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Dynamic Managerial Capabilities Matter: Fostering Family Firms' Innovativeness

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Abstract

This paper applies the dynamic managerial capabilities perspective to explain how to promote innovativeness in family firms. The paper is based on research literature analysis and theoretical modelling and hypothesises the relationship between dynamic managerial capabilities and family firm technological innovation. The research analysis reveals that dynamic managerial capabilities as a whole and individually (managerial social capital, managerial human capital and managerial cognition) affect family firm innovativeness. This paper contributes to dynamic managerial capabilities literature and family business literature in two main ways: first, through introducing dynamic managerial capabilities as a theoretical framework that can explain how to affect family firms' innovation and competitive advantage; and second, through addressing the strategies that family firms can use to catalyse technological innovation. The paper provides new knowledge for family firms on the topics of trust, knowledge and emotional regulation in the context of family members' relationships and their effect on family firm innovativeness.

Keywords: Family firms, dynamic managerial capabilities, technological innovations, trust, emotions.

Introduction

Technological innovations are defined as a set of activities that enable a firm to conceive, design, manufacture and introduce a novel product, technology, technique or system (Freeman, 1976). Because of technological innovation's potential to provide performance advantages for companies, the subject has attracted increased scholarly attention (Blundell *et al.*, 1999) over the past few decades. In this context, it has been argued that family firms in which multiple family members are active in decision-making encounter particular challenges and opportunities, which constrain or improve their ability to remain innovative over time (e.g. Duran *et al*., 2016). In terms of challenges, research has extensively discussed the limited ability of some family firms to attract and retain outside expertise (e.g. Chrisman *et al.*, 2014) and to increase and expand their social network (e.g. Li and Peng, 2008), leading family firms to experience a shortage of the skills necessary to enable innovation. In terms of opportunities, research shows that family firms can have a committed and motivated family workforce (e.g. Dawson, 2012), a strong alignment of interest between ownership and management (e.g. Anderson and Reeb, 2003) and the capability to produce more outputs with less inputs (Duran *et al*., 2016). Plausibly, the development and maintenance of these advantages can be an important factor catalysing family firms' technological innovation and, therefore, the opportunities that they have to gain a competitive advantage and perform better than non-family firms (Anderson and Reeb, 2003; Duran *et al*., 2016).

In this regard, several theoretical frameworks have been advanced to explain why some family firms are able to innovate and perform better than non-family firms. To the best of our knowledge, the dynamic ***managerial*** capabilities framework (Adner and Helfat, 2003) has yet to be applied to the family business literature, despite the fact that it is a theoretical lens capable of explaining why some family firms can innovate more than non-family firms. The omission of the dynamic managerial capabilities perspective from the discussion of innovations in family firms is unfortunate, especially because the management of the workforce in family firms can be a messy and complicated endeavour (e.g. Samara and Arenas, 2017). If meritocratic recruitment procedures are in place, the family business workforce will have the necessary qualifications to achieve technological innovations (e.g. Sirmon and Hitt, 2003; Samara and Arenas, 2017). Hence, this paper argues that the dynamic managerial capabilities perspective is an adequate organising framework offered by the strategy literature that contributes to answering the following **question**: how can family firms develop and maintain dynamic managerial capabilities to catalyse technological innovation?

The aim of the paper is to reveal the relationship between dynamic managerial capabilities and family firm technological innovations.

The concept of dynamic managerial capabilities was introduced by Adner and Helfat (2003). The dynamic managerial capabilities theoretical framework is focused on managers (Bellner and MacLean, 2015) and their personal characteristics. Managers reconfigure organisational resources to achieve better firm performance. The dynamic managerial capabilities perspective offers three underlying factors affecting a family firm's ability to achieve innovation: "managerial human capital, managerial social capital and managerial cognition" (Adner and Helfat, 2003, p. 1020).

Whereas in non-family firms each of the three managerial attributes can shape decision-making, in family businesses this process becomes more complicated. As Samara and Arenas (2017) express, unique contributions are offered by both family and non-family employees to family firms (Samara and Arenas, 2017), which increases the complexity of dynamic managerial capabilities in firms.

