



Entrepreneurship and risk-taking in a post-disaster scenario

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Abstract

Family firms' risk-taking behaviour is central to these firms' ability to recover from major losses after a natural disaster. Natural disasters pose a threat to family firms' continuity, a primary goal for this type of firm. Accordingly, it is necessary to understand how socioemotional wealth importance and entrepreneurial orientation interact to influence family firms' ownership risk, performance hazard risk and control risk in a post-disaster scenario. Using a sample of family firms from the Bio-Bío region in Chile, which was devastated by a massive earthquake in 2010, we performed partial least squares structural equation modelling (PLS-SEM) and fuzzy-set qualitative comparative analysis (fsQCA). The PLS-SEM results partially support our hypotheses. The fsQCA results provide three, six and seven causal configurations that explain 34%, 67% and 72% of ownership risk, performance hazard risk and control risk, respectively. This article shows that the interaction between socioemotional wealth importance and entrepreneurial orientation is important to explain risk-taking behaviour by family firms in a post-disaster scenario.

Keywords Socioemotional wealth importance · Entrepreneurial orientation · Small and medium-sized family enterprises · Risk-taking by family firms · Natural disasters

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Introduction

Understanding risk-taking behaviour by family firms in a post-disaster scenario is important for several reasons. Family enterprises are the most common type of business structure in the world. They are prevalent amongst large, medium-sized, and small enterprises (Poza and Dauquerty 2014; Zellweger 2017). Accordingly, they are central to the economy in all regions; therefore, following a natural disaster, they become a key component of the local community's resilience (Basco 2015; Huarng 2018). Risk-taking is considered a key driver of firms' competitive advantage and superior performance (Hoskisson et al. 2016; Banalieva et al. 2018). It is also central to firms' entrepreneurial orientation. Therefore, it may be a critical factor in explaining a firm's ability to use resources efficiently to recover long-term competitiveness in the wake of a natural disaster (Yunis et al. 2017; Benavides-Espinosa and Roig-Dobón 2011). As natural disasters become more frequent and severe (Linnenluecke and McKnight 2017), understanding the drivers of firms' recovery becomes ever more important.

According to the framework resulting from the socioemotional wealth perspective of the family firm, a post-disaster scenario offers an interesting setting in which to analyse these firms' risk-taking behaviour. The family firm literature based on the socioemotional wealth perspective indicates that scenarios where a firm's continuity is under threat (e.g. when a natural disaster hits) affect the firm's normal propensity to take risks (Gomez-Mejia et al. 2007). The evidence implies that firms become less risk-averse and more risk-willing when their continuity is threatened (e.g. Patel and Chrisman 2014). But risk can take several forms, including ownership risk, performance hazard risk, and control risk (Zellweger and Sieger 2012). These forms of risk are conceptually different, and little is known about what explains the willingness of family enterprises to take each kind of risk.

Recent research based on this perspective converges on the idea that these firms are interested in not only maximising economic wealth but also preserving socioemotional wealth (Gomez-Mejia et al. 2018). Studies have shown that family businesses need to solve the mixed gamble of assessing gains and losses of financial and non-financial wealth before making a strategic decision (Cruz and Justo 2017). Accordingly, family firms' risk-taking behaviour in a post-disaster scenario is expected to be determined by factors that influence owners' assessments of financial and non-financial wealth. The results of prior research indicate that socioemotional wealth importance and entrepreneurial orientation influence owners' assessments of financial and non-financial wealth (Yunis et al. 2017; Llanos-Contreras and Alonso-Dos-Santos 2018). Accordingly, this paper answers the question of how socioemotional wealth importance and entrepreneurial orientation interact to influence family firms' ownership risk, performance hazard risk and control risk in a post-disaster scenario.

