Knowledge integration in family firms: Understanding the nexus between familiness and organizational effectiveness

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Abstract

Family firms face several challenges in transgenerational transitions. Among others, the lack of skills to combine, integrate and transfer incumbent family members' knowledge to the next generation. The process of knowledge integration, indeed, depends on family influence in emotional and relational aspects. Relying on knowledge-based view and dynamic capabilities, we propose a model suggesting that knowledge integration intervenes in the relationship between familiness and organizational effectiveness. Our hypotheses are tested on a sample of private Spanish family businesses. The results reveal that family influence is beneficial for knowledge integration, enhancing both organizational effectiveness and family business continuity across generations.

Keywords. Family business, knowledge integration, familiness, dynamic capabilities, effectiveness

1. Introduction

Around the world, family businesses rely on knowledge to survive and thrive. We define knowledge 'as information that is relevant, actionable, and based at least partially on experience' (Leonard & Sensiper, 1998, p. 113). Scholars agree that knowledge is the basis of sustainable competitive advantage (Grant, 1991), and its management is fundamental in the creation of dynamic capabilities (Zollo & Winter, 2002). Indeed, knowledge, as a family firm intangible resource, can grant long-lasting success (Chirico & Salvato, 2008). Because knowledge is based on experience and education (Chirico, 2008), it is generated in the interactions with others and with the immediate enviornment (Pittino et al., 2018), and hence it is socially complex and hard to imitate (Chirico & Salvato, 2008). Knowledge shapes the unique skills created by firms (Zollo & Winter, 2002), which in turn depend on the development of new knowledge and the ability to integrate it within the organization to sustain dynamic capabilities (Chirico & Salvato, 2008). Thus, knowledge management is a core process for the continuous improvement of organizational processes and, therefore, for the effectiveness of firms over time (Chua et al., 2018). Considering organizational effectiveness as the extent to which firms develop permanent activities and organizational processes that help gain and maintain a sustainable competitive advantage (Patel & Fiet, 2011; Zheng, Yang, & McLean, 2010), businesses can use knowledge to identify market changes or incorporate new technologies that benefit the survival and continuity of the firm itself.

In family firms, knowledge management is strongly influenced by both the participation and the essence of family members in the firm. Involvement is related to family presence in the property, executive and management boards of the firm (De Massis et al., 2012). Essence represents the nature and quality of this involvement, and is related to the set of family values, emotions and the emotional commitment of family members with the firm (Verbeke & Kano, 2012). Such influence occurs through heterogeneous resources related to family members and tacit knowledge that is continuously gathered

through the family social capital accumulated by long-tenured family leaders (Lichtenthaler & Muethel, 2012; Verbeke & Kano, 2012). The influence of family members in shaping the resources available to the firm is defined as familiness, i.e. 'the unique bundle of resources a particular firm has because of the systems interaction between the family, its individual members, and the business' (Habbershon & Williams, 1999, p. 11). Familiness has been discussed in terms of both involvement and essence approaches. The involvement approach considers the importance of the family participation in the ownership and management, and in the board of directors within the firm, whereas the essence approach focuses on the firm's values, affective commitment, emotional belonging, transgenerational control, intentions, and socioemotional wealth. These two sources of family influence affect the effectiveness of the family firm, and provide a key differentiating feature between family and non-family firms (Chua et al., 2012). Yet, despite these advances, we still know little about the extent that emotional and relational features of family firms influence knowledge integration in family firms.

This paper aims at investigating to what extent knowledge management in a family firm is enhanced by the emotional implications and the tight interaction of family members in diverse firm contexts (Chirico, 2008; Chirico & Salvato, 2008). We suspect that such influence affects family firm's effectiveness in developing and implementing activities and processes to capture novel market and technological opportunities, and thus achieve a sustainable competitive advantage (Patel & Fiet, 2011). The emotional connections, shared history, and use of a common language in family firms enhances communication among family members in business (Tagiuri & Davis, 1996), which allows a more efficient knowledge exchange compared to non-family firms (Salvato & Melin, 2008). We suggest that integrating knowledge contributes to our understanding of the effect of family influence on firm effectiveness, particularly during a succession process (Bracci & Vagnoni, 2011; Cabrera-Suárez, De Saá-Pérez, & García-Almeida, 2001; Cabrera-Suárez, García-Almeida, & De Saá-Pérez, 2018; Daspit, Long, & Pearson, 2018; Duh & Letonja, 2013). Indeed, the integration of knowledge is a dynamic skill

where the specialized knowledge of family members can be recombined for different purposes (Carr & Ring, 2017; Chirico & Salvato, 2008). Thus, investigating the origin and consequences of knowledge integration processes can extend understanding about the generation of family idiosyncratic resources and their effects in organizational effectiveness.

To advance understanding, this study integrates knowledge-based view and dynamic capabilities approach.We hypothesize that family influence affects the organizational effectiveness of family firms. Moreover, this study focuses on the mediation effect of knowledge integration on the relationship between family influence and organizational effectiveness. Prior studies highlight that the integration of expertise and dedicated knowledge of family members as shareholders and executives can allow a family business to adjust its skills to environmental changes (Chirico & Salvato, 2008, 2016; Pittino et al., 2018; Zahra, Neubaum, & Larrañeta, 2007; Zollo & Winter, 2002), and promote organizational effectiveness, e.g. promote client-based problem-solving and define decision-making protocols (Teece, 2007). Therefore, this study focuses on addressing the following research question: *How does knowledge integration affect the organizational effectiveness of family firm*?

To answer our research question, we capture family influence by using the F-PEC scale (Astrachan, Klein, & Smyrnios, 2002), and measure organizational effectiveness variable according to the micro-foundations proposed by Teece (2007). We test our hypotheses on a sample of private Spanish family firms, adopting a quantitative analytical tool, that is structural equation modeling (PLS-SEM). Our findings suggest that not only internal social capital and affective commitment of family members, but also their relationship conflicts play a relevant role in explaining organizational effectiveness. Taken together, findings contribute to our understanding about how knowledge management is improved by closeness, communication, and promise of the family members into the firm (Cabrera-Suárez et al., 2018).

