other hand, Zellweger & Sieger (2010) state that long-lived, successful FFs show varying levels of EO, which are not consistently high but low to moderate instead. High levels of EO are thus not a necessary condition for success. This is partly confirmed by the idea that FFs are less risk-friendly than NFFs. And if FFs do take a risk, it is associated with a lower level of performance (Naldi *et al.*, 2007). It seems valuable to discern the dimension of EO and its specific relationship with performance. Evidence for this idea was found by Casillas & Moreno (2010) who showed that EO dimensions relate differently with performance and that their relationship with performance is mediated differently by generational influence. Only innovativeness and proactivity are directly related to performance. An additional antecedent of performance can be found when taking into account the level of influence by family members: high levels of involvement lead to a situation in which risk-taking lowers performance, while innovation increases it. Low levels of involvement lead to a situation in which innovation still enhances performance, albeit to a lesser extent, whereas risk-taking turns into a performance-enhancing antecedent. Looking more closely at the moderating effect of generational involvement, Chirico & Sirmon (2010) show that only in a situation in which generational involvement is managed carefully can high EO increase performance. Casillas *et al.* (2010) reveal again that the EO-performance relationship is diverse: innovative behavior directly and positively relates to performance, but proactivity does not. With risk-increasing performance in a hostile environment, proactiveness increases performance from the second generation onwards when combined with a dynamic environment.

In a nutshell, it can be stated that FFs are entrepreneurial because the dimensions risk-taking, proactiveness, and innovativeness can be found in the firm, even though FFs are less risk-willing. This lower willingness to take risks could in fact be wise, as FFs do not seem to benefit from taking risk. Family firm characteristics such as the generation in control and level of involvement influence the separate dimensions of EO, as well as the relationship between EO and the performance of the firm. Finally, a combination of familiness with the perceived environment influences the EO-performance relationship.

2.2.2. Innovation in FFs

Family firms acknowledge innovation is needed

Long-lived family firms which have been successful for over 100 years see innovation as the skill to continuously look for new technologies and new markets while at the same time pursuing a long-term strategy (Bergfeld & Weber, 2011). Byrom & Lehman (2009) point to the South Australian Coopers Brewery, one of the few remaining family-owned brewers, who have relied on their traditions using a niche strategy while at the same time emphasizing ongoing innovation. Innovation was used to achieve two goals. First, it increases the efficiency of the production process. Second, innovation could function as a way to communicate that your product is environmentally friendly, i.e. innovation has the potential to secure the reputation of the firm. Kellermanns *et al.* (2010) reveal that innovativeness of the firm positively relates to performance of FFs. Kraus *et al.* (2011b) show that innovation intensity in FFs is positively related to business success. Chang *et al.* (2010) reveal that FFs and NFFs see an increase in their stock price after innovation announcements, although FFs benefit less from these kinds of actions. This was not confirmed by Dharmadasa (2009), who found a stronger relationship between innovation and performance in FFs than in NFFs. An explanation could be that the author included listed and non-listed FFs, whereas Chang *et al.* focused on publicly-held FFs.

Determinants of innovation and innovativeness in FFs

Most family firm literature addressing determinants of innovativeness and innovation focuses on organizational culture and management. Craig & Moores (2006) found that informality and decentralized

structure positively relate to innovation. The authors propose that FFs are capable of managing innovation, indicated by the positive relationship between environmental uncertainty and innovation. Beck *et al.* (2011) also point to the management of innovation. Family firms governed by later generations show a lower level of market orientation that negatively influences innovation. Later generations could manage innovation by enhancing the market orientation of the firm. Grundström *et al.* (2011) on the other hand showed that succession does not change the established view and management of innovativeness. The authors did not analyze market orientation, as Beck *et al.* (2011) did, but the type of innovation and the ideas about it. It was shown that a successor from either inside or outside the family does in fact *influence* but does not *change* the management and established values. Further, it was shown that a weak financial position inhibits but does not form a significant antecedent of innovativeness. Finally, Dibrell & Moeller (2011) state that FFs have unique capacities and skills to leverage resources. This would explain why a combination of customer orientation and stewardship increases innovativeness in FFs only. Further, FFs could be more innovative than NFFs due to their higher levels of social, marketing, and human capital (Dharmadasa, 2009; Llach & Nordqvist, 2010). The unexpected higher level of human capital was explained by the wish to fulfill the needs of family stakeholders, triggering the development of human resources to support innovations. This is partly supported by Huang *et al.* (2009), who revealed that FFs deciding to adopt green investment are more sensitive to pressure from internal shareholders than that from regulatory and market shareholders.