This article examines the influence of socioemotional wealth importance and entrepreneurial orientation on the decision-making and risk-taking of family firms in a post-disaster scenario. The article offers a comparative analysis by contrasting the results from partial least squares structural equation modelling (PLS-SEM) with those yielded by fuzzy-set qualitative comparative analysis (fsQCA). We gathered data for a sample of small and medium-sized family enterprises from the Bío-Bío region in Chile, which suffered the sixth strongest earthquake in world history. Using these data, we make the following three contributions. First, we enrich the scarce literature on small and

medium-sized family enterprises' risk management in a post-disaster scenario (Marshall et al. 2015). We provide further insight into the role of socioemotional wealth in family firms' risk-taking when business continuity is threatened and when there is a risk of total loss of this non-financial wealth (Arrondo-Garcia et al. 2016; Llanos-Contreras and Jabri 2019). Finally, we contribute by approaching the problem using two different methodologies: fsQCA and PLS-SEM. This dual approach allows us to determine different causal combinations of socioemotional and entrepreneurial orientation variables that lead to the three types of risk studied (Llanos-Contreras and Alonso-Dos-Santos 2018).

The article is organised into several sections. The next section provides a theoretical discussion to support the research hypotheses. The methods and analysis are presented in the third section, followed by a discussion of results in the fourth section. Finally, conclusions, limitations and implications are presented.

Hypotheses and antecedents

Risk-taking by family firms when continuity is threatened

The prevailing view based on rational economic principles is that family firms are more risk-averse than their non-family counterparts (La Porta et al. 1999; Morck and Yeung 2003). However, research based on behavioural economics has empirically shown that family firms' risk willingness or risk aversion depends on the scenario and the way in which each scenario might threaten these firms' priority of preserving socioemotional wealth (Gomez-Mejia et al. 2007). The implication is that conditions such as poor business performance, organisational decline or external shocks that threaten a family firm's continuity increase the firm's willingness to take risks. Like Gomez-Mejia et al. (2014), Patel and Chrisman (2014) provide evidence to support this assertion. Their analysis of 847 firms over 10 years showed that when family businesses outperform expectations, they are more willing to engage in (less risky) exploitative Research and Development (R&D) investment; however, when they underperform expectations, they are more willing to engage in explorative R&D investment, which involves making riskier investments (Cyert and March 1963). Chrisman and Patel (2012) likewise observed that family enterprises tend to invest less in R&D than their non-family counterparts do. However, when performance is below expectations, family firms' R&D investment tends to increase, indicating a greater willingness to take risk. Llanos-Contreras and Jabri (2019) conducted a single case study of a medium-sized family firm and observed that the level of threat to the firm's continuity was a key driver of the willingness to develop riskier strategies to stymie the organisational decline that threatened continuity.

Risk-taking in family businesses has been assessed using different, sometimes inconsistent, definitions of risk. For example, risk-taking has been linked to potential negative consequences in terms of organisational failure and firm survival (performance hazard) (March and Shapira 1987). It has also been understood as the likelihood of failing to meet performance targets or expectations (venturing risk) (Cyert and March 1963). Other scholars have defined risk in terms of the family's dependence on the business's cash flow (ownership risk) (Martin and Lumpkin 2003) and the

family's risk of losing control over the business because of mounting debt, the hiring of non-family owners, and the hiring of non-family professionals in strategic positions (control risk) (Mishra and McConaughy 1999).

The cited literature confirms family firms' willingness to take risks when continuity is under threat. Studies have primarily focused on actions that could be linked to performance hazards and venturing risk (e.g. Gomez-Mejia et al. 2007; Patel and Chrisman 2014). However, the literature offers scarce insight into ownership risk or control risk. In post-disaster scenarios, family businesses are unlikely to be overly concerned with venturing risk because the consequences of the disaster are expected to lead them to focus on continuity. Instead, decisions made to avoid the firm's demise can have important consequences for performance hazards (by implementing innovative projects to adapt to the new conditions), ownership risk (by committing all family resources to keep the business afloat), and control risk (by hiring new partners to keep the business running).

Recent research has indicated that family business decisions are based on the mixed gamble of assessing gains and losses of financial and non-financial wealth (Cruz and Justo 2017; Gomez-Mejia et al. 2018). The assessment of non-financial wealth and, accordingly, the assessment of this mixed gamble are biased not only by the risk to the firm's continuity at the moment when the decision is made but also by the owners' socioemotional wealth attachment (Llanos-Contreras and Jabri 2019). Thus, in post-disaster scenarios, a high level of socioemotional wealth attachment (i.e. high socioemotional wealth importance) should increase family firms' willingness to accept ownership risk and performance hazard risk because doing so will increase the chances of keeping the business afloat and, in turn, enhance the non-financial component of the mixed gamble assessment. However, such firms would do everything in their power to avoid taking actions to increase control risk because increasing debt, hiring non-family owners, or hiring non-family managers would destroy socioemotional wealth. Therefore, such actions would have to be offset by the expected financial benefit they would bring. This argument leads to the following hypothesis:

H1: Socioemotional wealth importance has a positive influence on ownership risk and performance hazard risk and a negative influence on control risk in small and medium-sized family enterprises in post-disaster scenarios.