This study offers several contributions. First, our findings extend our understanding of the role of the family in the firm in recent conversations about family influences on firms (Chrisman, Sharma,

& Taggar, 2007; Frank et al., 2017; Habbershon & Williams, 1999; Mazzola, Sciascia, & Kellermanns, 2013) based on the effect of both family influence and family essence on knowledge integration. Second, our study informs the succession literature, emphasizing the essential role of integration in knowledge transfer between generations to sustain the family business over time (Boyd et al., 2015; Cabrera-Suárez et al., 2001; Cabrera-Suárez et al., 2018). Third, we contribute to the knowledge management literature, suggesting the key mediating effect of knowledge integration on the relationship between family influence and organizational effectiveness (Chirico, 2008; DeNoble, Ehrlich, & Singh, 2007; Pittino et al., 2018). Finally, we theorize about effectiveness as a significant dimension of building a sustainable competitive advantage in family firms and thus inform the dynamics capabilities literature (Eisenhardt & Martin, 2000). In particular, we suggest that family influence endows the family firm with resources and capabilities (i.e. familiness) needed to integrate knowledge relevant for organisational effectiveness.

2. Knowledge integration in family firms

Knowledge is the basis of sustainable competitive advantage in firms due to its idiosyncratic characteristics and the difficulties associated with its transfer and replication (Grant, 1991) and knowledge management is a way to unfold organizational learning and allow the firm's organizational routines to be developed, thus fostering the creation and development of dynamic capabilities (Zollo & Winter, 2002). Knowledge is important because it allows an organization to engender, extend or change its resources (Helfat et al., 2007). Knowledge integration, regarded as a collective process that consists of the recombination of individual specialized knowledge (Chirico & Salvato, 2008), is a consequence of repeated interactions between individuals and can therefore be accomplished more efficiently when individuals share a collective or common identity (Kogut & Zander, 1992). It allows any firm to leverage opportunities in the environment and make them fruitful and viable initiatives for the firm (Alavi & Tiwana, 2002; Eisenhardt & Martin, 2000).

In family business, knowledge integration is idiosyncratic. Family members' common history and language and their close personal bonds promote communication and group work, leading to knowledge transference, combination, and integration (Zahra et al., 2007). Chirico and Salvato (2008) argue that knowledge integration in family firms is based on three factors: Internal social capital, affective commitment, and relationship conflicts (Enberg, 2007; Grant, 1996; Tiwana & McLean, 2005). First, internal social capital is represented by a common vision, rules, and mutual trust shared by family members (Carr et al., 2011; Herrero, 2018), internal social capital promotes information exchange among family members and the recombination of their expertise and specific knowledge (Chirico & Salvato, 2008). Second, affective commitment, considered as a mental model that unites an individual to a relevant strategy implemented to meet an objective (Meyer & Herscovitch, 2001; Sharma & Irving, 2005), reflects the will of family members to share and integrate their knowledge in the firm (Allen & Meyer, 1990). Finally, relationship conflicts occur when interpersonal incompatibilities take place among the members of a group. In family firms, such conflicts are typically associated to stress, moodiness, and annoyance between members (Eddleston & Kellermanns, 2007), creating obstacles to the knowledge integration process (Jehn, 1997). The relevance of knowledge integration for this study relates to its influence on organizational effectiveness.

2.1. Knowledge integration and organizational effectiveness

Knowledge management is a primary mechanism in the development of firm effectiveness (Gold, Malhotra, & Segars, 2001; Zheng et al., 2010). We define organizational effectiveness as a firm's ability to make decisions that create better results relative to its competitors (Zheng et al., 2010). Hence, a firm can use its knowledge and learning processes to enhance its capabilities and create value over time. The sharing and integration of both firm- and family-specific knowledge among family members, and the way this is then handed over across generations, are crucial to explain family firm

survival (Ince & Hahn, 2020). According to Gold et al. (2001), these processes give firms the skills to innovate, share efforts, commercialize new products, cope with market changes, and maintain the capacity to anticipate unexpected changes (Nonaka, Toyama, & Konno, 2000); in other words, knowledge integration promotes organizational effectiveness (Zheng et al., 2010). Prior literature on knowledge management recognizes that knowledge integration is a cornerstone process for dynamic capabilities building (Alavi & Tiwana, 2002; Eisenhardt & Martin, 2000). This process constitutes one of the mechanisms of organizational learning (Nielsen, 2006), which helps firms recognize and reconfigure their resources and operational routines (Cepeda & Vera, 2005) and make adaptive adjustments.

In family firms, the particular context in which knowledge integration is produced (Chirico & Salvato, 2008; Grant, 1996; Tiwana & McLean, 2005) promotes greater efficiency in the detection and exploitation of opportunities, thus allowing firms to adapt capabilities quickly to environmental changes (Chirico & Salvato, 2008; Pittino et al., 2018; Zahra et al., 2007; Zollo & Winter, 2002). The idiosyncratic integration of knowledge would be responsible for the generation of distinctive family capabilities, which from the dynamic capabilities approach configure continuous adaptation and can be a relevant source of sustainable competitive advantage, favoring the effectiveness and continuity of the family business. In this way, family capabilities are used in the configuration of client solutions, the adaptation of a business plan, the definition of protocols in decision-making, the selection of corporate limits to manage complementary platforms and control, and the creation of loyalty and commitment in the firm (Teece, 2007). Prior research shows that these skills are evidence of a firm's organizational effectiveness (Zheng et al., 2010). Thus, building on the previous discussion, we contend that knowledge integration will have a positive effect on the organizational effectiveness of family firms. Therefore, we state as follows:

H1: Knowledge integration positively influences organizational effectiveness of family firms.

2.2. The mediating effect of knowledge integration on the relationship between familiness and organizational effectiveness

We build on previous research, which suggest that knowledge management plays as a contingency through which organizational context influences organizational effectiveness (Zheng et al., 2010). Accordingly, our study advances that, in family firms, the knowledge integration process serves as the intervening mechanism through which 'familiness', i.e. the unique bundle of resources that each firm possesses in relation to the interaction of the family, the individual family members, and the firm (Habbershon & Williams, 1999), translates into organizational effectiveness. In other words, in family firms the knowledge integration process strongly depends on the 'familiness' of the firm and, in turn, allows the business to gain and maintain a competitive advantage among rivals.

