The impact of the CEO’s financial literacy on family SMEs’ growth: the moderating role of generational stage

ABSTRACT

Purpose- This study investigates the impact of the CEO’s financial literacy on family SMEs’ growth, as well as the moderating role of the generational stage on this relationship.

Design/methodology/approach – The study is based on survey data of Spanish private family firms and utilizes a second source of data, the SABI database by Bureau Van Dijk. The authors run ordinary least squares regressions and use both the base and the partition approaches to test the hypotheses.

Findings – The analysis reveals a positive association between the CEO’s financial literacy and firm growth. However, this relationship is not uniform across generations. The CEO’s financial literacy-firm growth relationship becomes weaker for first- and third or subsequent- generation family firms while becoming stronger for second- generation family firms.

Originality/value – This study adds the financial literacy of the CEO as a novel individual-level determinant of family firm growth. It also shows that CEOs do not always use their financial literacy to its full potential to foster growth. More specifically, the extent to which financial literacy leads to firm growth is found to be conditional on the generational stage of the family SME. The obtained findings are valuable for family SMEs intending to hire a new CEO, encouraging the financial literacy of the current CEO, and educating the next generation of family members.

Keywords: Financial literacy; family firms; growth; generational stage

Introduction

Family firms, defined as firms "dominantly controlled by a family with the vision to potentially sustain family control across generations" (Zellweger, 2017, p. 22), account for around 70%-90% of the annual worldwide GDP and provide more than half of all the jobs in most countries (De Massis *et al*., 2018). So when family firms prosper, so does the global economy. This study examines family SMEs' growth, a performance indicator directly linked to the GDP and the employment rate, and thus, a highly relevant driver for the overall economy[1] (Ahlstrom, 2010). Especially for a family firm, growth could be considered as one of the most important performance indicators because "if profitability can provide earnings for the members of the family in the short term, growth constitutes a better indicator of long-term performance" (Casillas *et al*., 2010, p. 28). Growth is also necessary to sustain the family firm across generations (Cruz & Nordqvist, 2012, Eddleston *et al.*, 2013), and the incapacity to make the required investments to pursue growth is even considered to be one of the main causes of decreasing survival rates over generations (Eddleston *et al.,* 2013).

An increasing stream of research is therefore focusing on family firm growth. Most of this literature, however, compares the growth rates of the 'average' family firm with the 'average' non-family firm, thereby ignoring family firm heterogeneity (e.g., Chrisman *et al.,* 2009, Chua *et al.,* 2012). Although recent studies have started to consider this heterogeneity (Cirillo *et al.,* 2020), they generally examine firm level attributes as determinants for family firm growth (e.g., Martínez-Alonso *et al.,* 2020; Bauweraerts *et al.,* 2020). Yet, firms grow because the top management of the organization developed successful strategies. Therefore, instead of looking at firm characteristics only, it is also essential to investigate the characteristics of the individuals running the firm (e.g., Geyer

[1] While profitability is often considered to be the main performance indicator of firms, it does not always lead to additional jobs and growth in GDP (Casillas et al., 2010).

& Geyer, 2016). This paper focuses on a specific individual-level determinant that is considered an important condition for managers to develop successful strategies (Greenspan, 2002): the CEO's financial literacy. We define the CEO's financial literacy as the ability of CEOs to master basic financial concepts and make appropriate financial decisions (Tian *et al.,* 2020). Next, we investigate the potential impact of the generation that controls the firm and has the decision-making power over the firm. Our findings, based on survey data in combination with archival data of 165 Spanish private family SMEs, indicate that the positive relation between a CEO's financial literacy and firm growth is weaker for first and third or later generation family firms, and stronger for second generation family firms.

This study adds to both the academic literature and practice in several ways. First, we add to the family business growth literature by introducing an individual-level characteristic of the CEO, namely their level of financial literacy. Second, we add to the novel, but rising, research stream on financial literacy in a business context as most research on financial literacy has mainly focused on consumers' decisions rather than businesses. Third, by relying on a sample composed entirely of family businesses, we contribute to the family business heterogeneity debate by uncovering the differences in the financial literacy-firm growth relation within the group of family businesses.

Literature Review and Hypotheses Development

Family Business Growth

Family business growth is considered the outcome of the strategies developed to successfully seize opportunities in the market (Le Breton-Miller & Miller, 2008), thereby creating job opportunities for future generations (Habbershon *et al.*, 2003). Therefore, for

family businesses, growth is not just a measure of business success but also family success (i.e., the family's well-being) (Olson *et al.*, 2003).

In general, family business research evolved over the past decade in three ways (Sharma *et al.,* 2020). First, there is a move away from studies that compare family firms to their non-family counterparts. As family firms are highly heterogeneous, it is essential to account for their differences (Payne, 2018). Second, there has been a recognition that financial performance is not the sole motivation for family business behaviour (Gómez-Mejia *et al.,* 2011) and academics start to emphasize the relevance of both financial and non-financial objectives to family firms. Third, there is a move toward individual-level variables to explain or predict firm-level behavior (Sharma *et al.,* 2020). In this vein, some studies in this track have drawn on Upper Echelons Theory (Hambrick & Mason, 1984), arguing that organizational outcomes are considered reflections of the values and cognitive bases of the top members of the organization (Vandekerkhof *et al*., 2015).

Family business growth literature has also evolved in the first two ways: researchers have started to acknowledge the heterogeneity of family businesses (Cirillo *et al.,* 2020), especially after studies focusing on the differences in growth between the 'average' family firm and the 'average' non-family firm (e.g., Basco, 2013) came to contrasting conclusions. Researchers have also begun to incorporate motives -other than purely financial- that could influence family business growth. For example, family business decision makers' emphasis on non-economic goals (Chrisman *et al.,* 2012) and the aim to keep control in the hands of the family (Gómez-Mejia *et al.*, 2007) could put limits on firm growth. Other motives, such as the long-term orientation, reputation effect, and specific resources of family businesses, could enhance firm growth (Baù *et al.,* 2019; Cruz & Justo, 2017).