Using resources and entrepreneurial orientation to explain family businesses risk-taking in a post-disaster scenario

The findings of recent research on socioemotional wealth indicate that family businesses are willing to continue operating despite minimal financial rewards and poor organisational conditions (Glover and Reay 2015). Family owners are thus able to preserve socioemotional wealth. However, despite the family owners' desire to keep the business afloat, the actions taken to avoid its demise depend on the assessment of financial and non-financial gains and losses as a result of the owners' decisions (Gomez-Mejia et al. 2014). More specifically, research on SMEs' post-disaster survival has shown that the probability of successfully implementing actions to avoid the demise of the business depends on experience and capabilities in managing adverse

scenarios (Marshall et al. 2015; Stafford et al. 2013). The probability of successfully implementing actions to avoid the demise of the business also depends on entrepreneurial orientation factors that determine the firm's ability to correctly use available resources and capabilities (Yunis et al. 2017). More specifically, entrepreneurial orientation factors are even more important when firms face external disruptions such as natural disasters because standard procedures and routines do not work as expected (Hadida et al. 2015). Thus, whilst socioemotional wealth importance is critical when assessing non-economic wealth, firms' capabilities and entrepreneurial orientation factors are important in determining firms' likelihood of achieving projected cash flows and surviving. Accordingly, these factors are critical in the assessment of both sides of the mixed gamble. According to Covin and Wales (2012), entrepreneurial orientation exists regardless of how it is measured. Therefore, researchers can use whichever approach best meets the research purpose (Goldsby et al. 2018; Markin et al. 2017). We consider that proactiveness, competitive aggressiveness, innovativeness and internal autonomy should enhance expected financial and non-financial returns. Accordingly, a greater level of entrepreneurial orientation in any of these dimensions should increase these firms' willingness to accept all forms of risk that were defined previously by Covin and Wales (2012). This argument leads to the following hypothesis:

H2: Proactiveness, competitive aggressiveness, innovativeness and internal autonomy have a positive influence on ownership risk, performance hazard risk and control risk in small and medium-sized family enterprises in post-disaster scenarios. (Fig. 1)

Method

Sample

Data were gathered from a sample of 401 family firms affected by an earthquake in the city of Concepción, Chile. Cases with missing values were eliminated from the dataset using listwise deletion. Cases with anomalies were eliminated using the Mahalanobis distance (1936). The final sample comprised 288 firms. Quota sampling was used. Probabilistic sampling was not possible because there was no census of firms affected by the earthquake. The quotas were determined as a function of the size of the geographical regions affected by the earthquake. The data were collected in November 2017. In 80% of the firms in the dataset, less than 80% of ownership was under the control of the main owner. The percentage of one-generation firms was 46%, and the percentage of two-generation firms was 43%. The most heavily represented sector was hospitality, with approximately 10%. This high percentage is because the restaurants located along the coast, a popular tourist region, were heavily affected.

Scales

The scales were adapted and translated to Spanish. All scales used 5-point Likert scales. We first adapted the scales to the local context in Spanish. A group of scholars and local business owners then checked the content validity and meaning of the scales. The scale for