We advance that the level of family influence into the firm can affect this process, in term of both involvement and essence approaches, which dominate the debate about the behavior of family firms (Chrisman, Chua, & Sharma, 2005). Whilst the involvement approach revolves around the level of family members' presence in the firm's ownership, management, and board of directors, the essence approach – which focuses on the willingness of the family to leverage its influence in the firm to meet specific goals (Chrisman et al., 2012) – underlines the quality of the family involvement, taking into account all the intangible idiosyncratic features, such as family's values and culture (Chrisman et al., 2005; Chua, Chrisman, & Sharma, 1999; Litz, 1995). The involvement and essence approaches offer explanatory power to understand how family effects influence the knowledge integration process in family firms (Basco, 2013). Accordingly, we rely on both approaches to offer a fuller depiction of the diversity of family businesses in relation to knowledge integration (Chrisman et al., 2012). Recent studies highlight that family business members aim to integrate knowledge that encompasses both family and business dynamics and experiences over time (Spielmann et al., 2019).

The close social relationships between family members and the firm are influential in the transmission of the family resources and the firm's idiosyncratic behaviors. These relationships

develop through a history of interaction and mutual trust between the family members (Sirmon & Hitt, 2003). The family's dual relationship creates an idiosyncratic environment for knowledge integration, which can produce either positive or negative results within the firm (Zahra et al., 2007).

In this way, the repeated and continued interactions among family members in the family and with the firm builds a setting that stimulates the integration of knowledge in the firm (Chirico & Salvato, 2008). Family members who participate in the firm often share a common and shared understanding of the culture of the firm (Discua Cruz, Hamilton, & Jack, 2012). As such, they create a shared vision that non-family firms find hard to imitate (Lansberg, 1999). The family's history, common language, shared values, and psychological ownership create a mental model shared by family members that allows the knowledge integration process to develop more effectively (Pittino et al., 2018). Moreover, close and continued relationships create a mental model that is shared by family members and affects their behavior, motivating them to integrate their individual knowledge into the firm. The robust emotional ties shared by family members are commonly translated into an enduring commitment to the family business and its continuity across generations. Due to this emotional attachment, family members may be motivated to go beyond their responsibilities and make additional efforts in favor of the firm (Chirico & Salvato, 2008).

In sum, the participation of family members in property, management and board of directors allows the family to transfer its essence to the firm, which encompasses the firm's values, affective commitment, emotional belonging, transgenerational control, intentions, and socioemotional wealth. These characteristics promote a unique context in which the process of knowledge integration can more easily develop in family firms (Chirico & Salvato, 2008). Hence, essence constitutes a fundamental element that affects the behavior of family members toward the integration of knowledge in family firms, in turn benefiting the organizational effectiveness of the firm. Based on the previous discussion our second hypothesis is as follows:

H2: Knowledge integration mediates the positive relationship between familiness and organizational effectiveness in family firms.

In Figure 1 we summarize our model.

-- Insert Figure 1 about here --

3. Method

3.1. Data collection and sample

In order to answer our research questions, this research study relies on a quantitative methodology, which is relevant to understand relationships among variables by means of pre-defined scales (Pearson, Holt, & Carr, 2014; Sharma, Melin, & Nordqvist, 2014). We test our model on a database provided by *Actualidad Económica*, a Spanish journal of business information. This journal publishes yearly sales information of large private firms in Spain. We used the 2012 list of the 5,000 largest private firms in Spain. The Spanish environment is selected for two reasons. First, we consider the extensive influence of family firms in the Spanish economy, where almost the 90% of firms are family firms, contributing more than 65% of the GDP and 66,7% of job positions (Instituto de Empresa Familiar, 2015). Second, we acknowledge thatfamily businesses are highly recognized at the institutional level, especially for private, not listed organizations (Arosa, Iturralde, & Maseda, 2010; Cabrera-Suárez & Martín-Santana, 2015). The analyzed sample includes medium and large private family firms. We used two specific criteria to determine the companies included in the sample. First, we excluded publicly listed family business as their ownership and governance structure, as well as, management have a different configuration that usually separates the family from the firm, thus limiting the chance for interpersonal relationship ties to affect the business. In addition, publicly listed family firms often have a formal governance structure, and are thus characterized by loosen familiarity due to the segmentation of property produced by opening it to diffuse shareholdings (Basco & Pérez Rodríguez, 2009). These criteria were consistent with what we wanted to study, i.e. how knowledge integration is affected by family effects.

Second, there is abroad debate on the definition of family business in the literature (Cruz & Nordqvist, 2012; Díaz-Moriana et al., 2019), this study relies on specific criteria to select family firms (Astrachan et al., 2002). In line with extant literature suggesting that family firms showcase a high degree of commitment (Basco & Pérez Rodríguez, 2011), we adopt two operational criteria: first, family members have to be involved in the ownership of the business as well as in the management and/or direction boards; second, the family needs to show intentions for transgenerational control (Chrisman et al., 2012; Westhead & Cowling, 1998). We search for these criteria ex post, filtering out the collected data (Claver, Rienda, & Quer, 2009), compiling a final sample of 1,656 firms.

Since not all information needed to test the proposed model were available in the dataset, we designed a survey to be distributed among the selected family firms. The survey instrument includes questions rooted in existing literature and validated dimensions to proxy the variables of our study (Chrisman et al., 2012). The delivery and collection of the questionnaires were carried out between May and September 2013. We received altogether 135 questionnaires, with a response rate of 8.15%, which is in line with previous studies in the family business field (Barros et al., 2020; Lindow, Stubner, & Wulf, 2010; Zellweger et al., 2012). Out of 125 valid questionnaires that we received, 23 were excluded because the businesses are identified as non-family (17) or publicly listed family (6) firms, resulting in 102 usable observations. All these questionnaires refer to private family firms according to the first sampling criterion, and 99% meet the family firm definition, as per our second criterion. In particular, with respect to this study's definition of family firms: 95% of the sampled firms have family members involved in management, 98% re involved in the boards of directors, and 93% disclose that the future CEO would be a family member.