Radical and incremental innovation

Only a few articles address innovation types, discerning between incremental and radical innovations. Pittino & Visintin (2009) made a distinction between different innovation strategies based on the type of product innovation, varying from incremental to more radical innovations. It was found that second generation FFs and FFs that are currently in a period of succession show more reactive incremental innovations. The authors propose that succession is resource-consuming and as a result inhibits more entrepreneurial and proactive behavior. According to McAdam *et al.* (2010), the negative influence of succession could form a resource for more radical innovation. Here, the authors found a relationship between development of the innovation pipeline and lifecycle of the firm, with the capability to turn a crisis into a trigger for innovation. Family

firms positioned in a later lifecycle phase and FFs showing innovative behavior in new markets and new products have more resources and opportunities, which enables them to weather crises and turn them into radical innovations. Family firms on the other hand with a less developed pipeline that are positioned in an earlier phase of their lifecycle can basically only turn a crisis into *incremental* innovations. Leenen (2005) showed that successful FFs implement incremental innovations in order to protect their niche position. Incremental innovations were seen as business as usual and not as innovative behavior per se. Family members are less eager to reduce costs by means of radical innovations. Bergfeld & Weber (2011) revealed that in successful FFs, owners focus on radical innovation, whereas external managers are involved with the execution and implementation of incremental innovation. Radical innovation was seen as the source of growth, whereas incremental innovation functioned to secure the base. Although Leenen (2005) and Bergfeld & Weber (2011) appear to disagree, Leenen (2005) still in fact concludes that FFs are more willing to do incremental innovations and less willing to engage in radical innovations, while at the same time emphasizing that radical innovations are necessary for FFs to adapt to changes in the environment.

Benefits of innovation: determinants

Of the articles found, a few indicate determinants of successful innovation and innovation output. Leenen (2005) describes four crucial factors for successful innovation: a financially healthy firm with harmonious family shareholders, a long-term orientation, a willingness to leverage family resources, and the inclusion of external managers to compensate for a lack of human resources. The lack of human resources stands in contrast to the idea that FFs have more human capital than NFFs (Llach & Nordqvist, 2010).

Kellermanns *et al.* (2010) revealed that FFs with concentrated generational ownership benefit more from higher levels of innovativeness. Chang *et al.* (2010) show that the increases in firm value following an innovation announcement are lower when family members occupy a majority of a company's board seats. The inclusion of professionals possessing skills in evaluating investment decisions reduces the negative effect of family control. Finally, Kraus *et al.* (2011b) recently revealed that in FFs, organizational innovation via innovativeness had a greater influence on performance than managerial innovation, while in NFFs, managerial innovation had a greater influence.

All in all, it can be seen that successful FFs have a willingness to innovate and benefit from this innovativeness. Unique characteristics of FFs could enhance and decrease the level of innovation in FFs. Management should act upon this and try to increase innovativeness. Management could here increase the successful implementation of innovations and the benefits resulting from innovations. Concentrated generational ownership increases innovation output, whereas occupying a majority of the board seats decreases innovation output. Looking at the type of innovation, it was shown that FFs compared to NFFs benefit more from organizational innovation than from managerial innovation via innovativeness. Overall, the literature review indicates a deficit when it comes to the determinants influencing innovation, and especially innovation output in FFs.

2.3. Development of hypotheses

This article investigates whether a difference exists between entrepreneurially-oriented FFs and NFFs and their ability to generate innovation output. Family firms have resources that can be leveraged to utilize entrepreneurial activities, although they can also be hindered because of their familiness.

This is reflected in the complex relationship of EO and innovation with performance in FFs. It has been shown that strong family involvement in management, generational influence, concentration of ownership, and perception of the environment influence the relationship between EO and performance. Furthermore, it is unclear how FFs innovate and if innovation output is influenced by the strategy pursued. Previous literature revealed that e.g. a financially healthy firm, harmonious family shareholders, having a long-term orientation, and including external managers are important factors for successful innovation implementation (Leenen, 2005). Irava & Moores (2010) indicate that familiness could enhance long-term entrepreneurial success when certain conditions are met. The firm is able to achieve long-term success when its resources are valuable, rare, inimitable and non-substitutable; when the firm recognizes that their familiness could enhance and lower EO; and when the firm is able to manage this duality. Further, concentrated generational ownership positively influences the benefits that come from innovativeness (Kellermanns *et al.*, 2010) whereas occupying a majority of board seats negatively influences added value after innovation announcements (Chang *et al.*, 2010).

An advantage of FFs is their ability to leverage organizational innovations, whereas NFFs have an advantage in leveraging managerial innovations (Kraus *et al.*, 2011b). It was found that innovativeness played an important mediating role between innovations and performance. Family firms could thus actively manage innovativeness-inhibiting and innovativeness-supporting facets in order to stimulate the successful implementation of innovations (Llach & Nordqvist, 2010; Roessl *et al.*, 2010). Kraus *et al.* (2011b) conclude that in order to grow a firm, it needs to constantly question whether an entrepreneurial strategy is pursued. In this article, it is therefore proposed that a strategic orientation towards entrepreneurship is linked with the outcomes of new product innovation.