socioemotional wealth importance was borrowed from Debicki et al. (2016). This scale consisted of three subscales: family prominence (Recognition of the family in the domestic community for generous actions of the firm; Accumulation and conservation of social capital; Maintenance of family reputation through the business), family continuity (Maintaining the unity of the family; Preservation of family dynasty in the business; Maintaining our family values through the operation of our business) and family enrichment (Happiness of family members outside the business; Enhancing family harmony through operating the business; Consideration of the needs of our family in our business decisions). The scales for external innovative capacity (Our company has been a pioneer in introducing new products-services that did not exist in the market; Our company has entered into new markets), proactiveness (We have initiated projects anticipating future events; We have made systematic changes in our business; We were capable of anticipating the challenges and opportunities generated by this event), internal autonomy (We have counted on leaders in the company who have moved the business forward; We have counted on teams inside the company that know how to do their job; Together we have improved our company day by day) and, competitive aggressiveness (We follow our strategy even if it damages our competitors; We face our competitors directly; We seek to displace our competitors to be the most important company) were borrowed from Zellweger and Sieger (2012). From Zellweger and Sieger we also adapted the scales of ownership risk (All/A great part of the resources of our family are invested in the company; Our family has not diversified its investments; Our economic wellbeing depends on the correct functioning of the company), performance hazard risk (We assume the necessary risks to move our projects forward; We develop our projects even when they place the continuity of our company at risk; We have been prepared to play all or nothing in each project) and, control risk (Our company has increased its levels of debt; Our company has incorporated new non-family partners; Our company has incorporated non-family managers in decision making). All of these scales had three items, except external innovativeness, which had two.

Instruments and data analysis techniques

The analysis procedure consisted of two steps. First, we validated the scales and tested the hypotheses using PLS-SEM in SmartPLS (Ringle et al. 2015). PLS uses a sequence of regressions to identify symmetrical relationships. It is recommended when the goal is to identify the role of key variables in certain behaviour or to build new theories in areas where existing knowledge is scarce (Hair et al. 2011). We checked the ability of the scales to measure behaviour without random error (i.e. reliability). We also checked the degree of error in measuring actual behaviour (validity). The following reliability indicators were used: correlations between items and their respective variables (ρ_A), Cronbach's α and the composite reliability index (CR). The following validity indicators were used: average variance extracted (AVE), Fornell-Larcker criterion and the heterotrait-monotrait ratio (HTMT) (Henseler et al. 2015). Second, we performed non-linear analysis using fsQCA (Ragin 2008; Palacios-Marques et al. 2017). This allowed us to identify complex patterns of causal conditions that lead to the outcome of interest, despite studying a limited number of cases (Woodside 2013). The fsQCA method has three defining properties. The first, asymmetry, implies that the opposite outcome is not necessarily caused by the same conditions. The second, equity, means that more than one condition can lead to the same outcome. The third, complex causality, means that

the outcome can be reached through a combination of conditions. These three properties mean that fsQCA is not susceptible to the same symmetry-based limitations that affect PLS in terms of the number or nature of the effects that can be derived from regression analysis. Furthermore, fsQCA is not limited to the same extent by the number of cases in the dataset.

FsQCA calibration

Calibration was performed following the recommendations outlined by Ragin (2008) and Villanueva et al. (2017). This process consists of multiplying the scores of the items and then recalibrating the variable using three anchors: the 5th, 50th and 95th percentiles (Alonso Dos Santos et al. 2016; Woodside 2013). The aim was to transform the data from the questionnaires into fuzzy-set variables. Table 1 shows the calibration values and the key statistics for the variables.

Results

PLS-SEM results

We first examined the validity and reliability of the measurement scales. Table 2 shows that the reliability indicators met the requirements established in the scientific literature ($CR > 0.8$, Cronbach's $\alpha > 0.7$, $\rho_A > 0.5$, and significant correlation coefficients) (Hair et al. 2011; Henseler et al. 2016). Likewise, the validity indicators (AVE) were greater than 0.5.

The coefficients in Table 3 for the HTMT ($HTMT < 1$), the cross-loadings and the Fornell-Larcker criterion provide evidence of discriminant validity. These results thus confirm that the variables are independent from one another, regardless of the measurement system used.