To control for non-answer bias, the sample is split into three groups according to the chronological order in which they answered the questionnaire. We compared the first group with the last group testing their differences, assuming that the third group, including businesses that answered last, is similar to those that never answered. We performed an assessment of variance, which did not

reveal any significant statistical differences between the first and last group (at 0.01 significance level). Hence, we found strong support of the lack of non-answer bias in our sample.

We acknowledge that a possible limitation may relate to common method bias, due to the subjective evaluation of the main informants (Doty & Glick, 1998). To address such limitation, we applied Harman's individual factor test. The results show that there is not a single factor that registered a significant percentage of the variance; therefore, we conclude that common method bias is not a concern. In addition, to avoid concerns related to construct validity due to the reliance on one main informant, this study follows Podsakoff, MacKenzie, Lee, and Podsakoff (2003)'s advice to include in the survey simple questions, and to clearly divide the dependent variable from the independent ones. The test strongly supports the quality of the sampled observations.

3.2. Variables and measurement

3.2.1. Familiness

A family firm is defined in accordance with the standard criteria of family influence in ownership as well as in governance and management boards of a firm (Basco & Pérez Rodríguez, 2011; Hernández-Linares, Sarkar, & Cobo, 2018). After applying the operational definition, we used the F-PEC scale, (Rutherford, Kuratko, & Holt, 2008) to measure both the participation and the essence of the family in the business.

Family involvement can be measured by family power and experience. This study measures power as the percentage of ownership in the hands of the family and the percentage of family members directly or indirectly involved in the governance and/or management board. Family involvement in ownership is determined by asking respondents to specify the percentage of the firm's share that belongs to family members. Family involvement in governance and management is measured with two items of the F-PEC power subscale: the percentage of family members who directly or indirectly participate in the board of directors, and who directly or indirectly participate in the management board.

The experience dimension is measured in terms of number of generations participating in the current ownership, governance, and management of the firm (Holt, Rutherford, & Kuratko, 2010). We relied on three items of experience as included in the F-PEC scale: the number of family generations involved in the ownership, boards of directors, and management board of the firm. These variables are among the most used as proxies of family involvement (Astrachan et al., 2002; Chrisman et al., 2012; Klein, Astrachan, & Smyrnios, 2005). The items on the F-PEC experience subscale are weighted to take into consideration that most of the transference of experience occurs from the first generation to the second and continues with decreasing influence to subsequent generations (Holt et al., 2010).

Finally, for family essence this study uses a variation of the F-PEC subscale of culture. The representative elements of the subscale include: whether family members (i) feel loyal towards the family firm; (ii) agree with the objectives, plans, and policies of the family firm; (iii) share the same values; (iv) are concerned about the future of the firm; and (v) are prone to spend their effort with the intention of helping the firm to succeed (Chrisman et al., 2012). The five items are measured using Likert scales anchored to 1 (never/in total disagreement)-5 (totally agree/always).

3.2.2. Knowledge integration

The measurement of knowledge integration uses the three factors suggested by Chirico and Salvato (2008): internal social capital, affective commitment, and relationship conflicts.

The first element is measured using the scale proposed by Carr et al. (2011) and Herrero and Hughes (2019). The items identify family members in the firm who (i) keep honest conversation between the members; (ii) do not keep corporate information to themselves; (iii) are willing to share information with other family members; (iv) leverage family relationships to share knowledge and information; (v) show great integrity in their relationships; (vi) have trust in others; (vii) take into consideration the feelings of others in decision-making; (viii) feel engaged with the objectives of the firm; (ix) share the mission and vision of the firm; (x) see themselves as partners in making major business decisions; and (xi) share their thoughts about the future of the firm.

Affective commitment is measured using the scale advanced by Allen and Meyer (1990). The scale includes items measuring the extent to which family members (i) perceive that their job is challenging and exciting; (ii) are aware of the expected tasks and responsibilities; (iii) perceive that their ideas are heard; (iv) perceive that the firm performs what it intends to do; (v) have a sense of equity in the way they are compensated for the required effort; and (vi) join the decision-making process, considering the job policies and norms of the firm.

Relationship conflicts are measured with a scale suggested by Jehn (1995) and Eddleston and Kellermanns (2007). The scale encompasses items to assess the extent to which family members in the firm (i) have private issues and concerns; (ii) have apparent behavioural conflicts; (iii) perceived stress or tension in relationships with others; (iv) are often in disagreement with CEO's perspectives; (v) are frequently conflicted about different propossals discussed in the firm; (vi) have conflicts about the work tasks that each family member performes in the firm; and (vii) hold diverse opinions about the firm.

The items of all three knowledge-related variables are measured using Likert scales anchored to 1 (total disagreement)-5 (totally agree). The measurement of the knowledge integration construct is configured using all items from these three constructs. A factorial analysis is performed to analyze and reduce data. This analysis identifies the main components of the knowledge integration construct. The factorial analysis confirms the three components of the construct by introducing each component as item of the knowledge integration construct. In addition, the items of each knowledge integration construct are averaged to create an individual measurement of each construct. The results obtained by using both procedures are consistent.

3.2.3. Organizational effectiveness

Previous research has tried to test and understand to what extent family involvement affects business outcomes (Barontini & Caprio, 2006; Chrisman, Chua, & Litz, 2004; Daily & Near, 2000; Jacquemin & de Ghellinck, 1980; Miller, Le Breton-Miller, Lester, & Cannella Jr, 2007). However, empirical

evidence has offered inconclusive findings so far (Rutherford et al., 2008). Thus, in the attempt to improve the understanding of the sources of behavior and performance among family firms (Chua et al., 2012), we look at organizational effectiveness as an expression of the degree to which a firm develops permanent activities, processes and routines that allow to outcompete others in the market.

The variable of organizational effectiveness is created according to the micro-foundations advanced by Teece (2007). The items included in our measure grasp the organizational effectiveness construct through the permanent refinement of activities and processes derived from organizational learning skills and firm knowledge. Hence, the variable includes items related to the permanent refinement of (i) organizational initiatives of research and development; (ii) initiatives that detect changes in the customers' needs; (iii) processes that take advantage of technological development; (iv) processes of business model adaptation; (v) task rotation initiatives, regular meetings at different management levels, informative blogs/bulletins, and arrangement of multi-functional equipment; and (vi) resource adaptation processes to leverage new opportunities. These items are measured using Likert scales anchored to 1 (total disagreement)-5 (totally agree).