Whether EO has a different impact on product performance in FFs compared to NFFs is unclear, as literature analyzing this aspect is lacking. Publications on SMEs have shown that EO is positively related with innovativeness in SMEs (Tajeddini, 2010). Moreover, a combination of EO, innovativeness and customer orientation was associated with superior long-term success. Atuahene-Gima & Ko (2001) emphasized that a combination of EO and market orientation increases new product performance. Finally, Avlonitis & Salavou (2007) revealed that mainly proactive and risk-friendly entrepreneurs produced new products which lead to increased company performance via new product performance. The authors emphasized that FFs acknowledged innovation was essential to thrive, but only proactive and risk-taking firms were able to generate products that were also positively related to performance. From their research results, it was shown that proactiveness directly influenced new product performance whereas risk-taking did not. This is in line with the study by Pérez-Luño *et al.* (2011), which suggests that proactiveness and risk taking positively influence innovation *generation*, but not *adoption*. Following the idea that the dimensions of EO can vary separately (Lumpkin & Dess, 2001), it is proposed that proactiveness and risk-taking can have different effects on new product performance, and that their effect differs due to the moderation of familiness.

Risk-taking and innovation output

Naldi *et al.* (2007) revealed that FFs take less risk than NFFs. Moreover, if FFs do take risks, their performance is decreased, although risk-taking combined with high generational influence can increase

performance (Casillas *et al.*, 2010). More generations in charge promotes formalization, recruitment of non-family members, and orientation towards growth, which enables the firm to increase performance when taking risks. Casillas *et al.* (2010) state that more generations in charge increases the ability to manage risk and the ability to act independently of the founder. This could thus lower the negative effects of risk-taking. On the other hand, previous literature revealed that non-financial goals can be very important to FFs. In order to achieve these goals, FFs are willing to take even greater risks than NFFs (Anderson & Reeb, 2003; Gómez-Mejía *et al.*, 2007). The South Australian Coopers Brewery family firm has emphasized that innovation also served to secure their reputation as an environmentally friendly family firm (Byrom & Lehman, 2009). Non-FFs tend less to achieve non-financial goals, and for this reason it is assumed that risk-taking is driven by the will to obtain more financial benefits from innovations. Therefore it is proposed that:

H1. Family firms will moderate the relationship between a risk-friendly strategy and innovation output, and in such a way that NFFs benefit more from risky behavior than FFs.

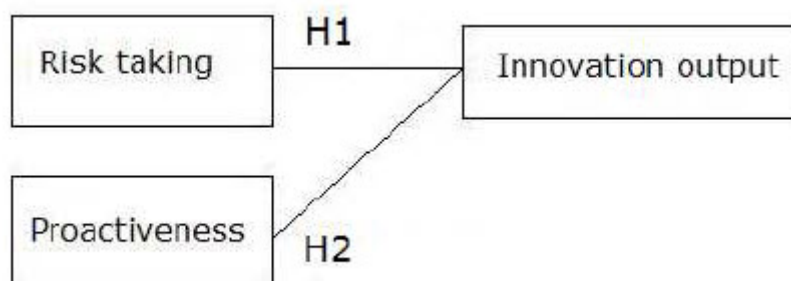
Proactiveness and innovation output

Avlonitis & Salavou (2007) revealed that proactiveness is directly related with new product performance. Here it is assumed that speed is a key to successful innovation implementation when introducing new products and at the same time pursuing a proactive strategy. Lumpkin & Dess (1996) emphasized that a proactive firm “can be novel, forward thinking, and fast without always being first” (Lumpkin & Dess, 1996, p.146). The authors emphasize that a proactive firm does not have to be the very first; being an early mover is effective as well. Upton *et al.* (2001) revealed that speed is a key to success in FFs. Of the successful FFs, 81% pursued a first mover or an early follower strategy when introducing new products and services. Quickness can result from a flexible organization with a culture that supports change and fast decision making. Kets de Vries (1993) described FFs as being flexible and capable of making quick decisions. Family firms are also associated with a messy structure, no clear task division, and paternalistic behavior resulting in resistance to change. These characteristics could inhibit quick decision making. Leenen (2005) also points at the capability of FFs to make quick decisions. Due to low levels of hierarchy and a less bureaucratic

structure, FFs have an advantage compared to NFFs. On the other hand, FFs always have to deal with the family and business aspect, which could lead to conflicts and inefficient, resource-consuming decision making. Further, FFs are commonly governed by more family members, resulting in group pressure and groupthink. This could enhance rigidity in FFs and slow down the decision making process (Kraus *et al.*, 2011b). Family firms could reap the benefits from an overlap between family and business, provided that they learn from conflicting situations. Or as Stewart (2003) states: “because of their tacit knowledge both of the firm and one another, they are easier to coordinate and more adaptable as conditions change” (p. 389). Carney (2005) points to the capital and managerial constraint of FFs, which leads to a competitive disadvantage. At the same time, Carney emphasizes that parsimonious, personalistic, and particularistic tendencies³ in FFs could create a competitive advantage in leveraging social capital and opportunistic investments. Levering social capital could enhance screening and access to new opportunities. Networks, particularly strong in FFs, enhance their bargaining power, and provide access to valuable information (Carney, 2005). Family firms can thus obtain essential information and at the same time make quick decisions about it. Carney (2005) states that because FFs have the freedom to make particular decisions they can “seize unlegitimized opportunities” (p. 260). It is therefore proposed that:

H2. Family firms will moderate the relationship between a proactive strategy and innovation output, and in such a way that FFs benefit more from proactiveness than NFFs.