The third trend in family business research -more focus on individual-level drivers- has not often been adopted in family business growth literature. The studies that do focus on individual-level drivers, consider general demographics of CEOs such as the CEO's family status, degree, age, tenure, founder or descendant, etc. (Kellermanns *et al*., 2008; Westhead & Howorth, 2006). In this way, however, an oversimplification of reality is made. Family CEOs, descendants, and younger CEOs are often considered to lack business skills, being less talented and therefore harming the firm value (e.g., Lin & Hu, 2007). Similar to family firms, also CEOs of family firms are a widely heterogenous group. Accordingly, it is crucial to focus on the driving characteristics of firm outcomes rather than on the more general demographics such as family status or age. While these demographics may be correlated to the actual driving characteristics, they seldom actually capture them (e.g., while family CEOs may have fewer business skills than non-family CEOs, this will not apply for all family CEOs, so the focus should be on the business skills as a driving characteristic). We contribute to the literature by focusing on an individual-level determinant that could be such a driving characteristic for family business growth: the level of the CEO's financial literacy.

CEO's Financial Literacy and Family Firm Growth

The Upper Echelon Theory (UET) emphasizes the importance of examining the characteristics of top managers as drivers of organizational performance as they are most responsible for establishing the firm strategy and structure (Hambrick and Mason 1984; Hielb, 2014; Waldman *et al*., 2004). These managerial characteristics deserve additional attention in SMEs (Rubio-Bañón & Aragón-Sánchez, 2009), in which management talent deficit is considered the main limitation for their survival and growth (Penrose, 1959). Moreover, since CEOs of family businesses are often the only ultimate decision makers

(Miller & Droge, 1986), we argue that the CEO's financial literacy, as a novel individual-level determinant, contributes to predicting firm growth.

Growing a business requires adequate knowledge and the ability to raise external financial capital (Block et *al.,* 2013), for example through bank loans, private equity, or other external shareholders. Previous literature has indicated that individuals' financial literacy helps in effectively managing the firms' financial capital, thereby improving their creditworthiness (van Rooij *et al.*, 2011). Financial literacy tends thus to equip owners and managers with the required financial knowledge to make strategic financial decisions (Greenspan, 2002). On the other hand, prior research indicates that a lack of financial literacy leads to poor investment choices (Bianchi, 2018) and borrowing decisions (Stango & Zinman, 2009). Recently, researchers have started to investigate the effects of executives' financial literacy in an SME context and reported positive effects on firm innovation (Liu *et al.*, 2021), firm performance (Eniola & Entebang, 2017), intentions to use debt finance (Koropp *et al.*, 2013), access to finance (Ye & Kulathunga, 2019) and having bank loans (Xu et *al.*, 2020).

In the specific case of family SMEs, a lack of financial literacy of the CEO might, therefore, prevent family firms from adequately assessing, understanding, pursuing, and accessing different financial sources, thereby putting a constraint on ultimate firm growth. On the other hand, a family firm CEO with a high level of financial literacy will positively influence firm growth as it helps in detecting and recognizing interesting investment opportunities. In sum, we thus argue that a family firm CEO's financial literacy is a valuable determinant of firm growth, based on the notion that CEOs' financing, investing, and strategic choices are positively influenced by their financial literacy.

We, therefore, expect a positive association between the level of the CEO's financial literacy and family SME growth. Put formally:

H1: Financial literacy of the CEO is positively associated with family firm growth.

Moderating Effect of Generational Stage

While we expect the CEO's financial literacy to affect family firm growth positively, CEOs may not always use this financial literacy to its full potential. While this may be the case within every firm since growth also implies greater uncertainty, complexity, and costs (McKelvie & Wiklund, 2010; Bauweraerts *et al.,* 2020), the will to foster growth will vary even more in family firms due to the non-financial goals family firm members often pursue. These non-financial goals contain maintaining family control, providing jobs for family members, perpetuating the family dynasty, etc., and are all linked to the socioemotional wealth (SEW) perspective (Gómez-Mejia *et al.,* 2007).

Especially within family firms, growth is not always considered desirable. More specifically, "business growth would imply a difficult trade-off for family decision-makers, as they will weigh the potential financial gains and losses of growth against its potential SEW gains and losses" (Bauweraerts *et al.*, 2020, p. 3). Recent literature refers to this trade-off as a *mixed gamble* (Bauweraerts *et al.,* 2020; Cruz & Justo, 2017; Gómez-Mejia *et al*., 2014a).

The generation that controls and has the decision-making power over the family firm is considered to have a large impact on the outcome of this gamble (Bauweraerts *et al.*, 2020; Arrondo-Garcia *et al.,* 2016, Eddleston *et al.,* 2013). Therefore, we argue that the effect of the CEO's financial literacy on firm growth is moderated by the generational stage of the family firm, as it will affect whether CEOs will use their financial literacy to its full potential to foster growth.

In line with the studies of Schulze et *al.* (2001, 2003) and Lubatkin et *al.* (2005), we distinguish among three generational stages: the first-generation or controlling owner

stage, the second-generation or sibling partnership stage, and the third and subsequent-generation or cousin consortium stage (Schulze et *al*., 2003).

In the first-generation or controlling owner stage, the CEO is generally the firm's founder and owns the most shares (Schulze *et al.,* 2003). Therefore, the firm's strategy and thus the focus to pursue growth are directly linked to the CEO's personal utility (Schulze *et al.,* 2003). However, as a family firm CEO and thus generally also as head of the family, this personal utility is directly linked to the utility and welfare of his/her family members due to altruism (Van den Berghe & Carchon, 2002). While firm growth will generally increase the welfare of the family, it will only do so in the future, and therefore, does not necessarily cover the current needs or preferences of the family. As indicated by Schulze *et al*. (2003), first-generation family members often tend to prefer consumption (being monetary or non-monetary) over investment. Thus, CEOs are likely to feel obliged to keep some funds available for consumption instead of entirely investing it for (future) growth. Moreover, the long term increase in welfare for the family resulting from growth remains uncertain due to the difficulty in predicting all risks, investments, and costs associated with achieving growth (McKelvie & Wiklund, 2010), even for financial literate CEOs. At the same time, high growth induces higher complexity and a higher need for external equity and expertise, leading to a loss of control (Gómez-Mejia *et al.,* 2014a). Higher but uncertain financial gains in the future will probably not be considered to compensate for this loss of control at this stage. The size of the nuclear family for which the firm has to provide at this stage is generally rather small, making it relatively easy to provide jobs for family members and generate an adequate level of dividend payout. This makes the gamble for more financial gains in the long run (by more growth) not worth the risk of losing SEW. Based on the arguments above, we expect that CEOs of first-generation family firms will not fully exploit their financial literacy to stimulate

firm growth. Therefore, we hypothesize a weaker association between a CEO's financial literacy and firm growth in first-generation family firms.