3.2.4. Control variables

We use a set of control variables, which are usually adopted in family business studies: company age, size, and industrial sector (Chrisman et al., 2004). The control variable for firm age is measured by the number of years since the firm was instituted. The family can become more involved in the firm over time (Zellweger & Astrachan, 2008), potentially influencing the affective commitment and desire of family members to share their expertise and knowledge. Size is measured in terms of number of employees.

Prior works suggest that family firms perform better in certain industries compared to others (Pollak, 1985), which can affect their predisposition to share and integrate knowledge. The main industries of the sample are manufacture (43%) and services (29%). According to age, the largest portion of the sample is firms between 26 and 75 years old (55.9%), followed by the firms less than

25 years old (28%). Firms with 51 and 250 (more than 250) employees make up the 34.3% (51.9%) of the sample. Table 1 summarizes the constructs and their measurements.

-- Insert Table 1 about here --

4. Results

We relied on PLS-SEM to validate our proposed model (Ringle, Wende, & Will, 2005). The PLS-SEM is increasingly adopted in management administration, strategy, and marketing (Bontis, Booker, & Serenko, 2007; Drengner, Gaus, & Jahn, 2008; Gruber et al., 2010; Sattler et al., 2010) as well as family firm (Hair et al., 2020; Cunningham, Seaman, & McGuire, 2017; Ruiz, Vallejo, & Martínez, 2015; Segaro, Larimo, & Jones, 2014).

The literature highlights the efficacy of the PLS-SEM as a technique to investigate family firm phenomena (Binz, Patel, & Wanzenried, 2014). The characteristics of the model make the PLS-SEM especially suited for this research for several reasons. First, this technique can include latent variables with both reflective and formative indicators (Henseler, Ringle, & Sinkovics, 2009). Second, the PLS-SEM stems on assumptions of normality in the data (Chin, 1998) making it a useful tool for studies in small samples (Kyu Kim, Yul Ryoo, & Dug Jung, 2011). Finally, it is more suitable for early stages of theory development as it allows for both exploratory and confirmatory research (Byrd et al., 2006), fundamentally complex research, and studies with dearth of theoretical knowledge (Wold, 1982). These specific features of PLS-SEM make it a relevant technique in family firm research (Binz et al., 2014; Ruiz et al., 2015). In this research, we rely on the Smart PLS 2.0 M3 software program (Ringle, Wende, & Will, 2005).

To run regressions with PLS-SEM, the sample has to comply with the requirements of the most complex multiple regression (Barclay, Higgins, & Thompson, 1995), which is determined by multiplying by 10 the highest result of (i) the number of indicators of the most complex formative construct or (ii) the highest number of structural paths directed toward any of the constructs of the model (Chin, 1998). Because the largest formative construct in the model has three items and two

structural paths that lead to any constructs, the minimum size required for the sample in this research is 30. Hence, the sample made of 102 observations is suitable for the estimation process.

4.1. Measurement model

First, before the structural model can be estimated, a factorial confirmative analysis is performed to validate the measurement model. In our sample, the factorial confirmative analysis supports the measurement model by clearly identifying the representative factors of the F-PEC scale and the factors that affect knowledge integration, i.e. internal social capital, affective commitment, relationship conflicts, as well as organizational effectiveness.

The model presents measurements related with the reflective and formative constructs. The constructs of power, experience, essence, and organizational effectiveness are modeled reflectively. These reflective indicators are a manifestation of the construct (Podsakoff, Shen, & Podsakoff, 2006), reflecting the latent construct that these indicators represent. The construct of knowledge integration is modeled formatively from the three components: internal social capital (intsoccap), affective commitment (affcom), and relationship conflicts (relcon). A formative measurement assumes that the construct is a function of the items; in other words, the observed items form or precede the construct (Cepeda & Roldán, 2004). Table 2 offers a synthesis of the parameters of the measurement model.

-- Insert Table 2 about here --

The measurement model is assessed by analyzing the reliability of each item, internal consistency, as well as convergent validity and discrimination (Roldán & Leal, 2003). To obtain a good reliability of the item, the load must be higher than 0.7 (Carmines & Zeller, 1979). All loadings are higher than 0.7 with the exception of two essence items and two organizational effectiveness items, which have loads close to 0.6, a measurement still considered acceptable in the first steps of theory development (Chin, 1998). The measurement model of the formative constructs is evaluated by items weights, not by loads (Chin, 1998). The weights indicate how each item contributes to its respective construct (Cepeda & Roldán, 2004). Given that the formative items do not need to be related, the

traditional indicators of reliability are not applicable (Chin, 1998). However, the absence of high multicollinearity between them must be verified (Diamantopoulos & Winklhofer, 2001). Multicollinearity is tested using the variance inflation factor (VIF), with a VIF below 5 showing a lack of multicollinearity (Kleinbaum, Kupper, & Muller, 1988). The results show that all values meet this standard, indicating that multicollinearity is not an issue.

The internal consistence of the constructs is assessed by determining Crombach's alpha and composed reliability. The indicators exceed 0.7 for the Crombach's alpha and 0.8 for composed reliability, which indicate that both measurements are acceptable (Nunnally, 1978). The convergent validity of the constructs is evaluated considering the degree to which all the items in a construct are measured by the same concept, and is assessed by examining the average variance extracted (AVE). In our analysis, the AVE indicator exceeds 0.5, as recommended by Fornell and Larcker (1981). The discriminating validity is evaluated by examining the degree to which the root of the AVE is higher that the co-related inter-construct, as shown in Table 3. In sum, the analyses show that all indicators have fair measurement properties.

-- Insert Table 3 about here --

4.2. Structural model

In Figure 2, we show the explained variance (R^2) in the dependent constructs and the path coefficients β for the model. In line with Chin (1998), we used bootstrapping (1,000 samples) to calculate standard errors and *t*-statistics. The R^2 for the endogenous variables are 0.199, and 0.096 for knowledge integration, and organizational effectiveness, respectively.