Table 1 Descriptive analysis and calibration values

	CompAggr	ConRisk	ExtInnov	IntAuton	OwnRisk	PerHRisk	Proactiv	SEWi
N Valid	288	288	288	288	288	288	288	288
N missing	0	0	0	0	0	0	0	0
Mean	34.2	9.83	10.5	64	53.0	49.8	37.1	912.184
SD	40.1	20.8	8.95	47.1	45.1	45.8	39.5	744.861
Min	1	1	1	1	1	1	1	128
Max	125	125	25	125	125	125	125	1.953.125
Calibration values								
Percentile 5	1	1	1	3	3.45	1	1	9287
Median	17	3	8	64	28.5	25	24.5	750,000
Percentile 95	125	60	25	125	125	125	125	1,953,125

Proactiv – proactiveness; IntAuton – internal autonomy; ExtInnov – external innovativeness; CompAggr – competitive aggressiveness; ConRisk – control risk; OwnRisk – ownership risk; PerHRisk – performance hazard risk; SEWi – socioemotional wealth importance

Table 2 Evaluation of the model

Construct	R ²	Q ²	CR	rho_A	AVE	λ
CompAggr			0.875	0.785	0.699	0.818–0.854*
ExtInnov			0.859	0.799	0.551	0.624–0.817*
IntAuton			0.825	0.711	0.614	0.687–0.874*
Proactiv			0.841	0.769	0.638	0.769–0.886*
SEWi			0.862	0.816	0.511	0.622–0.786*
ConRisk	0.186	0.115	0.881	0.787	0.787	0.851–0.923*
OwnRisk	0.132	0.063	0.826	0.631	0.705	0.784–0.892*
PerHRisk	0.296	0.167	0.842	0.726	0.641	0.753–0.858*

Proactiv – proactiveness; IntAuton – internal autonomy; ExtInnov – external innovativeness; CompAggr – competitive aggressiveness; ConRisk – control risk; OwnRisk – ownership risk; PerHRisk – performance hazard risk; SEWi – socioemotional wealth importance; * $p < .05$

The model had a suitable predictive capacity ($R^2 = 0.186; 0.132; 0.296$), predictive relevance ($Q^2 > 0$, blindfolding procedure, omission distance = 7) and fit (standardised root mean square residual = 0.069). Figure 2 shows the significance of the path coefficients. Only four of our relationships are not supported by the data. The results imply that competitive aggressiveness does not influence ownership risk, internal autonomy does not influence ownership risk or control risk and proactiveness does not influence ownership risk.

FsQCA results

Table 4 shows the results of the analysis of necessary conditions for the three risk variables, all consistency values were less than 0.9 (Ragin 2008), which implies that no variable is necessary for the presence or absence of the outcome (Villanueva et al. 2017).

Table 5 shows the sufficient conditions for each outcome variable used in the study. The three risk models are informative because the consistency cut-off was greater than

Table 3 Discriminant validity

	CompAggr	ConRisk	ExtInnov	IntAuton	OwnRisk	PerHRisk	Proactiv	SEWi
CompAggr	0.836	0.277	0.229	0.237	0.173	0.320	0.290	0.088
ConRisk	0.214	0.887	0.368	0.195	0.181	0.167	0.424	0.216
ExtInnov	0.170	0.292	0.742	0.526	0.382	0.588	0.799	0.179
IntAuton	0.170	0.130	0.392	0.783	0.315	0.472	0.430	0.309
OwnRisk	0.124	-0.110	0.269	0.210	0.840	0.422	0.278	0.356
PerHRisk	0.236	0.098	0.445	0.335	0.274	0.800	0.543	0.313
Proactiv	0.214	0.308	0.611	0.307	0.194	0.405	0.799	0.175
SEWi	-0.050	-0.176	0.138	0.234	0.252	0.249	0.123	0.715

Heterotrait-monotrait ratio (HTMT) above the diagonal; square root of the AVE on the diagonal (bold); correlations between the dimensions below the diagonal (Fornell-Larcker criterion); Proactiv – proactiveness; IntAuton – internal autonomy; ExtInnov – external innovativeness; CompAggr – competitive aggressiveness; ConRisk – control risk; OwnRisk – ownership risk; PerHRisk – performance hazard risk; SEWi – socioemotional wealth importance