For second-generation or sibling partnership family firms, we argue that the expected outcome of the mixed gamble is different. While the CEO remains to have the majority of the shares, he/she is typically not the founder nor the biological head of the family anymore (but mostly a sibling as the name of this phase indicates) (Schulze *et al.,* 2003). While this phase is often associated with increased family conflicts since family members care more for their children than for their parents and/or siblings (Schulze *et al.,* 2003*,* Miller & Le Breton-Miller, 2006), growth is probably considered to be a way out. More specifically, resource constraints and limited firm size are often the catalyst of these conflicts since they force the CEO to make tough decisions regarding dividend payout and hiring/firing family employees (Schulze *et al.,* 2003). When the family becomes larger while the firm does not, it becomes more challenging to secure employment for family members or to secure an acceptable level of dividend payout for every family member (Bauweraerts *et al.,* 2020). Therefore, because SEW losses (i.e., the loss of control) are counterbalanced by SEW gains (i.e., securing family employment and future dividend payout, even if this entails current financial risks) when pursuing growth, CEOs are expected to fully focus on growth at this stage. Even if the financial outcome is uncertain, not pursuing growth leads to SEW losses that are larger than SEW losses when pursuing growth, as the firm might not be financially sound enough anymore to provide for all family members (both in terms of dividend payout and job security), leading to potentially severe family conflicts. Thus, we posit that CEOs of second-generation family firms will make the most of their financial literacy to drive firm growth. Hence, we hypothesize that second-generation family firms will strengthen the positive relationship between CEO's financial literacy and firm growth.

For third and subsequent-generation family firms, generally called cousin consortiums (Schulze *et al.,* 2003), the outcome of the gamble can change again. More specifically, as indicated by Arrondo-García *et al.* (2016, p. 3), "At later generational stages, the importance of preserving SEW diminishes, while the interest in financial wealth increases, such as the dividend payments requirement". Moreover, when it becomes impossible to provide job security for every family member because the family becomes too large, outside family shareholders (i.e., family owners with no active role in the family firm) are not benefited by growth anymore or at least will prefer the payout of profits rather than reinvesting them for future growth (Schulze *et al.,* 2003). Within listed firms, deviating preferences of certain shareholders often pose not a big problem: if they are not satisfied with the level of dividend payout, they can always sell their shares (at a higher rate thanks to growth). However, this alternative is generally absent in private firms since there is no (liquid) market for their shares (Schulze *et al*., 2003). Being unable to provide a satisfactory level of dividend payout is, therefore, more likely to lead to severe family conflicts between outside and inside family shareholders, which could be considered an important SEW loss since family disputes could even endanger family firm continuity. As indicated by Schulze e*t al.* (2003, p.185), the primary challenge for family firms in the cousin consortium stage is "to invest in growth while maintaining a dividend level that satisfies outside family owners". In short, we, therefore, suggest that CEOs of third and subsequent-generation family firms will not use their financial literacy to its full potential to boost firm growth.

Overall, we thus hypothesize that:

H2: The positive association between the financial literacy of the CEO and family firm growth is moderated by generation in such a way that the association is stronger for

second-generation family firms than for first- and third or subsequent-generation family firms.

Method

Sample

We designed a sample selection process to feature the structure of Spanish SMEs following the stratified sampling principles in finite populations. We segmented the firm population by industry (manufacturing, construction, commerce, and services) and size (6-9 employees, 10-49 employees, and 50-250 employees), according to the EU 2003 recommendation (European Union, 2003).

The selection framework was the SABI (Sistema de Análisis de Balances Ibéricos) database provided by Bureau Van Dijk. The data collection technique was a phone survey addressed to the CEOs of certain SMEs randomly selected from the SABI database. Before having a final version of the survey, it was thoroughly pre-tested to corroborate its validity. After the pre-test, the required changes to enhance the former version of the survey in terms of clarity and interpretation were integrated (Stefanitsis *et al.,* 2013). Thus, the primary data source consists of a comprehensive cross-sectional questionnaire conducted by a specialized firm that performed several control tests to check the survey validity during September-October 2016.

We received information from 309 Spanish SMEs. Firms were coded ex-post as family firms when they met both of the following requirements: (1) at least 50% of the shares are owned by family members and the family is involved in the management of the business, and (2) the family has the intention of passing the business on to the subsequent generation, demonstrating the desire for transgenerational continuity over time (Chua *et al.,* 1999). When applying these criteria, 199 family firms were identified

in our sample. After removing cases with missing values, our analyses are based on a final sample of 165 privately held family SMEs.

Table I reports the sample distribution by size and industry.

Table I

Measures

Dependent Variable: Firm Growth

While a wide range of distinct indicators are used to empirically assess firm growth (e.g., Winzimmer *et al.,* 1998), this study takes into consideration the average annual growth in total assets over the period 2014-2017 [(Asset growth in 2016-2017 + Asset growth in 2015-2016 period + Asset growth in 2014-2015)/3]. We chose this indicator of firm growth because increases in assets can be planned and depend on CEOs' decisions (Pittino *et al.,* 2020) and because asset growth often involves external equity and/or indebtedness (Gómez-Mejia *et al.,* 2014b), which can be influenced by the level of financial literacy.

Independent Variable: CEO's Financial Literacy

Although financial literacy is considered one of the crucial managerial competencies in SMEs (Spinelli *et al*., 2011), it is a challenging concept to define and measure. There is still no generally accepted definition (Goyal & Kumar, 2020).

Consequently, based on the scant previous research on financial literacy in a business context, namely, regarding individuals' decision-making in firms (Bongomin *et al*., 2018), we used a novel scale to measure both the manager's ability to understand and analyze financial information and its application to make appropriate financial decisions (Huston, 2010). Specifically, we used the construct employed by very recent studies

investigating CEOs' financial literacy (García-Pérez-de-Lema *et al.,* 2021; Molina-García *et al.,* 2020).

Usually, the questions used to evaluate financial literacy encompass essential financial knowledge related to the understanding of compounding interest, inflation, mortgage loans, or investment knowledge, among other financial aspects (e.g., Liu *et al.,* 2021). Yet, this form of assessing financial knowledge based on the number of correct answers regarding basic aspects of finance disregards an appropriate evaluation of the application of financial knowledge. Therefore, it prevents measuring whether the firm is properly managing financial knowledge and incorporating such knowledge in its decision-making. For this reason, we opted for using an overall measure of financial literacy, including items related to both financial knowledge (understanding) and financial application (use).