-- Insert Figure 2 about here --

As presented in Figure 2, familiness significantly and positively affects organizational effectiveness and knowledge integration with a coefficient of 0.220 (t = 2.660), and 0.436 (t = 4.397),

respectively. These results provide evidence of the direct impact of family influence in knowledge integration, and organizational effectiveness. These results also suggest that the family effect affect the resources generation (Habbershon, Williams, & MacMillan, 2003), and can promote, from a dynamic capability approach, the family firm continuity over generations.

Table 4 summarizes the results of the performed tests. Regarding hypothesis H1, the results show a positive and significant relation between knowledge integration and organizational effectiveness with a β of 0.310 (t = 4.132). Thus, hypothesis H1 is supported. In regards to hypothesis H2, the structural paths Familiness → Organizational effectiveness is positive and significant with a coefficient of 0.220 (t = 2.660). However, according to Baron and Kenny (1986) four additional analyses needed to be performed to verify the mediation effect of the variable knowledge integration in the relationship between familiness and organizational effectiveness. Table 5 reports the results.

-- Insert Tables 4 and 5 about here –

In Table 5, Model 1 shows a positive relationship between familiness (the independent variable) and organizational effectiveness (the dependent variable) with a β of 0.220 (t = 2.660). Model 2 relates familiness directly with knowledge integration (the intermediary variable) with a coefficient of 0.436 (t = 4.397). Model 3 suggests a direct relation between knowledge integration and organizational effectiveness with a coefficient of 0.310 (t = 4.132). Finally, Model 4 shows a simultaneous relationship between familiness, knowledge integration, and organizational effectiveness. The relation between familiness and organizational effectiveness drastically reduces its signification when it is incorporated with the intermediary variable knowledge integration with a coefficient of –0.021 (t = 0.243); other structural paths maintain their signification. Hence, there is a complete mediation of knowledge integration in the relation between familiness and organizational effectiveness. In sum, the results provide support to hypothesis H2 because knowledge integration completely mediates the relation between familiness and organizational effectiveness in family firms.

Firm size, measured as the number of employees, is significant with a β of 0.210 (t = 2.244), which suggests that the growth of the family firm affects knowledge integration. A larger size implies an increase in the interactions between family members, which provokes a higher chance of relationship conflicts that negatively affects knowledge integration in the family business (Chirico & Salvato, 2008).

5. Discussion

At the beginning of this study, we aimed to understand to what extent knowledge management in a family firm is enhanced by emotional implications and close interactions of family members. Our study expands understanding about knowledge integration in family firms (Chirico & Salvato, 2008, 2016), looking at whether family influence endows the family firm with resources and capabilities needed to integrate knowledge relevant for organisational effectiveness. The empirical analysis on the relationship between knowledge integration and organizational effectiveness in family firms makes several contributions at the intersection of knowledge integration and organizational effectiveness.

First, our theoretical reasoning suggests that all the three factors configuring knowledge integration – internal social capital, affective commitment of the family members, and relationship conflicts – play an important role in organizational effectiveness. In particular, internal social capital provides social relationships and strong affective bonds that promote the efficient exchange and combination of information thereby increasing mutual understanding between the family members (Arregle et al., 2007; Carr et al., 2011). Similarly, the affective commitment of the family members contributes, with emotional support, to adapt their behaviour to achieve desired objectives and to integrate knowledge accordingly (Cabrera-Suárez et al., 2018). However, results suggest that relationship conflicts, due to the intense interaction and strong bonds among family members, can deteriorate knowledge integration. Overall, our results suggest that, instead of taking advantage of their relationships to benefit from the combined used of their knowledge, family members might dedicate time and resources to addressing conflicts.

Second, we find that knowledge integration affects organizational effectiveness, supporting the findings of Zheng et al. (2010) who suggest that knowledge management skills are related to the generation of dynamic capabilities (Nielsen, 2006), entrepreneurial orientation (Pittino et al., 2018), and organizational effectiveness (Gold et al., 2001). These results also support Zheng et al. (2010) and Gold et al. (2001) findings which show that effective knowledge management promotes the development of skills that contribute to organizational performance.

Overall, our study expands understanding of the relationship between behavior, family influence, and performance, which has been considered complex and moderated by multiple factors (Chrisman et al., 2012, Chrisman et al., 2007). By leveraging on the specific traits of family firms, findings highlight the effects of family firm influence on the way knowledge integration affects organizational effectiveness. In doing so, our study integrates the family essence and involvement approaches that, taken together, help to capture the diversity of family businesses (Chrisman et al., 2012; Chrisman et al., 2005; Sharma & Nordqvist, 2007). Moreover, we focus on the mediating effect of knowledge integration in the relationship between family influence and organizational effectiveness. The results indicate that knowledge integration fully mediates this relationship. In fact, the family influence needs to be deployed towards the generation of resources and capabilities that allow to leverage the organizational effectiveness. Those results are coherent with the recognition of the family firm heterogenity (Nordqvist, Sharma, & Chirico, 2014; Pittino et al., 2018). We provide evidence of how family involvement in the firm and family essence influence knowledge management, and therefore, the generation of resources and capabilities (Astrachan, 2010). Our findings support that the process of knowledge management in family firm is improved by the communication closeness, and commitment of the family members to the firm (Cabrera-Suárez et al., 2018).

6. Contributions, implications, limitations, and future research directions

Several theoretical and practical contributions emerge from this study. First, we expand understanding of the role of the family in the firm. In particular, the debate on familiness (Frank et al., 2017;

Habbershon & Williams, 1999; Mazzola et al., 2013) benefits from an enhanced understanding of the role of both family involvement and essence in explaining knowledge integration. In particular, our study provides empirical evidence about the extent to which the involvement and essence of family members in the firm is linked with family learning mechanisms, i.e. knowledge accumulation, integration and codification, as well as the preservation of SEW (Barros, Hernangómez, & Martin-Cruz, 2016). This extends the application of the dynamic capabilities perspective in the family business field (Chirico & Salvato, 2008; Daspit et al., 2018).