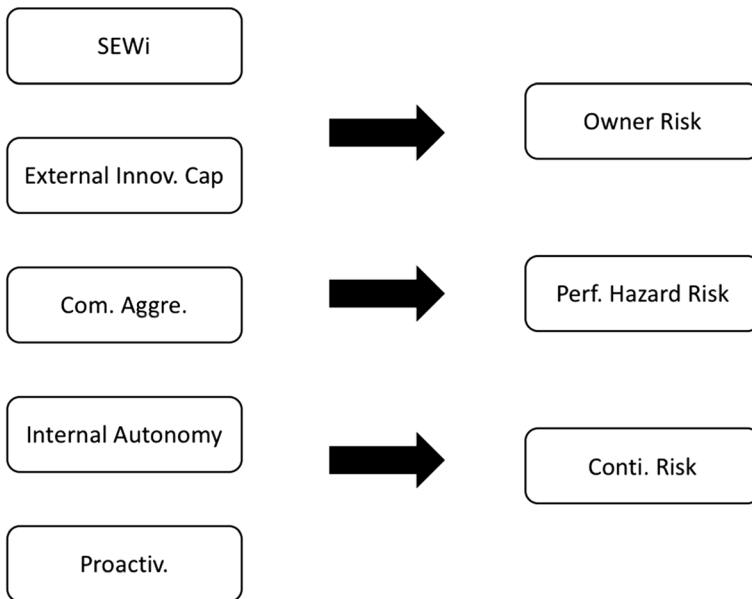


Fig. 1 *Conceptual model.* Note: Proactiv – proactiveness; IntAuton – internal autonomy; ExtInnov – external innovativeness; CompAggr – competitive aggressiveness; ConRisk – control risk; OwnRisk – ownership risk; PerHRisk – performance hazard risk; SEWi – socioemotional wealth importance

0.8 (model reliability) (Ragin 2008), and the solution consistency scores (denoting the number of observations explained by a combination of conditions) were also all greater than 0.8. The three models of control risk, performance hazard risk and ownership risk explain 72%, 67% and 34% of cases through seven, six and three causal conditions, respectively. All variables are present in the solutions.

In terms of raw coverage, the two most important sufficient combinations for the control risk outcome were high socioemotional wealth importance, low proactiveness and low external innovativeness (raw coverage = 0.353; consistency = 0.829) and high internal autonomy, proactiveness and external innovativeness (raw coverage = 0.341; consistency = 0.904). The two most important configurations for performance hazard risk were high external innovativeness and socioemotional wealth importance (raw coverage = 0.456; consistency = 0.855) and high competitive aggressiveness and external innovativeness (raw coverage = 0.391; consistency = 0.879). For ownership risk, the two most important sufficient combinations were high competitive aggressiveness, external innovativeness and socioemotional wealth importance and low proactiveness (raw coverage = 0.253; consistency = 0.848) and high competitive aggressiveness, proactiveness and socioemotional wealth importance and low external innovativeness (raw coverage = 0.236; consistency = 0.865).

Discussion

The goal of this study was to examine the influence of socioemotional wealth importance and entrepreneurial orientation on family business ownership risk, performance hazard risk and control risk in a post-disaster scenario. The PLS-SEM model supports

		Path	f^2	Support
SEWi	Owner Risk →	0.213	0.049	Yes
	Perf. Haz. Risk →	0.174	0.04	Yes
	Contr. Risk →	-0.225	0.058	Yes
External Innov.	Owner Risk →	0.191	0.024	Yes
	Perf. Haz. Risk →	0.248	0.051	Yes
	Contr. Risk →	0.169	0.02	Yes
Com. Aggre.	Owner Risk →	0.088	0.008	No
	Perf. Haz. Risk →	0.147	0.029	Yes
	Contr. Risk →	0.126	0.018	Yes
Internal Autonomy	Owner Risk →	0.066	0.004	No
	Perf. Haz. Risk →	0.122	0.017	Yes
	Contr. Risk →	0.036	0.001	No
Proactiv.	Owner Risk →	0.011	0.000	No
	Perf. Haz. Risk →	0.162	0.023	Yes
	Contr. Risk →	0.194	0.028	Yes