Accordingly, to measure financial literacy, the scale first measures the financial knowledge of the CEO. The construct employed captures CEOs' understanding regarding alternative financing sources, as SMEs need appropriate and timely access to financing at every growth stage (Musie, 2016). Likewise, as investment practices are crucial to SMEs (Abanis *et al.,* 2013), it also questions CEOs about their knowledge of alternative financial investments. Finally, due to the importance of knowledge about the evolution of the economy in general and the industry context in particular (Baumohl, 2013), the scale also measures CEOs' knowledge about the leading sector and economy indicators.

Second, the scale also includes some items to capture CEOs' application of financial knowledge. Specifically, we measured how CEOs use economic and financial information to assess the financial outlook for the firm and make informed decisions (Huston, 2010). Moreover, the implementation of effective financial policies will not only depend on the CEO's personal financial knowledge and its application, but also on the

availability of financial knowledge by the CFO, other managers, and employees of the administration and finance department, who maintain close and regular relationships and interactions with the CEO and report directly to her/him (Vaccaro *et al.,* 2012). This is why the scale also includes some items to capture the relevance of the former individuals in CEOs' use of financial knowledge.

Overall, the measure consists of the following seven items which the CEO has to rate using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) (García-Pérez-de-Lema *et al.,* 2021; Molina-García *et al.,* 2020): (a) I am well informed about alternative financial sources (equity loans, venture capital, MAB, business angels, etc.) rather than bank financing, (b) I am well informed about the financial assets in which I can invest financial slack, (c) I and the rest of the TMT have updated information regarding economic and financial industry data, (d) I am well informed about the evolution of the economy and of the national and international monetary and financial policies, (e) I and the rest of the TMT use economic and financial information in the decision-making, (f) the CFO's opinion is relevant for the firm's management decisions, and (g) the training of the administration and finance department staff is very relevant for establishing effective financial policies.

The scale was evaluated in terms of reliability and validity. An exploratory factor analysis was carried out to clarify the dimensional character of the scale (Eigenvalue, 3.51; Extracted variance, 0.99; KMO, 0.85). Then, a confirmatory factor analysis was developed, which revealed that financial literacy is a construct constituted by six of the seven dimensions initially proposed (items a-e and g). We also estimated the construct reliability and the results confirmed the internal consistency in all the six items that finally integrated the construct.

Table II

Moderating variable: Generational stage

We operationalized the generational stage by the generation that controls the family business (e.g., Bammens *et al.* 2008). In this vein, the survey included a question in which the respondents had to indicate the generation that currently has the decision-making power over the family business (Sonfield & Lussier, 2004). Similar to prior research, we created three dummy variables based on the survey responses: first generation, second generation, and third and later generations (Cruz & Nordqvist, 2012).

Control variables

Based on prior growth research, we also added several control variables to our models (Casillas *et al*., 2010). First, the underlying study controls for family ownership, which is measured using the fractional equity holdings of the founding family. Moreover, firm age and size indicators were added to the models as controls, measured as the natural logarithm of years since the firm's inception and the natural logarithm of total employees in 2016, respectively. Controls for firm profitability by utilizing the return on asset ratio (*ROA*) and firm leverage, measured as total liabilities divided by total assets, are also included. Finally, industries are controlled for by three dummy variables, namely manufacturing, construction, and commerce and services.

Results

Table III presents the descriptive statistics of the full sample and of the subsample of family firms in different generational stages. The last column of Table III reports the Kruskal–Wallis (K–W) non-parametric test to identify significant differences among the analyzed variables over the generational stages. The results reveal that the differences in

means between family firms in different generational stages are significant for financial literacy, firm age, and firm size.

Tables III&IV

Table IV presents the pairwise correlations. The correlation coefficients, the variance inflation factor tests, and the tolerance values reveal that there is sufficient evidence to discard multicollinearity in the data (Hair *et al.,* 1999).

Table V displays the results of the regression models. Model 1A reveals the impact of financial literacy on firm growth while controlling for firm characteristics and industry. Regarding the independent variable, the results indicate that financial literacy has a positive and significant impact on firm growth (β=0.021; p<0.05), supporting Hypothesis 1. Additionally, the R^2 is 8.9 %, and the model is significant at p<0.05.

Table V

Model 1B includes the direct effect of first- and third and subsequent-generation family firms on firm growth. Financial literacy's direct effect on growth continues to be positive and significant (β=0.021; p<0.05). However, the results indicate no significant effect of first- or third and subsequent- generational stages on firm growth. The obtained findings are in line with the results reported in Table III, which reveal no significant differences in growth between family firms in first-, second- or third and subsequent-generations. Therefore, none of the generational stages is found to have a direct influence on firm growth.

Nevertheless, we expected a conditional effect of the generational stage on the relationship between financial literacy and firm growth. Therefore, to capture the moderating effect of the generational stage on the financial literacy-firm growth relationship, we examined the following interaction terms in model 1C of Table V: *Financial Literacy*First-Generation Family Firms* and *Financial Literacy*Third and Subsequent-Generation Family Firms.* Model 1C confirms a stronger influence of financial literacy on firm growth for second-generation family firms than for first- (β= -0.054; p<0.01) and third and subsequent- generation family firms (β= -0.078; p<0.05)[2]. Thus, the results also confirm Hypothesis 2. Moreover, introducing the interaction effects results in an increase of 3.23% in the explained variance.

Additionally, to further interpret the results, we plotted the moderating effect of the generational stage (family firms in second generation vs. family firms in first and in third and subsequent generations) on the relationship between financial literacy and firm growth in Figure 1.

Figure 1

We also executed several robustness tests. First, we reran our regressions with a different measure of firm growth, namely the percentage change in assets over the past three years (Shepherd & Wiklund, 2009). Hypotheses 1 and 2 are again supported (see models 2A, 2B and 2C, Table V). Second, we replicated the analysis using the average of firm growth over the 2015-2017 period and the percentage change in assets over the past two years. Third, we studied the sensitivity of our results by winsorizing extreme

[2] To give further support to our findings, we ran the regressions again with the moderating variable "second-generation family firms" and suppressing the rest categories, i.e. first- and third and subsequent- generation family firms. The results remain the same.

values at the 99th and 95th percentiles. Fourth, we also used a less common approach in research to test our hypotheses, i.e., the "partition approach", which is recommended due to its considerable advantages compared to the base approach in terms of design, flexible hypothesis testing, convenience, facilitating dataset trouble-shooting and post-hoc checking of theory (Yip & Tsang, 2007). Finally, we also utilize different compositions of the same items to measure financial literacy, which were also evaluated in terms of reliability and validity. All robustness tests confirm the main conclusions of this study (results are available upon request from the authors).