Figure 1: Proposed model



³ Parsimonious, personalistic, and particularistic tendencies respectively indicate the positive consequences of unification of ownership and control, deciding about your own money, and having particular criteria in the decision making process.

4. Empirical investigation

4.1. Data

The sample for this research utilizes survey data which was collected as part of a research project on firms' innovation patterns in Finland. The Business Register of Statistics Finland was used to obtain a disproportionate stratified sample of firms from a sampling frame. The total cross-sectional sample included 2,227 firms. The survey was targeted at members of the top management teams of the firms, preferably the CEO or owner-manager. It was carried out via computer-aided telephone interviews, with an option of responding through an internet-based questionnaire at the request of the respondent at the time of the initial telephone contact. Each non-responding number was contacted multiple times on different weekdays and at varying times of the day. The data collection resulted in a total of 532 responses, corresponding to a response rate of 23.9%. In this study, a family firm was defined based upon the Finnish definition stated above. The sample could be split into 224 FFs (42.1%) and 308 NFFs (57.9%).

Tests for response bias showed no significant differences between respondents and the firms that didn't respond. The number of employees, annual revenue, and age of the firm were compared across the two groups based on the data obtained from Statistics Finland. The t-test comparisons demonstrated no significant differences (at $p < .05$) in firm size or age, thus supporting the conclusion that the data set is representative of the population from which it was drawn.

4.2. Measures

Dependent variable

Innovation output. The dependent variable in this study is product innovation output. It is measured as the share of sales originated from products new to the firm (developed within the last three years). This measure is adopted from the Community Innovation Survey (OECD/Eurostat, 2005), and was log-transformed to achieve normality.

Independent variables

Entrepreneurial orientation. The independent variables of risk-taking and proactiveness, the two dimensions of EO, were measured with the six-item instrument from Covin & Slevin (1989), which is considered to be the most commonly used of the existing EO scales (Rauch *et al.*, 2009). The measure was supplemented with one additional indicator of proactiveness suggested by Lumpkin & Dess (2001), who have argued that firms don't always need to be the first in introducing innovations, but that being at the forefront may be sufficient enough. The original semantic differential scale (Covin & Slevin, 1989) was modified into a 7-point Likert type scale ranging from "strongly disagree" to "strongly agree". The items measuring the construct of innovativeness were also left out. Convergent and discriminant validity of the proactiveness and risk-taking items and the constructs are discussed in detail below, which focuses on building the measurement model. The EO measure holds the view that entrepreneurial firms engage in product-market innovation, undertake somewhat risky ventures, and are ahead of the game when it comes to achieving proactive innovations (Covin & Slevin, 1989; Miller, 1983). Opposing interpretations and findings currently exist in the literature about the dimensionality of EO. EO has been considered to be either a uni-dimensional or multidimensional construct (Rauch *et al.*, 2009), and Covin & Slevin's (1989) instrument was utilized for both purposes. In this paper the example of Naldi *et al.* (2007) is followed, and the constructs are thus separately analyzed.

Control variables

Two covariates were included in the analysis to control for the link between the dependent and the independent variables: firm size and firm age, which are self-reported, objective measures. Both measures were log-transformed to achieve normality.

4.3. Analysis

Structural equation modeling (SEM) was applied to test for the hypotheses. The analysis followed a two-stage SEM process, where the first stage focuses on establishing a measurement model through confirmatory factor analysis (CFA). After that, the second stage concentrates on establishing a structural model. The measurement model tests the validity of the latent constructs used in the study, while the structural model tests the hypothesized relationships between the latent and observed variables.

4.3.1. Measurement model group comparisons

A four-step approach is taken to examine whether the measurement models are similar across the two groups (family vs. NFFs). The measurement model includes all the latent constructs used later on in the structural equation modeling phase. The aim of the steps is to test whether the factor structure is sufficiently similar in the two groups, which would make the constructs comparable. After testing the measurement model and verifying that it is acceptable, the next step is to analyze the structural model and the possible differences between the (two) groups. Table 3 summarizes the results of the model group comparison. In the first step, we ran separate confirmatory factor analysis (CFA) models that were each estimated for family and NFFs. The results confirm that the two models have the same number of constructs and items loaded on each construct, and that the model fit and construct validity is at an appropriate level in both groups. This is done by examining the model fit, convergent validity, and discriminant validity. These were found to be satisfactory (see Table 4). We then tested for configural invariance (baseline model), i.e. that the unconstrained model fit the data two groups estimated together. The aim of the last two steps (conjectural and scalar invariance) is to test whether the factor loadings and intercepts differ across groups. Our analysis shows that the unconstrained model fits the data best, i.e. the groups are invariant.