With respect to human capital, family employees may have idiosyncratic knowledge about the family business's operation and may have had strong on-the-job training (Memili *et al.,* 2011), increasing their generic and firm-specific skills (Castanias and Helfat, 1991; Harris and Helfat, 1997). At the same time, non-family employees may have been educated to a more advanced level and may have more experience from outside the family business than family employees (e.g. Chua *et al*., 2009). With respect to managerial social capital, family employees may be in a better position to develop and reap benefits from the internal social capital of the business than non-family employees. Close ties between family members provide an environment of trust and security (Mishra and

Morrissey, 1990) and reduce the time required to gather information (Nahapiet and Ghoshal, 1998). At the same time, owing to their outside experience and their developed relationships with external individuals and organisations, non-family employees may have more opportunities to forge strong social ties with outsiders than family employees. With respect to managerial cognitions, the mental models of family and non-family employees may differ substantially. Whereas family managers are concerned with achieving both financial and non-financial outcomes in the family firm (Holt *et al*., 2017), non-family managers are more likely to have a more professionalised mindset and a "business first logic" (Holt *et al*., 2017; Chua *et al*., 2009). Hence, dynamic managerial capabilities as an organising theoretical framework can help researchers and practitioners understand how to capitalise on the positive side and mitigate the negative side of family and non-family managerial employment, which can eventually enable family firms to achieve more innovations than other family and non-family businesses.

By integrating the dynamic managerial capabilities framework with the family business literature, this paper **significantly contributes** to both dynamic managerial capabilities literature and family business literature in two main ways: first, through introducing dynamic managerial capabilities as a theoretical framework that can explain how different dynamic managerial capabilities affect family business innovations and, therefore, their ability to achieve a competitive advantage; and second, by addressing the strategies that family firms can use to catalyse technological innovation.

The paper provides new insight for family firms on the topics of trust, knowledge and emotional regulation in the context of family members' relationships and their effect on family firm innovativeness. Familial relationships can be disadvantageous, resulting for example in biased knowledge or requiring active regulation of emotions; however, they can also be advantageous, often involving higher levels of trust.

This paper is structured as follows. First, the dynamic managerial capabilities perspective and its underlying components (managerial social capital, managerial human capital and managerial cognition) are analysed. Second, this paper analyses the relevant literature on family firms' technological innovation. Third, the applicability of dynamic managerial capabilities when increasing technological innovation in family firms is examined. Fourth, the paper explains when dynamic managerial capabilities can be used in family firms to catalyse technological innovation.

Dynamic managerial capabilities in family firms

The concept of the family firm is not unified in scholarly literature. There is not a shared definition of a family firm because of the differences in institutional legal contexts, which are different in every country (Allouche *et al*., 2008). In this paper we use the definition proposed by the European Commission (2009). The academic literature was reviewed by the European Commission and a measurable definition was presented. The definition of family firm includes criteria such as ownership, direct or indirect decision-making rights and involvement of family in the governance of the firm. In our paper a family member is understood to be the natural person who established the firm or one of this person's parents, spouses, sons, daughters or children's direct heirs (European Commission, 2009).

The concept of dynamic managerial capabilities relates to dynamic capabilities (e.g. Augier and Teece, 2009), entrepreneurship (e.g. Helfat and Martin 2015; Andersson and Evers, 2015), ambidexterity (e.g. O'Reilly and Tushman, 2007) and the resource-based literature (e.g. Eisenhardt and Martin, 2000). The dynamic managerial capabilities literature focuses on individuals (Bellner and MacLean, 2015) and explains differences between managerial decisions (Adner and Helfat, 2003) that lead to competitive advantages, such as those concerning technological innovation (Andersson and Evers, 2015).

The concept of dynamic managerial capabilities was introduced by Adner and Helfat (2003, p. 1012), who described these capabilities as "the capabilities with which managers build, integrate, and reconfigure organizational resources and competences". Managers initiate changes by scanning the environment, identifying new opportunities and integrating them into the firm (Kor and Mesko, 2013).

All firm managers have different dynamic managerial capabilities (e.g. Sirmon and Hitt, 2009; Adner and Helfat, 2003) and thus their effects on firm performance, technological innovations and strategic change differ (Helfat and Martin, 2015). Personal characteristics, abilities and competences of managers lead to different technological innovations. Differences between managers' decisions can be explained by dynamic managerial capabilities, which consist of managerial human capital, managerial social capital and managerial cognition. There is a lack of research focusing on the relationships between managerial social capital, managerial human capital, managerial cognition and family firms and their innovativeness. As part of the conceptual framework, each component of dynamic managerial capabilities is discussed below.