Discussion and Conclusions

Discussion and theoretical contributions

This research primarily examines the underexplored relationship between the CEO's financial literacy and firm growth within family SMEs. Building on the UET and the SEW perspective, our results indicate that the CEO's financial literacy positively impacts firm growth. However, this positive association is moderated by the generational stage of the family firm as it will affect to what extent CEOs will use their financial literacy to its full potential to foster growth.

Our findings thus reveal that CEOs with higher financial literacy achieve higher firm growth, confirming our first hypothesis. While financial literacy seems to be a self-evident prerequisite to make qualitative strategic and financial decisions, most studies have focused on individuals' (financial) decision-making in their private life (e.g., Lusardi & Mitchell, 2011; Meier & Sprenger, 2013). There is still a lack of literature addressing the impact of financial literacy on firm performance (e.g., Eniola & Entebang, 2017), and no research has focused on its effect on firm growth. However, a lack of financial literacy skills is argued to be one of the most serious concerns that SMEs face,

which might even endanger their long-term survival (Halabi *et al.*, 2010). As this study further highlights the importance of financial literacy for a family SME's CEO, it contributes to the existing literature about financial literacy.

Moreover, by examining the relationship between a CEO's financial literacy and family firm growth, this study also contributes to the literature focusing on the determinants of family firm growth, which, to date, has paid scarce attention to the influence of individual-level determinants (e.g., Stenholm *et al.*, 2016). There are valuable exceptions, but these studies mainly focus on demographics (e.g., age, gender) as individual-level determinants. However, such demographics will not fully capture the essential characteristics of top executives in order to comprehensively test the UET (Hambrick and Mason, 1984; Waldman et al., 2014). By focusing on the CEO's financial literacy, we do capture such an essential characteristic as an individual-level determinant of family firm growth.

Our findings also show that while a CEO's financial literacy fosters growth, CEOs may not always use their financial literacy to its full potential. Family firm members will consider the focus on growth to be a mixed gamble, in which the potential (financial) advantages of growth and the potential risks of losing SEW should be carefully balanced (Bauweraerts *et al.,* 2020). Since several studies already indicated that the family firm's generational stage heavily influences the outcome of this mixed gamble, we considered this generational stage to be an essential moderator on the 'financial literacy – growth' relationship. Consistent with our second hypothesis, our findings indicate that while first- and third- and subsequent-generation family firms weaken the relationship between a CEO's financial literacy and firm growth, second-generation family firms reinforce the positive effect of financial literacy on firm growth. In first-generation family firms, the potential (future) financial gains derived from firm growth are lower than the potential

SEW losses derived from such growth, such as diminishing family control and having insufficient funds for direct consumption to satisfy the family members (Laffranchini *et al.,* 2020; Schulze *et al.*, 2003). On the contrary, in second-generation family firms, potential financial gains exceed potential SEW losses when achieving firm growth, leading even to positive SEW consequences such as increased family employment (Cruz & Justo, 2017). Finally, in third and subsequent-generations, the focus will shift to direct consumption instead of investment again since focusing too much on investment (i.e., growth) will lead to significant SEW losses arising from family conflicts that will outweigh potential (future) financial gains resulting from firm growth (Bauweraerts *et al.,* 2020; Schulze *et al.*, 2003).

By examining the CEO's financial literacy as a driver of growth as well as the generational stage as moderator, this study also significantly contributes to the family business literature in general. More specifically, while early family firm studies mainly focused on the differences between family and non-family firms, recent literature argues that family firms are no homogeneous group such that studies should focus on their heterogeneity (Chua *et al.,* 2012). Not only did we account for this heterogeneity by examining the generational stage as a moderator, but we also accounted for the heterogeneity of the CEOs running the family firms by examining the impact of their financial literacy as driver of firm growth. Analyzing simultaneously firm and individual sources of heterogeneity is crucial for a better understanding of family firm behavior and performance outcomes (e.g., Arrondo-Garcia et al., 2016).

Practical Implications

This study also provides several implications for practice. More specifically, it shows that family firms' CEOs need to have the appropriate financial literacy to foster firm growth.

This is especially important in family SMEs, which often have less access to the financial literacy of other actors, like advisors or CFOs. Therefore, family shareholders should account for this when appointing a CEO or training family members to become the next CEO. While common sense and a hard-working mentality are still often considered sufficient to become a successful family firm CEO, this study highlights the importance of a CEO's financial literacy to further grow the business.

However, this study also indicates that the CEO's level of financial literacy will not always be used to its full potential to foster growth. Growth might not always be desirable for every (generational stage of a) family firm, and a CEO should constantly balance the financial and SEW gains and losses when making strategic decisions. Training programs targeted explicitly towards increasing the financial literacy of family firm CEOs while at the same time training them to constantly balance both the financial and family (i.e., SEW) needs of the firm and its (family) members would therefore be highly valued based on this study's results.

Limitations and Future Research

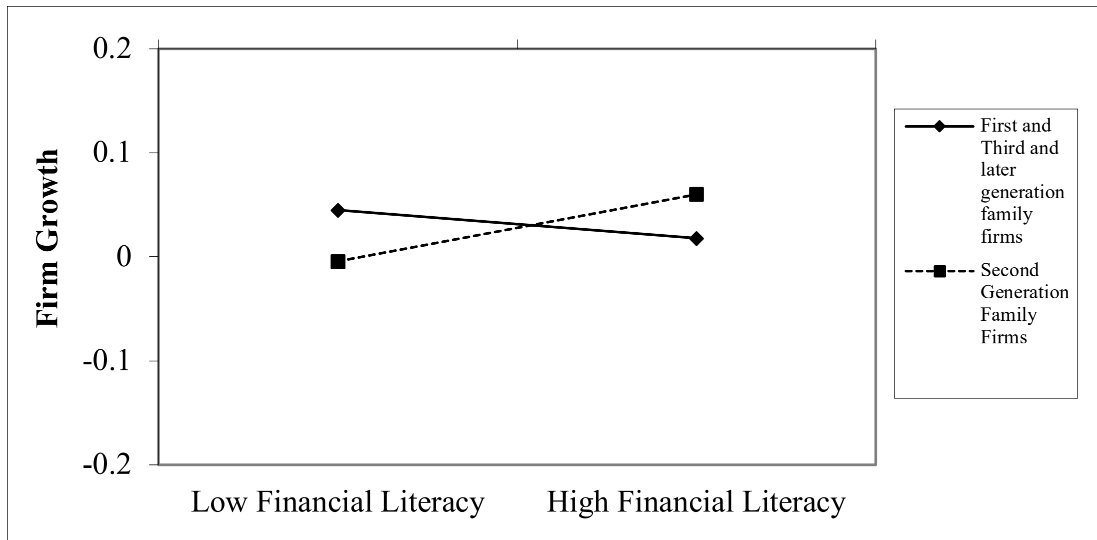
This study is, of course, not free from limitations, which provide valuable opportunities for future research. First, while the results show a clear link between a CEO's financial literacy and family firm growth and indicate a moderating role of generation, financial literacy will not be the only individual-level determinant of firm growth, nor will generation be the only moderating factor. Other sources of family firm and individual heterogeneity may explain firm growth, either directly or indirectly. Future studies may, therefore, look at other sources of heterogeneity as drivers of family firm growth, such as goal-, governance- or resource-related heterogeneity (Chua *et al.,* 2012).