Table 3: Results of model group comparison

Model tested	Model fit measures			Model differences				
	χ^2	df	p	RMSEA	CFI	$\Delta\chi^2$	Δdf	p
separate groups								
non-family	19.619	8	0.012	0.069	0.977			
family	6.722	8	0.567					
baseline model	26.336	16	0.049	0.035	0.988			
conjectural invariance	33.29	20	0.031	0.035	0.984	6.954	4	0.138
scalar invariance	39.339	26	0.045	0.031	0.984	6.049	6	0.418

Table 4 shows the measurement model for the separate groups and their construct validity assessment. Goodness-of-fit statistics for both groups are sufficient. Composite reliability is equal to or over 0.7 for the constructs. Discriminant validity does not pose any problems, since the square root of AVE is clearly larger than the construct correlations.

Table 4: Measurement model with construct validity assessment

Group	Construct	Item	std. factor loadings	GOF stat.	Composite reliability	Discriminant validity	
<i>Non-family</i>							
	EOPRO	EOPRO1	0.721		0.75	EOPRO	EORISK
		EOPRO2	0.52	$\chi^2=19.619$		EOPRO	0.72
		EOPRO3	0.867	df=8		EORISK	0.55 0.71
	EORISK	EORISK1	0.738	p=0.012	0.75		
		EORISK2	0.766	RMSEA=0.069		Off diagonal: construct correlation	
		REORISK3	0.6	CFI=0.977		Along diagonal: square root of AVE	
<i>Family</i>							
	EOPRO	EOPRO1	0.753	$\chi^2=6.722$	0.79	EOPRO	EORISK
		EOPRO2	0.656	df=8		EOPRO	0.75
		EOPRO3	0.826	p=0.567		EORISK	0.41 0.67
	EORISK	EORISK1	0.769	RMSEA=0	0.70		
		EORISK2	0.77	CFI=1		Off diagonal: construct correlation	
		REORISK3	0.411			Along diagonal: square root of AVE	

4.3.2. Structural model comparisons

The purpose of the structural model comparison is to test moderation. The dependence between dimensions of EO and product innovation output is compared among family and NFFs (moderator variable). The measurement model is converted into the structural model by applying the explanatory variables (exogenous variables) and adding the dependent variable as a response variable (endogenous variable). Table 5 provides the results of our hypothesis tests. Our hypotheses were built around the literature showing that there are differences between family and NFFs. We first estimated the unconstrained model. In the unconstrained

group model the path estimates are calculated separately for family and NFFs. The chi-square test is not statistically significant ($\chi^2=33.728$, d.f.=24, $p=0.09$) indicating very good fit. This unconstrained baseline model was then tested against models where the paths were fixed (Models 2-4), i.e. assumed to be statistically identical. In both cases, the differences between the unconstrained model and fixed path model are statistically significant. In addition, holding both of the paths fixed also results in statistically significant differences.

Table 5: Group comparison hypotheses testing

		Model 1 (unconstrained)			Model 2	Model 3	Model 4
Hypothesis	Path	<i>B-loading</i>	<i>Signif.</i>	<i>Goodness-of-fit</i>	<i>Goodness-of-fit</i>	<i>Goodness-of-fit</i>	<i>Goodness-of-fit</i>
H1	EOPRO → Innovation output			$\chi^2=33.728$ df=24	$\chi^2=37.79$ df=25	$\chi^2=38.808$ df=25	$\chi^2=39.487$ df=26
	Non-family	0.014	p=0.09		p=0.067	p=0.067	p=0.067
	Family	0.332	***	CFI=0.99	CFI=0.99	CFI=0.98	CFI=0.98
				RMSEA=0.03	RMSEA=0.03	RMSEA=0.03	RMSEA=0.03
H2	EORISK → Innovation output						
	Non-family	0.233	**				
	Family	0.07					
Model comparison	Δdf	$\Delta\chi^2$	P	Signif.	Results		
Model2-Model1	1	4.062	0.044	p<.05	H1: supported		
Model3-Model1	1	5.081	0.024	p<.05	H2: supported		
Model4-Model1	2	5.759	0.056	p<.10			

Model 1: unconstrained (loadings free to vary across the groups)

Model 2: EOPRO->INNO path set equal across the two groups

Model 3: EORISK->INNO path set equal across the two groups

Model 4: EOPRO&EORISK->GROWTH path set equal across the two groups

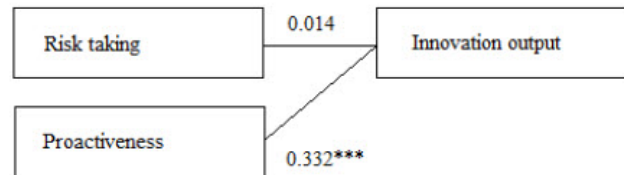
*p<0.05, **p<0.01, ***p<0.001

Figure 3: Results for the non-family firms



***p<0.001

Figure 4: Results for the family firms



***p<0.001

In other words, the estimations show that differences between family and NFFs exist regarding the relationship between proactivity, as well as risk-taking, and innovation output. Our hypotheses are thus supported. When the control variables are added, the results regarding the two hypotheses remain constant.