Managerial social capital. Social capital was analysed by Bourdieu in 1980. In the first systematic analysis of the concept, he described social capital as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition" (Bourdieu, 1980, p. 2). To enhance firm performance, managers build social capital through different internal and external relationships (Acquaah, 2007). According to Nahapiet and Ghoshal (1998), managerial social capital consists of structural, relational and cognitive dimensions. The structural dimension is composed of network ties and structure (Nahapiet and Ghoshal, 1998). Access to network ties, the responsiveness of those network ties and referrals from those network ties play an important role in family firms. The possession of personal contacts and the ability to receive information sooner than rivals may be a reason for success. The density, connectivity and hierarchy of network structures affect the accessibility of information resources (Nahapiet and Ghoshal, 1998). All family firms benefit from the diffusion of information because employees have better access to knowledge, technologies and the market (Inkpen and Tsang, 2005). Through ties with other firms, family firms gain different tangible and intangible resources useful to their businesses (Li *et al.*, 2012). Family firm managers have different social capital because of different network ties and access to information (Caro, 2016). Different decisions are made by family managers because of differences in information sources (Adner and Helfat, 2003). The reconfiguration and integration of resources in family firms would be impossible without the social capital of managers (Helfat and Martin, 2015).

The relational dimension of social capital consists of trust, identity and identification, norms and sanctions, and obligations and expectations, which influence managers' behaviour (Nahapiet and Ghoshal, 1998). Trust is an exceptional attribute in family firms. Family firm members typically trust each other more than non-family firm members. Trust reduces the level of control, increases employees' cooperation with one other and reduces the time required for information gathering, each of which is important for firm growth (Nahapiet and Ghoshal, 1998). The ability to obtain the most relevant and new knowledge in a firm is based on trust of employees and their sharing of information (Carrasco-Hernández and Jiménez-Jiménez, 2013).

The cognitive dimension of managerial social capital consists of shared narratives, and shared codes and language (Nahapiet and Ghoshal, 1998). The cognitive dimension refers to interpretations, representations and meanings among parties (Cicourel, 1973). Family firm members know each other better than non-family firm members, so they better understand each other. Family firm members can understand each other not only from verbal language but from body language as well. Between family firm members there may be fewer misinterpretations and misunderstandings.

Regarding social capital, managers create financial and non-financial value for firms and increase profitability and sales growth through improved awareness of the family firm (Claridge, 2004).

The second component of dynamic managerial capabilities is **managerial human capital,** which is shaped from knowledge and skills (Becker, 1964). Knowledge specifically refers in this context to a manager's personal and professional experiences, training, education and learning more generally (e.g. Castanias and Helfat, 2001) and other factors such as personality, values and interests (e.g. Helfat and Martin, 2015). Human capital accumulation is a dynamic process that lasts a lifetime, and families, friends, schools, universities and society have an impact on it (Carneiro and Heckman, 2003). The specialised knowledge and skills of managers are acquired through managerial experiences (Harris and Helfat, 1997).

Family and non-family firm managers differ in their skills. Managerial human capital skills are classified as industry-specific, generic and firm-specific skills (Castanias and Helfat, 1991). Generic skills such as organising skills, entrepreneurial skills, team building and collaborating may be applicable to all industries and transferable from one firm to another (Sirmon and Hitt, 2009). Managers usually invest in generic skills on their own initiative (Lepak and Snell, 2002). Human capital theory contends that the development of non-transferable skills is usually invested in firms (Lepak and Snell, 2002).

Family firm members who have firm-specific skills know how to better allocate resources in the firm (Kor and Mahoney, 2005). Their skills and knowledge are valuable only for the specific firm. Family firm members who have industry-specific skills tend to work with talented colleagues (Sirmon and Hitt, 2009).

Managerial human capital knowledge consists of education, training and prior experience (Becker, 1964). A manager's education is one of the factors affecting family firms' outcomes (e.g. Pennings *et al*., 1998). Family firm managers with a formal education may have more knowledge than family managers without a formal education. General training is useful for the firm because it increases productivity, and prior work experience helps to reduce the frequency of mistakes. As Helfat and Martin (2015) state, different managers make different investments for the firm because they have different experience, and as a result every firm has unique outcomes. Managers reconfigure and integrate organisational resources differently because of differences in their managerial expertise (Helfat and Martin, 2015).