Second, both the level of financial literacy and the way this financial literacy can be used to foster growth are dependent on several contextual variables that are not related to the family context. We encourage researchers to invest further in this research area to identify both the antecedents of the level of financial literacy (e.g., education, experience, etc.) as well as the variables that may affect the impact of financial literacy on firm growth (e.g., having a finance/accounting department, the competitiveness of the industry, etc.).

Third, while we consider the measure used to capture the financial literacy of the CEO highly appropriate, every measure has its benefits and constraints. Given that there might be dissimilarities between an individual's actual knowledge and an individual's self-perception of their knowledge (like we captured), it would be interesting to analyze the differences between objective and subjective measures to examine overconfidence bias further. Individuals with high confidence are more likely to overrate their financial literacy and might not always accept their incompetence regarding financial issues (Kruger & Dunning, 1999). Therefore, we hope researchers continue investing in the development and validation of scales to capture financial literacy to rule out the risk of such bias in the future.

Finally, while we expect the impact of financial literacy on family firm growth and the moderating role of generation to be similar in other countries, we could not validate this since we focused on a single-country dataset. Therefore, we consider validating the results of this study using a cross-country dataset to be a highly valuable opportunity for future research as well.

Figure 1



References

Abanis, T., Sunday, A., Burani, A., & Eliabu, B. (2013). Financial Management Practices In Small and Medium Enterprises in Selected Districts in Western Uganda. *Research Journal of Finance and Accounting*, *4*(2), 29–42.

Ahlstrom, D. (2010). Innovation and growth: How business contributes to society. *Academy of Management Perspectives*, *24*(3), 11–24.

Arrondo-García, R., Fernández-Méndez, C., & Menéndez-Requejo, S. (2016). The growth and performance of family businesses during the global financial crisis: The role of the generation in control. *Journal of Family Business Strategy*, *7*(4), 227–237.

Bammens, Y., Voorderckers, W., & Van Gils, A. (2008). Boards of directors in family firms: A generational perspective. *Small Business Economics*, 31, 163–180.

Basco, R. (2013). The family's effect on family firm performance: A model testing the demographic and essence approaches. *Journal of Family Business Strategy*, *4*(1), 42–66.

Baù, M., Chirico, F., Pittino, D., Backman, M., & Klaesson, J. (2019). Roots to Grow: Family Firms and Local Embeddedness in Rural and Urban Contexts. *Entrepreneurship Theory and Practice*, *43*(2), 360–385.

Baumohl, B. (2013). *Secrets of Economic Indicators, The Hidden Clues to Future Economic Trends and Investment Opportunities*. Pearson Education, Inc.

Bauweraerts, J., Diaz-Moriana, V., & Arzubiaga, U. (2020). A Mixed Gamble Approach of the Impact of Family Management on Firm's Growth: A Longitudinal Analysis. *European Management Review*, *17 (3)*, 747-764.

Bianchi, M. (2018). Financial Literacy and Portfolio Dynamics. *The Journal of Finance*, *73*(2), 831–859.

Berrone, P., Cruz, C. and Gómez-Mejía, L.R. (2012). Socioemotional wealth in family firms: theoretical dimensions, assessment approaches, and agenda for future research, *Family Business Review, 25 (3*), 258-279.

Block, J., D. Miller, P. Jaskiewicz and F. Spiegel (2013). Economic and technological importance of innovations in large family and founder firms: An analysis of patent data". Family Business Review, 26, 180‑199.

Bongomin, G. O. C. ., Munene, J. C. ., Ntayi, J. M. ., & Malinga, C. A. (2018). Exploring the mediating role of social capital in the relationship between financial intermediation and financial inclusion in rural Uganda. *International Journal of Social Economics*, *45*(3), 829–847.

Campopiano, G., Brumana, M., Minola, T., & Cassia, L. (2020). Does Growth Represent Chimera or Bellerophon for a Family Business? The Role of Entrepreneurial Orientation and Family Influence Nuances. *European Management Review*, 17 (3), 765-783.

Casillas, J.C., Moreno, A.M., & Barbero, J.L. (2010). A configurational approach of the relationship between entrepreneurial orientation and growth of family firms. *Family Business Review*, *23*(1), 27–44.

Chrisman, J.J., Chua, J.H., De Massis, A., Frattini, F., & Wright, M. (2015). The Ability and Willingness Paradox in Family Firm Innovation. *Journal of Product Innovation Management*, *32*(3), 310–318.

Chrisman, J.J., Chua, J.H., & Kellermanns, F. (2009). *Priorities, Resource Stocks, and Performance in Family and Nonfamily Firms*.

Chua, J.H., Chrisman, J.J., & Sharma, P. (1999). Defining the family business by behavior. *Entrepreneurship Theory and Practice*, *23*(4), 19–39.

Chua, Jess H., Chrisman, J. J., Steier, L. P., & Rau, S. B. (2012). Sources of Heterogeneity in Family Firms: An Introduction. *Entrepreneurship: Theory and Practice*, *36*(6), 1103–1113.

Cirillo, A., Huybrechts, J., Mussolino, D., Sciascia, S., & Voordeckers, W. (2020). Researching Family Business Growth. *European Management Review*, *17*(3), 733-746.

Cruz, C., & Justo, R. (2017). Portfolio Entrepreneurship as a Mixed Gamble: A Winning Bet for Family Entrepreneurs in SMEs. *Journal of Small Business Management*, *55*(4), 571–593.