Second, we contribute to the succession literature by highlighting the essential role of integration in discussing knowledge transfer in sustaining the family business over time (Boyd et al., 2015; Cabrera-Suárez et al., 2001; Cabrera-Suárez et al., 2018). Succession is a process that lies at the heart of our understanding of family businesses as it represents opportunities and challenges for a firm and a family (Howorth et al., 2010). Succession plays an important role to ensure the effective transmission and integration knowledge and experience in the incumbent-successor relationship. From a dynamic capabilities approach, succession can be considered as a learning process that explains the survival or disappearance of the family business (Konopaski, Jack, & Hamilton, 2015). Third, we contribute to the general knowledge management literature, suggesting the key mediating role of knowledge integration in the relationship between family influence and organizational effectiveness (Chirico, 2008; DeNoble et al., 2007; Pittino et al., 2018). Family influence needs to be directed towards the creation of resources and capabilities that allow to benefit organizational effectiveness. However, knowledge management is largely associated with the way family influence translates into value for the organization (De Long & Fahey, 2000). In these terms, affective commitment, quality of relationships, and communication among family members can improve the organizational culture, which values knowledge management and promotes learning. Our results extend Zheng et al. (2010)'s perspective that the drivers of organizational effectiveness requires considering the impact of

organizational variables (family influence) that deal with knowledge management (in this case, knowledge integration).

Finally, by focusing on effectiveness as an relevant dimension to build a sustainable competitive advantage our study has theoretical implications in terms of adynamic capabilities perspective (Eisenhardt & Martin, 2000; Hernández-Linares, Kellermanns, & López-Fernández, 2020; Ince & Hahn, 2020). Indeed, our findings suggest that effectiveness depends on family influence that grants resources and capabilities (namely familiness), needed to integrate knowledge that is usable for firm's effectiveness.

This study also offers practical implications for executives in family firms, especially with respect to knowledge integration. This study suggests that family business owners and managers need to develop an environment that promotes collaboration, exchange of information, and knowledge between the members of the firm. To create the necessary incentives to help the knowledge integration process develop efficiently, executives must understand how the family transfers idiosyncratic resources to the firm. Executives must recognize that an environment of trust and affective commitment facilitates interactions within the family and the firm. Interactions can reduce unwanted conflicts, especially in relationships amongst family members working in the firm. Appropriate management of these factors can translate into a more efficient and effective knowledge integration process. In addition, this study helps executives understand how to strengthen the continuing generation's commitment to the firm by incorporating the family's vision and organizational values to ensure family business continuity.

Our study also has limitations. First, as a cross-sectional study, it is limited in measuring phenomena through time. Causal relations are difficult to estimate due to the static nature of the study, the dynamic nature of family essence and the effects of the knowledge integration process are difficult to capture. Second, the use of surveys to gather data comes with certain limitations. Third, the extraction of data based in subjective evaluation of a main informant, which can lead to the bias of the

common method to compensate. In our study, we relied on recommended procedures to address such issue. Finally, whilst the use of the PLS-SEM method establishes relations of predictability, it is limited in providing causality between independent and dependent variables because it is based on flexible modeling. However, reflective and formative indicators, the early stage of theory development, and the complexity of the model make this methodology adequate to evaluate this research.

This study opens interesting lines for future research. First, in the analysis of knowledge integration through time, capturing its dynamic essence as suggested by De Massis et al., (2014), for example, through the case method (De Massis & Kotlar, 2014; Reay & Zhang, 2014) merits further attention. In the same way, future research could evaluate our model in diverse contexts (e.g. developed and developing economies), to corroborate or challenge our findings expanding on its adaptability and generalization (Basco, Calabrò, & Campopiano, 2019). Likewise, future research could study the analysis of each of the factors that affect knowledge integration, incorporating the family firm identity (Frank et al., 2017). Finally, future research could evaluate how socioemotional factors (Gomez-Mejia et al., 2011) could intervene in processes related to knowledge management (accumulation and integration) and promote the generation of family organizational routines. In doing so, we call future studies to further our understanding of knowledge integration in the most prevalent business form around the world.

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Tables and Figures

Table 1. Operationalization of the constructs

Construct	Operational question	Source
Power		Holt et al. (2010)
Pow_1	Percentage of direct and/or indirect involvement of family members in board of governance.	
Pow_2	Percentage of direct and/or indirect involvement of family members in board of management.	
Experience		Holt et al. (2010)
Exp_1	Number of generations that own the firm.	
Exp_2	Number of generations that are active in the governance.	
Exp_3.	Number of generations are active in the meetings of management	
Essence	Family members who work in the firm:	Holt et al. (2010); Chrisman et al. (2012)
Ess_1	• Feel loyalty toward the firm.	
Ess_2	• Agree with the objectives of the firm, its plans, and politics.	
Ess_3	• Possess and share the same values of the firm.	
Ess_4	• Are concerned about the fate of the firm.	
Ess_5	• Are willing to undertake great effort to help the firm to succeed.	
Knowledge integration		
Internal social capital	Family members who work in the firm:	Carr et al., (2011)
Intsoccap_1	• Maintain an honest communication with the other members.	
Intsoccap_2	• Do not keep corporate information to themselves.	
Intsoccap_3.	• Are willing to share information to other members.	
Intsoccap_4	• Take advantage of their family relationships to share information.	
Intsoccap_5	• Show great integrity in their relationships.	
Intsoccap_6.	• Trust each other.	
Intsoccap_7	• Keep in mind the feelings of other at the moment of decision-making.	
Intsoccap_8	• Feel engaged with the objectives of the firm.	
Intsoccap_9	• Share the vision and mission of the firm.	
Intsoccap_10	• See themselves as partners in planning the global decision-making of the firm.	
Intsoccap_11	• Share what should be the future of the firm.	
Affective commitment	Family members who work in the firm:	Allen and Meyer (1990)
Comafe_1	• Feel that their job is challenging and exciting.	
Comafe_2	• Clearly know that is expected of them in the firm.	
Comafe_3	• Feel that management hears their ideas.	
Comafe_4	• Trust that the family firm does what is supposed to do.	
Comafe_5	• Has a feeling of equity in regards to their compensation.	
Comafe_6	• Participates in the decision-making process, taking into consideration the job and working rules of the firm.	
Relationship conflicts	Family members who work in the firm:	Jehn (1995)
Relcom_1	Have personal problems.	
Relcom_2	• Clearly have personality issues.	
Relcom_3	• Feel tension in relationships.	
Relcom_4	• Are frequently in disagreement with the opinions of the CEO.	
Relcom_5	• Are frequently conflicted about the different proposed opinions presented in the firm.	
Relcom_6	• Have conflicts about the job that each member does in the firm.	
Relcom_7	• Have opinion differences in the firm.	