Fig. 2 PLS structural model results. Note: Proactiv – proactiveness; IntAuton – internal autonomy; ExtInnov – external innovativeness; CompAggr – competitive aggressiveness; ConRisk – control risk; OwnRisk – ownership risk; PerHRisk – performance hazard risk; SEWi – socioemotional wealth importance

the first hypothesis, which posits that socioemotional wealth importance positively influences ownership risk and performance hazard risk but negatively influences control risk in a post-disaster scenario. This finding is consistent with research by Gomez-Mejia et al. (2007) and Patel and Chrisman (2014), who affirm that greater priority in preserving socioemotional wealth makes family firms more willing to take actions that increase their performance hazard risk in situations where their continuity is threatened. Similarly, this study advances our understanding of the influence of socioemotional wealth importance on ownership risk and control risk when the continuity of family firms is threatened. To the best of our knowledge, the relationships between these variables have not been studied in this type of context. Overall, the results of our study indicate that family firms engage in the mixed gamble assessment of gains and losses of economic wealth and socioemotional wealth (Gomez-Mejia et al. 2018). Our findings support those of previous studies, which have shown that actions that increase ownership risk and performance hazard risk are highly valued in family firms because they increase the likelihood of survival, reducing the threat of total

Table 4 Necessary conditions from fsQCA for the occurrence of control risk, ownership risk and performance hazard risk

	ConRisk		OwnRisk		PerHRisk	
	Consistency	Coverage	Consistency	Coverage	Consistency	Coverage
CompAggr	.753	.382	.579	.564	.598	.729
~CompAggr	.655	.248	.647	.471	.631	.574
SEWi	.627	.276	.677	.572	.666	.705
~SEWi	.740	.317	.534	.439	.533	.548
ExtInnov	.717	.371	.597	.593	.611	.758
~ExtInnov	.641	.239	.621	.446	.587	.528
IntAuton	.779	.326	.661	.531	.699	.703
~IntAuton	.596	.269	.565	.479	.504	.535
Proactiv	.773	.389	.599	.578	.639	.772
~Proactiv	.633	.242	.644	.472	.606	.556

Proactiv – proactiveness; IntAuton – internal autonomy; ExtInnov – external innovativeness; CompAggr – competitive aggressiveness; ConRisk – control risk; OwnRisk – ownership risk; PerHRisk – performance hazard risk; SEWi – socioemotional wealth importance

socioemotional wealth loss that these firms would otherwise face in such a scenario (e.g. Gomez-Mejia et al. 2011). However, our findings also indicate that firms prefer to avoid actions that increase control risk, lending credence to the idea that economic and non-economic profits resulting from a higher likelihood of survival do not outweigh the socioemotional costs resulting from a higher likelihood of relinquishing control of the firm to non-family members (Gomez-Mejia et al. 2010; Cruz and Justo 2017).

The PLS-SEM only provided partial support for the second hypothesis, which posits that the entrepreneurial orientation variables proactiveness, external innovativeness, competitive aggressiveness and internal autonomy positively influence willingness to take the three types of risk discussed in this paper. These findings lend additional (albeit partial) support to the idea that factors of entrepreneurial orientation are critical in the evaluation of financial flows when family business owners assess the mixed gamble (Gomez-Mejia et al. 2018; Criado-Gomis et al. 2018). They are also in line with recent research highlighting the importance of an entrepreneurial culture, and strategies developed from this culture, play on family firms' performance (Garcés-Galdeano et al. 2016; Leal-Rodríguez et al. 2017; Mahto et al. 2018). The PLS-SEM analysis partially confirms the intuition that in a post-disaster scenario, greater proactiveness, external innovativeness, competitive aggressiveness and internal autonomy lead family firms to take greater ownership risk, performance hazard risk and control risk because doing so would boost the expected financial and non-financial returns of the business (Cruz and Justo 2017). The findings also partially confirm the importance of these entrepreneurial orientation factors in defining the willingness of family firms to adapt and efficiently use their resources in a scenario where procedures and routines do not work as well as they could typically be expected to (Yunis et al. 2017; Hadida et al. 2015). It is also in line with research indicting the positive influence of resources and capabilities on taking risk anticipating the market and behaving entrepreneurially (Olugbola 2017; Roig-Dobón and Ribeiro-Soriano 2008; Rita et al. 2018).