Other abilities of managers play an important role in decision-making. Differences in character, personality, values and interests can account for differences in decision. So, differences in human capital may affect different managers' decisions (Adner and Helfat, 2003). Managers' human capital has an impact on organisational behaviour and performance, and human capital is not easily duplicated by firms (Snell, Youndt and Wright, 1996).

The third component of dynamic managerial capabilities is **managerial cognition**. Cognitive ability is defined as a central psychological characteristic that underlines the accumulation of human capital (Jokela, 2014). Managers' professional and personal experiences and network ties shape managerial cognition (Adner and Helfat, 2003). Managerial cognition affects managers' strategic decisions, entrepreneurial activity and firm outcomes (Adner and Helfat 2003; Andersson and Evers, 2015). Also, managerial cognition shapes a manager's beliefs and assumptions about a particular firm (Kor and Mesko, 2013).

Managerial cognition is composed of mental processes, mental models, beliefs and emotions (Helfat and Martin, 2015). Attention, perception, reasoning and problem solving are part of mental processes (Helfat and Martin, 2015). These attributes help in managing family businesses. The ability to evaluate business information, solve a problem and draw a conclusion is crucial for business growth. Family managers' memory helps to determine whom to trust and under what circumstances (McAllister, 1995). Managers' attention to detail and, especially, their ability to see changes in the market and consumer demands and respond quickly to change promote innovativeness.

Mental models and beliefs (also termed "knowledge structures") contain mental representations, beliefs, resources and strategic schemas. Cognitive models are processes that develop through a manager's past experiences (Andersson and Evers, 2015). Knowledge structures influence understanding of the implications of different choices and promote making decisions and taking action (Garbuio, King, and Lovallo, 2011).

Family firm managers' emotions, as a part of managerial cognition, affect business development. According to Huy and Zott (2015), differences in emotion regulation lead to differences in firm effectiveness.

How dynamic managerial capabilities help family firms to achieve more technological innovations

Family firms are often considered to be very traditional firms, although, “at the same time, some of the most innovative firms in the world are family firms” (Zellweger, 2016, p. 56). Moreover, some researchers state that more innovative firms are family firms (e.g. Zahra, 2005) and that technological innovation is usually driven by the younger generation (Kellermanns *et al.*, 2012).

Technological innovation is important for technological family firms because it adds value, gives family members a sense of job satisfaction and encourages teamwork. To be competitive, technological innovation is necessary for a technological family firm (Zahra, 2005); otherwise, family businesses might destroy themselves through the inaction of their managers. Firms must constantly observe the market, exploit new opportunities and reconfigure organisational resources and capabilities to compete (Zahra, 2005).

Family firms can achieve greater innovation when multiple generations of the family are involved in firm activities. Newer generations are often the driving force behind technology (Kellermanns *et al.*, 2012). According to Chrisman *et al.* (2014), the extent of involvement of family in firm governance and the extent of family ownership determine the innovativeness of the family firm.

The stimulus for innovation depends on resources and unique characteristics of family firms compared to non-family firms (Classen *et al*., 2014). According to Classen et al. (2014, p. 595), family firm factors such as “long-term orientation, stewardship behaviour and tacit knowledge” make family firms more innovative.

Dynamic managerial capabilities as a whole and individually (managerial social capital, managerial human capital and managerial cognition) affect managers’ decisions. As a consequence, dynamic managerial capabilities affect family firm innovativeness.

Proposition 1 is that dynamic managerial capabilities (managerial social capital, managerial human capital and managerial cognition) help family firms to achieve technological innovation.

Some scientists have analysed the effect of the **managerial social capital** of family firms on innovation performance and have revealed that social capital directly and positively affects firm innovation. Family social capital is a distinct social capital and is an important contributor to family firm innovation (Sanchez-Famoso *et al.*, 2014). According to Murphy *et al*. (2016), different types of innovation are associated with different forms of social capital. Social capital facilitates the development of employee capabilities to share information and create new knowledge (Ahn and Kim, 2017) and, therefore, to innovate.