Table 1 continues

Table 1 (*cont.*)

Organizational effectiveness	The family firm permanently develops:	Adapted from Teece (2007)
Orgeff_1	• Internal activities of research and development.	
Orgeff_2	• Activities to identify the necessary changes in the needs of the clients.	
Orgeff_3	• Processes to take advantage of technological developments.	
Orgeff_4	• Processes of adaptation of business models.	
Orgeff_5	• Activities of task rotation, regular meetings at different management levels, informative bulletins/blogs, configuration of multifunctional equipment.	
Orgeff_6	• Adaptation resource processes to take advantage of new market opportunities.	
Control variables		Chrisman et al. (2004)
Firm_age	Age of the firm (years of involvement)	
Firm_size	Number of employees	
Firm_Ind	Industrial sector (SIC)	

Table 2. Latent variable, item measurement, composed reliability, average variance extracted (AVE) and Cronbach's α

Construct indicator	Factor loading /weight path	*t*-stat	Composed reliability	AVE	Cronbach's α
Power			0.921	0.854	0.841
Pow_1	0.881	4.928			
Pow_2	0.965	8.221			
Experience			0.971	0.918	0.956
Exp_1	0.911	9.110			
Exp_2	0.978	10.099			
Exp_3	0.983	10.702			
Essence			0.850	0.534	0.789
Ess_1	0.694	5.768			
Ess_2	0.822	9.991			
Ess_3	0.776	7.737			
Ess_4	0.565	3.746			
Ess_5	0.770	7.978			
Organizational effectiveness			0.911	0.633	0.888
Orgeff_1	0.675	6.796			
Orgeff_2	0.885	12.612			
Orgeff_3	0.829	10.206			
Orgeff_4	0.773	12.149			
Orgeff_5	0.700	5.327			
Orgeff_6	0.887	12.569			
Knowledge integration (formative)			—	—	—
Intsoccap	0.699	3.371			
Affcom	0.237	1.319			
Relcon	–0.273	1.308			
Control variables			—	—	—
Firm_age	0.085	1.037			
Firm_size	0.210	2.244			
Firm_ind	0.125	1.535			

Note: See Table 1 for definition of variables.

Table 3. Correlations inter-construct and extracted variance average (AVE)

	1	2	3	4
1. Organizational effectiveness	**0.796**			
2. Essence	0.12	**0.731**		
3. Experience	0.044	–0.077	**0.958**	
4. Power	–0.257	0.228	0.036	**0.924**

Note: The elements in the diagonal belong to the root of the AVE.

Table 4. Hypotheses results

Hypotheses	Path coefficient	*t*-stat	Results
H1: Knowledge integration → Organizational effectiveness	0.310	4.132†††	Supported
H2: Familiness → Knowledge integration	0.436	4.397†††	Supported
Knowledge integration → Organizational effectiveness	0.310	4.132†††	

†††p < 0.01; ††*p* < 0.05; †*p* < 0.1 (two-queue *t*-statistics).

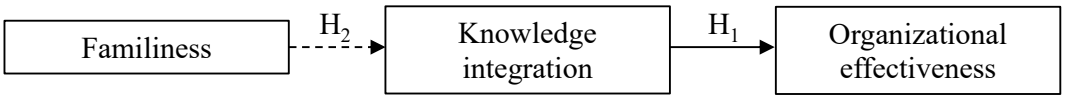
Table 5. Mediating effect

Familiness → Knowledge integration → Organizational effectiveness

Structural path	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Familiness → Organizational effectiveness	0.220			–0.021
	(2.660) †††			(0.243)
Familiness → Knowledge integration		0.436		0.445
		(4.397)†††		(3.779) †††
Knowledge integration → Organizational effectiveness			0.310	0.318
			(4.132)†††	(2.719)†††

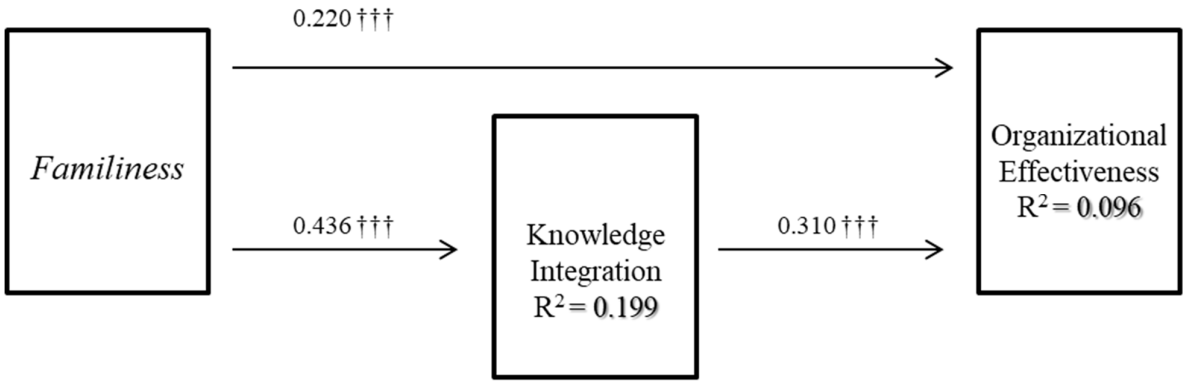
Notes: This table provides the route coefficients. Two-queue *t*-statistics are in parentheses.
†††$p < 0.02$; ††$p < 0.05$; †$p < 0.1$ (two-queue *t*-statistics).

Figure 1. Research model and hypotheses



Source: Authors.

Figure 2. Empirical model about knowledge integration in the family firm



Note: Path coefficients † p<0.1 †† p< 0.05 ††† p<0.01 (t statistic two tailed).