Cruz, C., & Nordqvist, M. (2012). Entrepreneurial orientation in family firms: a generational

perspective. *Small Business Economics*, *38*(1), 33–49.
De Massis, A., Frattini, F., Majocchi, A., & Piscitello, L. (2018). Family Firms in the Global Economy: Toward a Deeper Understanding of Internationalization Determinants, Processes, and Outcomes. *Global Strategy Journal*, *8*(1), 3–21.
De Massis, A., Kotlar, J., Campopiano, G., & Cassia, L. (2015). The Impact of Family Involvement on SMEs' Performance: Theory and Evidence. *Journal of Small Business Management*, *53*(4), 924–948.
Di Giuli, A., Caselli, S., & Gatti, S. (2011). Are small family firms financially sophisticated? *Journal of Banking and Finance*, *35*(11), 2931–2944.
Eddleston, K.A., Kellermanns, F.W., Floyd, S.W., Crittenden, V.L., & Crittenden, W.F. (2013). Planning for growth: Life stage differences in family firms. *Entrepreneurship: Theory and Practice*, *37*(5), 1177–1202.
Eniola, A.A., & Entebang, H. (2017). SME Managers and Financial Literacy. *Global Business Review*, *18*(3), 559–576.
European Union (2003). Commission recommendation of 6 May 2003 concerning the definition of micro, small, and medium- sized enterprises. 2003/361/EC. Oficial Journal of the European Union, Ref. L124/39 dd. 20/05/03, 2003.
García-Pérez-de-Lema, D., Ruiz-Palomo Diéguez-Soto, & Julio., D. (2021). Analysing the roles of CEO's financial literacy and financial constraints on Spanish SMEs technological innovation. *Technology in Society, 64*, 101519.
Geyer, A., & Geyer, A. (2016). Family Decision Makers in FBs, Their Growth Intentions and Actual Firm Growth: The Influence of Different Levels of Family and Personal Involvement in the Firm. In *The Growth Behavior of Family Firms* (pp. 231–291).
Gómez-Mejia, L.R., Campbell, J.T., Martin, G., Hoskisson, R.E., Makri, M., & Sirmon, D.G. (2014a). Socioemotional Wealth as a Mixed Gamble: Revisiting Family Firm R&D Investments With the Behavioral Agency Model. *Entrepreneurship: Theory and Practice*, *38*(6), 1351–1374.
Gómez-Mejia, L.R., Cruz, C., & Imperatore, C. (2014b). Financial Reporting and the Protection of Socioemotional Wealth in Family-Controlled Firms. *European Accounting Review*, *23*(3), 387–402.
Gómez-Mejia, L.R., Haynes, K.T., Núñez Nickel, M., Jacobson, K.J.L., & Moyano Fuentes, J. (2007). Socioemotional Wealth and Business Risks in Family-controlled Firms: Evidence from Spanish Olive Oil Mills. *Administrative Science Quarterly*, *52*(1), 106–137.
Goyal, K., & Kumar, S. (2020). Financial literacy: A systematic review and bibliometric analysis. I*nternational Journal of Consumer Studies*, *45,* 80-105.
Greenspan, A. (2002). Financial literacy: A tool for economic progress. *The Futurist*, *36*(4), 37–41.
Habbershon, T.G., Williams, M., & MacMillan, I.C. (2003). A unified systems perspective of family firm performance. *Journal of Business Venturing*, *18*(4), 451–465.
Hair, J.F., Anderson, R.E., Tatham, R.L., & Black, W.C. (1999). *Analisis Multivariante*. Madrid: Prentice Hall.
Halabi, A., Barrett, R., & Dyt, R. (2010). Understanding Financial Information Used to Assess Small Firm Performance: An Australian Qualitative Study. *Qualitative Research in Accounting & Management*, *7*(2), 163–179.
Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of management review*, *9*(2), 193-206.
Hiebl, M. R. (2014). Upper echelons theory in management accounting and control research. *Journal of Management Control*, 24(3), 223-240.
Huston, S. J. (2010). Measuring Financial Literacy. *Journal of Consumer Affairs*, *44*(2), 296–316.
Kellermanns, FW., Eddleston, K., Barnett, T., Pearson, A.W. (2008). An Exploratory Study of Family Member Characteristics and Involvement: Effects on Entrepreneurial Behavior in the Family Firm. *Family Business Review*, 21 (1), 1-14,
Koropp, C., Grichnik, D., & Kellermanns, F. (2013). Financial attitudes in family firms: The moderating role of family commitment. *Journal of Small Business Management*, *51*(1), 114-