Social capital allows employees of family firms to know who to contact for the relevant information. The development of innovation is promoted through the acquisition of knowledge from social capital, excluding internal and external networks (Carrasco-Hernández and Jiménez-Jiménez, 2013). According to Tsai and Huang (2008), social relations between employees have a positive relationship with product innovation.

Managerial social capital is formed through common goals, norms and relationships that employees develop inside and outside a family firm. Behaviour is influenced by trust, commitment and friendship, which are a part of relationships (Nahapiet and Ghoshal, 1998). Trust plays an important role in family firms because it promotes faster organisational activities and processes such as goal setting, teamwork and leadership (Watson, 2005).

The phenomenon of trust is classified into “multilevel trust (individual, group, firm and institutional); trust within and between organizations; multidisciplinary trust; the multiple causal roles of trust (trust as a cause, outcome, and moderator); trust as impacted by organizational change; [and] new, emerging forms of trust” (Rousseau *et al.*, p. 393). First of all, trust has to be mutual: managers have to trust employees, and employees have to trust managers and the firm. From the perspective of employees, the reputation of the firm and its managers is important. Managers must pay attention to employee reputation too; that is the first step to build a trustful relationship.

Trust in a manager results in more productive work between teams (Dirks and Skarlicki, 2004), higher job satisfaction and higher organisational commitment (Flaherty and Pappas, 2000). Trust and sharing of knowledge and ideas between employees stimulate technological innovation (Subramaniam and Youndt, 2005). Also, relationships among firm employees facilitate the development of product innovation (Carrasco-Hernández and Jiménez-Jiménez 2013). Working without trust would not be effective; the constant control of employees might affect the main activities of managers and employees.

Social capital is associated with open information dissemination in family firms. Owners of family firms avoid sharing information with non-family members and secrecy is a common phenomenon in their businesses. An equivalent situation can occur among employees; as Mishra and Morrisey (1990, p. 14) write, "more than 78% of American workers are suspicious of management […] (Wall Street Journal, 1987)". Trust is a dynamic, not static, phenomenon. Managers have to build trustful relationships with their families, friends and employees all the time. However, one mistake can destroy a trustful relationship. It is not enough to spend time with a new employee in a short introduction session and expect from him or her loyalty and unconditional trust. Mutual trust has to be developed through time. Creativity is limited without information and trust in family firms. The empirical research indicates a positive relationship between trust and a firms' innovativeness (Wang *et al.*, 2011).

Many scholars agree that the combination of resources and exchange of knowledge is positively correlated with trust, which after all has a positive effect on innovation (Sanchez-Famoso *et al.*, 2014). The trustful relationships in family firms speed up knowledge dissemination because of open communication, mutual understanding, disclosed feelings, decreased need for controls, and freedom to generate ideas. A trusting climate in family firms can increase technological innovativeness. The absence of psychological discomfort might be reached with trust, elimination of absolute control of behaviour and elimination of constant criticising and rejection of ideas. Family firm effectiveness is dependent on trust because it increases productivity and growth and leads to more trust.

Proposition 1a: Trust is positively associated with family firm technological innovation.

Another important component of dynamic managerial capabilities is **managerial human capital**. Some researchers have analysed the impact of managerial human capital on innovation and have found a positive relationship between human capital and innovation (e.g. Marvel and Lumpkin, 2007). Key characteristics such as knowledge, prior experience, training, learned skills and education comprise the concept of managerial human capital (Becker, 1964). Knowledge plays an important role in a family firm's innovation process (e.g. Price *et al*., 2013). Formal education and experience are positively correlated with radical innovation, while individuals who have less knowledge create breakthrough innovations (Marvel and Lumpkin, 2007). Employees who have been educated to a more advanced level are a direct source of innovation; they adapt to new tasks and technologies faster (Blundell *et al*., 1999). Moreover, DÁmore and Iorio (2015) have shown that there is a positive relationship between turnover from innovative products and graduate employees. Cohen and Levinhal (1989) have highlighted the importance of R&D in firms because R&D promotes learning and speeds up the creation of technological innovations, which in turn adds wellness to the firm and society. Griffin and Hauser (1995) distinguish that the best results might be reached when employees with different professional backgrounds share knowledge with each other.

Proposition 1b: Knowledgeable managers catalyse family firm technological innovation.