5. Discussion and Conclusion

This study explores the relationship between EO and innovation in family and NFFs. Based on an empirical investigation of 532 Finnish companies, it has been shown that the EO-innovation relation in FFs is different from NFFs. The findings of this study indicate that in FFs, innovation output is not affected by a risk-friendly strategy, whereas in NFFs innovation output is increased when following a risk-friendly strategy. Further, the findings indicate that FFs following a proactive strategy can positively influence their innovation output, whereas this relationship does not hold for NFFs. The results obtained can be explained by existing literature, and extend our knowledge with respect to innovation in FFs.

The first hypothesis considered a difference between family and NFFs with respect to the relationship between a risk-friendly strategy and innovation output. The finding that NFFs benefit from a risk-oriented strategy can be explained by the firms' culture and higher external pressure. Non-FFs can be characterized as willing to take more risks, and being more competition- and achievement-oriented than

NFFs (Mojca *et al.*, 2010). The willingness to achieve success and dominate the market could encourage them to successfully implement risky innovations. External pressure could increase transparency and the quality of risk management, which in turn could enhance the understanding of taking risk and enable the firm to discern between risky, low-potential projects and risky, high-potential projects. Family firms showing risky behavior do not increase innovation output. This finding could indicate that the willingness of FFs to obtain non-financial goals is greater than their risk aversion (Anderson & Reeb, 2003; Gómez-Mejía *et al.*, 2007). Family firms' desire to e.g. establish and maintain a good reputation could trigger the firm to take risks without considering the costs. Risk-taking could thus be related to non-financial goals and unrelated to the success of innovation with innovation output. Although risk-taking is not related to innovation output, it could be expected that risk is negatively related to innovation output. Previous literature proposed that the overlap of ownership and management in FFs makes the firm more sensitive to self-control problems. As external pressure is lower, the pressure for internal and external monitoring is also lower. This could decrease agency costs but also increase self-control problems (Carney, 2005). Owner-managers can be precise and intuitive in their decision making. This in turn could lead to a situation where "managers in FFs have less control and understanding of the risk that they are taking" (Naldi *et al.*, 2007, p. 37).

The second hypothesis was also supported because FFs benefit more from a proactive strategy. Family firms with a proactive mindset increase their innovation output, whereas a proactive mindset in NFFs is not related to innovation output. This finding is not in line with previous literature (Avlonitis and Salavou, 2007). Proactiveness enables firms to generate superior benefits. Proactive firms are early movers which enables them to charge higher prices and create a market niche (Zahra & Covin, 1995), although the relationship between proactiveness and innovation might be more complex than it actually appears. Pérez-Luño *et al.* (2011) emphasize this complexity, revealing that proactiveness was positively related with innovation *generation* but not with innovation *adoption*. Innovation generation requires tacit knowledge, an aspect which FFs are considered as having more of than NFFs (Pérez-Luño *et al.*, 2011; Stewart, 2003). Thus the type of innovation and the availability of tacit knowledge could explain why proactiveness positively relates to innovation output in FFs while this is not the case in NFFs.

The relationship between proactiveness and innovation output in FFs is in line with the findings by Upton *et al.* (2001). The authors revealed that 81% of the successful FFs pursued a ‘first mover’ or an ‘early follower’ strategy. Family firms are thus able to foresee changes, act upon opportunities, and leverage the benefits from this strategy. Family firms might have a competitive advantage because of their long-term orientation. It has been suggested that the benefits of an EO grow over time. As Zahra & Covin (1995) conclude: “In order to realize the full benefits of CE, managers must be willing and able to sustain their support for entrepreneurial initiatives over a multi-year period” (p. 55). Learning, experience and long-term managerial support would enable the firm to improve their strategy and capture the benefits from it. Family firms are associated with a more long-term orientation (e.g. Lumpkin *et al.*, 2010) which would thus enable them to provide long-term managerial support and increase the benefits of a proactive strategy. The positive relationship between innovation output and proactiveness can be further explained by FFs’ higher levels of human, social, and marketing capital (Llach & Nordqvist, 2010). Family firms can use their unique resources to obtain valuable information and foresee changes (Carney, 2005), and are furthermore associated with lower levels of hierarchy, with less formality, and higher flexibility (e.g. Kets de Vries 1993; Carney, 2005; Leenen, 2005; Kraus *et al.*, 2011b). This enables FFs to act swiftly when an opportunity is identified. Dharmadasa (2009) further revealed that networking in FFs is more strongly related with innovation than in NFFs. The author described networking as one of the three major sources of organizational learning. Organizational learning generates competitive advantages in a dynamic surrounding because it enables a firm to be adaptive and innovative. The results found could thus indicate that proactive FFs are able to generate more innovation output because of their organizational learning.