137.
Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of Personality & Social Psychology*, 77(6), 1121–1134.
Laffranchini, G., Hadjimarcou, J. S., & Kim, S. H. (2020). The Impact of Socioemotional Wealth on Decline-Stemming Strategies of Family Firms. *Entrepreneurship Theory and Practice*, *44*(2), 185-210.
Le Breton-Miller, I., & Miller, D. (2008). To grow or to harvest? Governance, strategy and performance in family and lone founder firms. *Journal of Strategy and Management*, *1*(1), 41–56.
Lin, S., & Hu, S. (2007). A family member or professional management? The choice of a CEO and its impact on performance. *Corporate Governance: An International Review*, *15*(6), 1348–1362.
Liu, B., Wang, J., Chan, K. C., & Fung, A. (2021). The impact of entrepreneurs's financial literacy on innovation within small and medium-sized enterprises. *International Small Business Journal*, 39(3), 228-246.
Lubatkin, M. H., Schulze, W. S., Ling, Y., & Dino, R. N. (2005). The Effects of Parental Altruism on the Governance of Family-Managed Firms. *Journal of Organizational Behavior, 26*(3), 313–330
Lusardi, A, & Mitchell, O. (2011). Financial Literacy and Planning: Implications for Retirement Wellbeing. In *Financial Literacy: Implications for Retirement Security and the Financial Marketplace, Oxford University Press.*
Martínez-Alonso, R., Martínez-Romero, M.J., & Rojo-Ramírez, A.A. (2020). The impact of technological innovation efficiency on firm growth: the moderating role of family involvement in management. *European Journal of Innovation Management*, *23*(1), 134–155.
McKelvie, A., & Wiklund, J. (2010). Advancing firm growth research: A focus on growth mode instead of growth rate. *Entrepreneurship Theory and Practice*, *34*(2), 261–288.
Meier, S., & Sprenger, C.D. (2013). Discounting financial literacy: Time preferences and participation in financial education programs. *Journal of Economic Behavior and Organization*, *95*, 159–174.
Miller, D. and Droge, C. (1986). Psychological and traditional determinants of stucture. *Administrative Science Quarterly*, *31*, 539-60.
Miller, D., & Le Breton-Miller, I. (2006). Family governance and firm performance: Agency, stewardship, and capabilities. *Family Business Review, 19(1)*, 73–87.
Molina-García, A., Florido-Ruiz, B., Campos Valenzuela, M., & Diéguez-Soto, J. (2020). The effect of family ownership and generation on financial literacy. *Small Business International Review*, *4*(1), 1-15.
Musie, L. (2016). *The use of financial literacy concepts by entrepreneurs in the small and medium enterprise sector in Mpumalanga Province, South Africa*. (November), 1–95.
Nordqvist, M., Habbershon, T.G. and, & Melin, L. (2008). Transgenerational entrepreneurship: Exploring entrepreneurial orientation in family firms. In *Entrepreneurship, sustainable growth and performance. Frontiers in European entrepreneurship research* (pp. 93–116).
Olson, P.D., Zuiker, V.S., Danes, S.M., Stafford, K., Heck, R.K.Z., & Duncan, K.A. (2003). The impact of the family and the business on family sustainability. *Journal of Business Venturing*, *18*(4), 369–666.
Payne, G.T. (2018). Reflections on Family Business Research: Considering Domains and Theory. *Family Business Review*, *31*(2), 167–175.
Penrose, E., 1959. The Theory of the Growth of the Firm. John Wiley, Nueva York.
Pittino, D., Chirico, F., Henssen, B., & Broekaert, W. (2020). Does Increased Generational Involvement Foster Business Growth ? The Moderating Roles of Family Involvement in Ownership and Management. European Management Review, 17(3), 785-801.
Rubio-Bañón, A., & Aragón-Sánchez, A. (2009). Recursos críticos y estrategia en la pyme industrial. Tribuna de Economía 846, 193-212.
Schulze, W.S., Lubatkin, M.H., Dino, R.N. and Buchholtz, A.K. (2001). Agency relationships in

family firms: theory and evidence. *Organization Science*, *12 (2),* 99-116.
Schulze, W. S., Lubatkin, M. H., & Dino, R. N. (2003). Exploring the Agency Consequences of Ownership Dispersion Among the Directors of Private Family Firms. *Academy of Management Journal*, *46*(2), 179–194.
Sharma, P., Chrisman, J. J., Chua, J. H., & Steier, L. P. (2020). Family Firm Behavior From a Psychological Perspective. *Entrepreneurship Theory and Practice*, *44*(1), 3–19.
Shepherd, D., & Wiklund, J. (2009). Are we comparing apples with apples or apples with oranges? Appropriateness of knowledge accumulation across growth studies. *Entrepreneurship Theory and Practice*, *33*(1), 105–123.
Sonfield, M., & Lussier, R. (2004). First-, second-, and third- generation family firms: A comparison. *Family Business Review*, *17*(3), 189–202.
Spinelli, S., Timmons, J. A., & Adams, R. J. (2011). *New venture creation: Entrepreneurship for the 21st century* (9th ed.). New York: McGraw-Hill Education.
Stango, V., & Zinman, J. (2009). What do consumers really pay on their checking and credit card accounts? Explicit, implicit, and avoidable costs. *American Economic Review*, *99*(2), 424–429.
Stefanitsis, M., Fafaliou, I., & Hassid, J. (2013). Does Financial Knowledge in Small- and Medium-Sized Enterprises Matter? An Empirical Survey for Greece. *International Journal of Economics and Business Research*, *5(1)*, 96-113.
Stenholm, P., Pukkinen, T., & Heinonen, J. (2016). Firm Growth in Family Businesses-The Role of Entrepreneurial Orientation and the Entrepreneurial Activity. *Journal of Small Business Management*, *54*(2), 697–713.
Stockmans, A., Lybaert, N., & Voordeckers, W. (2010). Socioemotional wealth and earnings management in private family firms. *Family Business Review, 23(3)*, 193–215.
Tian, G., Zhou, S., & Hsu, S. (2020). Executive financial literacy and firm innovation in China. *Pacific-Basin Finance Journal*, *62*, 101348.
Vaccaro, I. G., Jansen, J. J. P., Van Den Bosch, F. A. J., & Volberda, H. (2012). Management innovation and leadership: the moderating role of organizational size. Journal of Management Studies, 49(1), 28-51.
Van den Berghe, L., & Carchon, S. (2002). Corporate governance practices in Flemish family businesses. *Corporate Governance: An International Review, 10,* 225–245.
van Rooij, M., Lusardi, A., & Alessie, R. (2011). Financial literacy and stock market participation. *Journal of Financial Economics*, *101*(2), 449–472.
Vandekerkhof, P., Steijvers, T., Hendriks, W., & Voordeckers, W. (2015). The effect of organizational characteristics on the appointment of nonfamily managers in private fam- ily firms: The moderating role of socioemotional wealth. *Family Business Review*, *28*(2), 104–122.
von Gaudecker, H.-M. (2015). How does household portfolio diversification vary with financial literacy and financial advice? *The Journal of Finance, 70(2)*, 489–507.
Waldman, D. A., Javidan, M., & Varella, P. (2004). Charismatic leadership at the strategic level: A new application of upper echelons theory. *The Leadership Quarterly*, 15(3), 355-380.
Westhead P, Howorth C. (2006). Ownership and Management Issues Associated With Family Firm Performance and Company Objectives. *Family Business Review*, 19(4), 301-316.
Winzimmer, L., Nystrom, P. C., & Freeman, S. J. (1998). Measuring organizational growth: issues, consequences and guidelines. *Journal of Management*, *24*, 235–262.
Xu, N., Shi, J., Rong, Z., & Yuan, Y. (2020). Financial literacy and formal credit accessibility: Evidence from informal businesses in China. *Finance Research Letters*, *36*, 101327.
Ye, J., & Kulathunga, K. (2019). How Does Financial Literacy Promote Sustainability in SMEs? A Developing Country Perspective. *Sustainability*, *11*(10), 2990.
Yip, P. S. L., & Tsang, E. W. K. (2007). Interpreting dummy variables and their interaction effects in strategy research. *Strategic Organization*, *5*(1), 13–30.
Zellweger, T. M. (2017). Managing the family business. Theory and practice. Edward Elgar