The third component of dynamic managerial capabilities is **managerial cognition**. Cognition is defined as "the capacity of an individual manager to perform one or more of the mental activities" (Helfat and Peteraf, 2015, p. 835) such as perception, abstract thinking and reasoning, which are related to each other and separable at the same time (Smith and Kosslyn, 2007). Managerial cognition affects managers' decisions, which could cause firm innovativeness. As mentioned above, emotions are part of managerial cognition, which affect family firm innovativeness. Innovation demands doing something new, which can be scary, can require courage to enter an unknown field and can involve learning from failure (Hess, 2017).

A manager's behaviour depends not only on logic and rational decisions but can be affected by emotional processes (Choi *et al*., 2011). According to Choi *et al.* (2011), motivational orientation and management of emotions are crucial to implement technological innovations; the role of the manager is to ensure that employees are informed of the advantages and challenges of the innovation. Different effects on family firm innovativeness might be reached by different emotions from family firm managers. Emotions can be positive or negative and both have a different impact on family firms. Negative emotions include anger, dissatisfaction, doubt and pessimism, which may lead to conflict, mistrust and unwillingness to work. For instance, anxiety or fear of new technologies might lead to the rejection of or hinderance to technological innovation. On the other hand, positive emotions are associated with happiness, satisfaction, hope and optimism, which may inspire a family firm manager and other family firm members to be innovative. Positive emotions evoke trust and cooperative relations (Anderson and Thompson, 2004). Family firm managers experiencing positive emotions may be riskier and make riskier decisions (Stanley, 2010). Interestingly, the emotions of managers stimulate the emotions of others, including employees, family members, investors and clients (Lockyer and McCabe, 2011).

Proposition 1c: Positive emotions affect family firm innovativeness.

The three elements of dynamic managerial capabilities affect managers' dominant logic (Kor and Mesko, 2013). All three components of dynamic managerial capabilities are related and have an affect on family firm technological innovation.

Family firm managers play a moderating role between dynamic managerial capabilities and family firm technological innovation. There are many differences between family member managers and non-family member managers. Non-family member managers may not think in the same way as family members (Mitchell *et al.*, 2003) because after graduation they work in different organisations and gain a broad range of management experiences (Dyer, 1989). Non-family member managers may bring new knowledge to the firm that may lead to innovativeness. Non-family member managers may differ from family member managers because they often have impersonal management styles (Dyer, 1989). Family member managers are often guided by emotions and intuition and are often afraid to take risks (e.g. Bertrand and Schoar, 2006). Moreover, the fear of losing control and the identity of the family firm is one of the common reasons not to integrate a non-family managers (e.g. Gomez-Mejia *et al*., 2011). Family members know each other very well and can understand each other from verbal and non-verbal communication. Sometimes family members understand each other from a single word or a moment of eye contact where a non-family member would not. Family member managers also often have the opportunity to discuss business ideas with the owner at any time. For instance, if a family member manager has a new business idea to discuss, he or she can do it at the dinner table at home. A family member manager might also be more devoted to the firm and more responsible because the family firm is the main source of income of the family. The advantage of a non-family manager is that he or she is more likely to be able to quit a job at any time; the consequences are much more serious for a family member manager than a non-family member manager after an unsuccessful investment in technological innovation or bankruptcy. When the decision is made to employ a non-family member manager, it is important to select a person with similar values and morality and who has a character that brings more advantages to the family firm. It is easier to trust a manager with similar values and ethics. When the trust is broken between an owner and a non-family member manager, the solution is commonly the end of the partnership. The opportunity to get a second chance to (re)build trust is less likely; when trust is broken, a family member typically gets another chance to (re)build trust.

Proposition 2. Family firm managers moderate relationships between dynamic managerial capabilities and family firm innovativeness.

The conceptual model illustrates the relationship between dynamic managerial capabilities and family firm technological innovation (see Figure 1). Family firm managers are moderators between dynamic managerial capabilities and technological innovation. Different results may be achieved depending on a manager's origins (family or non-family member).