The results of this study should be carefully interpreted. It did not use a longitudinal study, so it cannot be stated that the results arrived at reflect a causal relationship. After all, correlation does not imply causation. The necessary, but insufficient, time precedence can be identified via a longitudinal study. Recent family business literature has emphasized the use of longitudinal and in-depth studies in FFs (Benavides-Velasco *et al.*, 2011). McAdam *et al.* (2010) revealed that later lifecycle stages influence the capability to implement innovations. Later lifecycles of the firm could thus also influence the relationship between a proactive and risk-friendly strategy with innovation output. Howorth *et al.* (2007) emphasized that

innovation varies over time and that innovation should be seen as a social- and path-dependent process. Further, the data collection year (2009) was one of economic turbulence. This could influence the relationship between EO and innovation (Kraus *et al.*, 2011a). Comparing different time periods is therefore recommended in further studies.

Another limitation of this study is its use of product innovation as a dependent variable. As said, it is hard to estimate a causal relationship between a proactive or risk-taking strategy and the output of innovation. Further, it could be valuable to maintain a separation between the different types of innovation. Family firms have a preference for incremental innovation (Leenen, 2005), and if they are successful, also introduce radical innovations (Bergfeld & Weber, 2011). Kraus *et al.* (2011b) revealed that FFs benefit more from organizational innovations than management innovations. It thus seems valuable to analyze product and process innovativeness and their relationship with proactiveness and risk-taking. A next step includes the investigation of the relationship between proactiveness and risk-taking via types of innovation with performance.

A weakness of this study is its use of a dichotomous distinction between FFs and NFFs. Although this is common in existing family literature, it does have several drawbacks. A dichotomous classification of FFs reflects the assumption that FFs form a homogenous group, even though it was recently emphasized that this is not the case (e.g. Sharma, 2004; Westhead & Howorth, 2007). By using the F-PEC scale (Astrachan *et al.*, 2002), a distinction can be made between firms with different family involvement (power), generations (experience), and varying overlap in goals and commitment (culture). On the other hand, the F-PEC scale has been criticized for how it doesn't measure the *actual* family influence, but the *potential level* of influence instead (Chrisman *et al.*, 2005; Rutherford *et al.*, 2008). Finally, the national culture and traditions of Finland could have an influence on the results found. Inference to other countries should therefore be made with care.

Understanding the difference between FFs and NFFs with respect to the relationship between EO and innovation has several interesting implications. This study has shown that proactiveness positively relates with innovation output. The findings thus emphasize the importance of a proactive strategic orientation. Family firms should manage their strategic orientation and enhance a proactive mindset. Furthermore, FFs do not seem to benefit from pursuing a risky strategy, and the reasons why risky behavior

does not favor innovation are not yet clear. It might be that FFs are less risk-averse when it comes to non-financial goals. Therefore it would be interesting for future research to investigate the influence of non-financial goals in FFs.

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Appendix

Table 1: Entrepreneurial orientation in FFs

Author(s) (Year)	Method	Number of investigated firms	Country	Result(s)
Casillas & Moreno (2010)	Quantitative	449 FFs	Spain	Family involvement in management increases the effect of innovativeness on growth but lowers the effect of risk-taking and proactiveness on growth.
Casillas <i>et al.</i> (2010)	Quantitative	317 FFs	Spain	Generational influence and environment can positively moderate the relationship between EO and performance.
Casillas <i>et al.</i> (2011)	Quantitative	317 FFs	Spain	Perception of the environment moderates the relationship between involvement of the next generation and EO.
Chirico & Sirmon (2010)	Quantitative	199 FFs	Switzerland	Generational involvement positively moderates the EO-performance relationship only when managed carefully, using a participative strategy.
Cruz & Nordqvist (2010)	Quantitative	882 FFs	Spain	The generation in charge influences the relationship between the competitive environment, non-family resources, non-family managers and non-family investors with EO.
Naldi <i>et al.</i> (2007)	Quantitative	265 FFs 431 NFFs	Sweden	Risk-taking in FFs is negatively related to performance. Family firms take fewer risks than NFFs, and if they take risks, this is negatively associated with performance.
Pistrui <i>et al.</i> (2000)	Quantitative	160 FFs	Germany	East German and West German entrepreneurs differ significantly in individual characteristics, inter-social characteristics and environmental perceptions.
Short <i>et al.</i> (2009)	Quantitative	146 FFs 280 NFFs	USA	In FFs' CEO letters, less language is used which is associated with risk, proactiveness and autonomy than in NFFs' letters.
Thomas & Graves (2005)	Quantitative and qualitative	871 SMEs	Australia	Family firms are less likely to internationally expand than NFFs. Innovation is important for internationalization, but autonomy is crucial in order to capture the benefits from it.
Yordanova (2011)	Quantitative	46 FFs 74 NFFs	Bulgaria	In FFs the adoption of a growth strategy could enhance EO.
Zainol & Ayadurai (2010)	Quantitative	162 FFs	Malaysia	EO relates positively with performance in FFs and this relationship is not influenced by cultural background.
Zellweger & Sieger (2010)	Case	3 FFs	Switzerland	Successful and long-lived FFs do not show consistently high levels of entrepreneurship but show dynamic and low to moderate levels of EO.

Table 2: Innovation in FFs

Author(s) (Year)	Method	Number of investigated firms	Country	Result(s)
Beck <i>et al.</i> (2011)	Quantitative	111 FFs	Belgium and The Netherlands	Later generations negatively influence innovations because later generations show lower levels of market orientation. Family firms should actively manage and enhance their market orientation in later generations.
Bergfeld & Weber (2011)	Quantitative	62 FFs 62 NFFs	Germany	In successful firms, family owners are involved with strategic decisions concerning radical and progressive innovations, whereas external managers were involved with implementation and incremental innovation.
Byrom & Lehman (2009)	Case	1 FFs	Australia	Successful Coopers Brewery in South Australia (5 th generation) applies a nice strategy, focusing on the uniqueness, history and traditions of their firm and products. This is combined with ongoing innovation.
Chang <i>et al.</i> (2010)	Quantitative	359 announcements from 181 FFs	Taiwan	Family firms benefit less than NFFs from innovation announcements. Family firm members occupying a majority of board seats lowers firm value. Inclusion of non-family professionals partly compensates this negative effect.
Craig & Moores (2006b)	Quantitative	276 FFs	Australia	Positive relationship between technological uncertainty and innovation: FFs change and manage their innovative strategy. Innovation is influenced by information and organizational structure. This influence changes over time.
Dharmadasa (2009)	Quantitative	104 FFs 118 NFFs	Australia	Compared to NFFs, in FFs the relationship between innovation and performance is stronger. Findings suggest that FFs are more innovative than NFFs due to their external networks.
Dibrell and Moeller (2011)	Quantitative	206 FFs 101 NFFs	USA	In FFs stewardship increases organizational innovativeness whereas this is not the case for NFFs. A combination of customer orientation with stewardship also increases innovativeness, indicating a unique capability of FFs to leverage their resources.
Grundström <i>et al.</i> (2011)	Case	10 FFs	Sweden	Succession influences but does not change the already-established view and management of innovativeness in the family firm. A weak financial situation is an inhibitor, and a strong financial position is not an antecedent of innovativeness.
Howorth <i>et al.</i> (2007)	Case	5 FFs	UK	Innovation in FFs is a social process and path-dependent. Missing an EO could lead to risk adversity and inhibit innovation.

Huang <i>et al.</i> (2009)	Quantitative	86 FFs 149 NFFs	Taiwan	Being a family firm moderates the relationship between stakeholder pressure and green innovations.
Kellermanns <i>et al.</i> (2010)	Quantitative	70 FFs	USA	Innovativeness, and willingness to engage in innovative behavior, have a positive direct and indirect moderating effect on performance in FFs; FFs with concentrated generational ownership benefit most from high levels of innovativeness.
Kraus <i>et al.</i> (2011b)	Quantitative	226 FFs 307 NFFs	Finland	In FFs and NFFs, organizational and management innovations have different effects on innovation intensity and corporate success.
Leenen (2005)	Case	5 FFs	Germany	Crucial factors for successful innovations in FFs are 1) long-term orientation aiming to sustain family wealth by capital investments 2) a positive attitude towards leverage of FFs' resources 3) complementing a lack of human resources 4) a financially healthy firm with agreement between family members.
Litz & Kleysen (2001)	Case	1 FF	USA	In order to be successful, FFs need ongoing innovation. In FFs, the main influencer of innovation is the interaction between members of the family, which leads to cooperative and innovative outcomes.
Llach & Nordqvist (2010)	Quantitative	22 FFs 22NFFs	Spain	Family firms have more human, social and marketing capital than NFFs. These strategic resources could be used to support innovations and enable FFs to achieve competitive advantages.
McAdam <i>et al.</i> (2010)	Case	5 FFs	EU ⁴	Family firms can weather crises and turn this into radical or incremental innovations depending on the lifecycle of the firm and the development of their innovation pipeline.
Pittino & Vistin (2009)	Quantitative	141 FF	Italy	Dealing with succession and the generation of family members governing the family firm could influence the applied innovation strategy. Succession could inhibit entrepreneurial and proactive innovative behavior.

⁴ The authors do not mention the country where the EU-funded case studies took place.