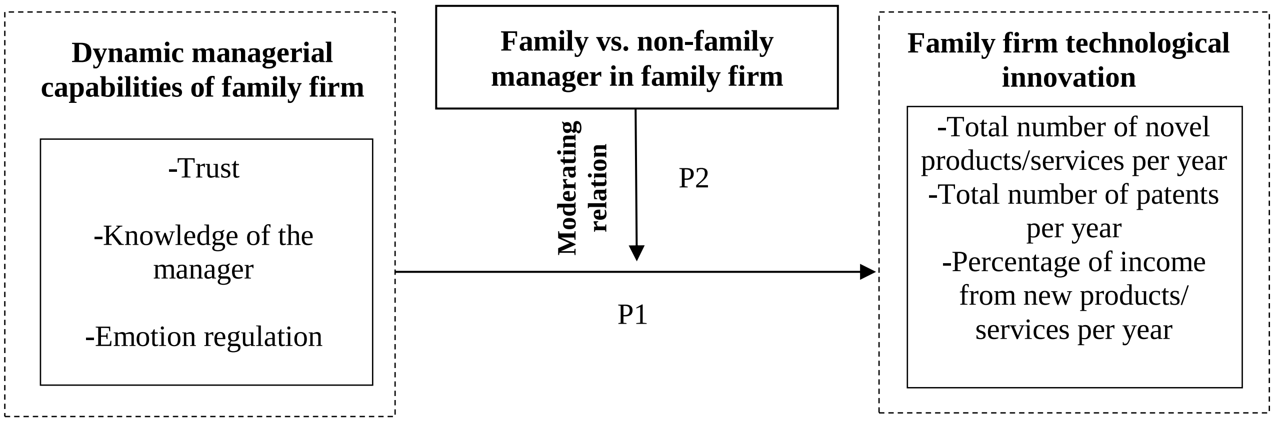

Figure 1. Dynamic managerial capabilities and family firm technological innovation

Depending on the moderator, the innovativeness of the firm may vary. For example, a non-family member manager is likely to be less emotional and guided more often by logic, therefore making fewer risky decisions and potentially being more successful with innovations. Furthermore, a non-family member manager may bring more new knowledge and a different approach to problem solving to the firm, which can generate new business ideas and bring additional profit to the firm. In addition, family members are more likely to trust a family member manager than a non-family member, meaning that he or she has more freedom to act, fewer constraints and that can help generate new business ideas.

Conclusions and limitations

Technological innovations are a driving force in the business world. Family businesses are not the exception; to compete and grow, firms have to be innovative. Dynamic managerial capabilities explain how family firm managers deal with the issue of technology innovation. Literature analysis revealed that dynamic managerial capabilities as a whole and individually (managerial social capital, managerial human capital and managerial cognition) affect family firm innovativeness.

Based on the research review and theoretical modelling, this paper sets out the relationship between trust, knowledge and emotional regulation of the manager, family firm dynamic managerial capabilities and firm innovativeness, which is moderated by the origin (family or non-family member) of the manager of the family firm. Managerial dynamic capabilities play a significant role in family firms as the owners and managers of family firms are typically members of the family, and thus comprise, in some sense, a decision-making cluster connected by great mutual trust. This might be harmful if family members start to neglect objective knowledge and fail to regulate emotions.

This paper fills the gap in scientific literature by applying the theory of dynamic managerial capabilities to family business and explains how a firm's innovativeness is affected when it is run by a family member manager or a non-family member manager. The practical side of this paper is that the research explains the main differences between a family member manager and a non-family member manager and how their emotions, knowledge and trust help or hinder the achievement of innovativeness in the family firm.

First, the absence of empirical data to test the proposed relationships constitute the most apparent limitation of this paper. Our argument remains theoretical and future research could benefit from empirically testing how, when and why dynamic managerial capabilities help to catalyse technological innovation in family firms.

Second, research is increasingly highlighting family businesses' heterogeneity, which was absent from our analysis. Discussing family businesses' heterogeneity in terms of governance structure, generational involvement, family values and national culture among other things can significantly advance our understanding of how to develop and maintain dynamic managerial capabilities to catalyse family businesses' technological innovation.

Third, this paper did not differentiate between different industries in which family businesses operate. In fact, an interesting area for future research would be to investigate whether or not technological innovations are in fact needed for family firms operating in different industries. For example, in industries characterised by managerial complexity and high technological intensity, the ability to remain innovative over time may be crucial for a family business's survival. In contrast, in environments that are less intense and less technological, technological innovations may not be as important and can, sometimes, lead to negative firm performance.

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