Table 5 FsQCA results

Configuration	Solution															
	ConRisk							PerHRisk						OwnRisk		
	1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3
CompAggr			•	⊗	•	⊗	⊗	•		•			•	•	•	•
Proactiv	⊗	•		⊗	•	•	•			•	•	⊗	•	⊗	⊗	•
ExtInnov	⊗	•	⊗	⊗	⊗	•		•	•			•		•	•	⊗
IntAuton		•	⊗	•			•			⊗	⊗	•		⊗		
SEWi	•		⊗		⊗	•	•		•		•		•		•	•
Raw coverage	.353	.341	.231	.291	.242	.248	.251	.391	.456	.266	.266	.296	.308	.215	.253	.236
Unique coverage	.081	.088	.033	.031	.017	.026	.012	.039	.068	.029	.016	.016	.031	.022	.061	.066
Consistency	.829	.904	.936	.901	.952	.924	.944	.879	.855	.879	.869	.915	.901	.867	.848	.865
Overall Solution consistency	.809							.818						.805		
Overall Solution coverage	.725							.673						.342		
Consistency cut-off	.908							.899						.867		

Proactiv – proactiveness; IntAuton – internal autonomy; ExtInnov – external innovativeness; CompAggr – competitive aggressiveness; ConRisk – control risk; OwnRisk – ownership risk; PerHRisk – performance hazard risk; SEWi – socioemotional wealth importance

Expected vector for ConRisk: 1,1,1,1,1; for PerHRisk: 1,1,1,1,1; for OwnRisk: 1,1,1,1,1 (0: absent; 1: present) using format (Fiss 2011)

• = presence of condition, ⊗ = absence of condition

The fsQCA yielded three to seven models of sufficient conditions that explain risk-taking by family firms in a post-disaster scenario. For all three models, the variation in the risk exceeded 34% (Woodside 2014), whereas the R^2 for the PLS-SEM model was 0.296. These results suggest that the explanatory capacity of the fsQCA models is greater in this particular case. The analysis of the fsQCA models that explain the influence of socioemotional wealth importance and entrepreneurial orientation on control risk shows that the most relevant causal configurations are: socioemotional wealth importance \sim proactiveness \sim external innovativeness and, internal autonomy \times proactiveness \times external innovativeness. The results for the first model are of particular interest. These results indicate that the combination of the absence of proactiveness and external innovativeness and the presence of socioemotional wealth importance positively influences the willingness of family firms to take control risks. This finding represents a major contribution in relation to hypothesis 1: Even if family firms avoid relinquishing control as a way of not losing socioemotional wealth, if they lack the entrepreneurial orientation required to cope with a post-disaster scenario, they may be willing to cede in their typical willingness to increase control risk. These results are consistent with recent research that implies that the evaluation of socioemotional and economic aspects, along with their importance, depends on the specific conditions at the time the decision is made (Llanos-Contreras 2015; Kotlar et al. 2018). In this case, the findings suggest that when the factors of entrepreneurial orientation are absent (i.e. the firm has a low organisational capacity to cope with a post-disaster scenario) and socioemotional wealth importance is present (i.e. the family attaches a high priority to the continuity of the business), family firms are forced to accept higher levels of risk of control loss to increase their chances of overcoming the state of crisis due to the natural disaster. These results are also in line with recent research indicating that socioemotional wealth has an influence on the family firms' entrepreneurial orientation (Hernández-Perlines et al. 2019).

In relation to the fsQCA models that explain the influence of factors of socioemotional wealth importance and entrepreneurial orientation on performance hazard risk, the most relevant causal combinations are: socioemotional wealth importance \times external innovativeness and, competitive aggressiveness \times external innovativeness. Finally, the models generated to analyse the influence of the factors of socioemotional wealth importance and entrepreneurial orientation on ownership risk show that the most relevant causal combinations was competitive: aggressiveness \times external innovativeness \sim proactiveness \sim internal autonomy; the second most relevant combination was: competitive aggressiveness \times external innovativeness \times socioemotional wealth importance \sim proactiveness. Overall, the models of socioemotional wealth importance and factors of entrepreneurial orientation explicitly confirm that the strategic decisions (e.g. a willingness to take risk) in family firms are the result of an evaluation of the mixed gamble between economic and socioemotional wealth (Gomez-Mejia et al. 2014). DeTienne and Chirico (2013) indicate that higher levels of socioemotional wealth reduce the threshold of performance sought by family firms to engage in actions such as risk-taking that increase the likelihood of the firms' continuity. For the models that exclude socioemotional wealth importance (e.g. competitive aggressiveness combined with external innovativeness), the fsQCA shows that only the implicit entrepreneurial orientation in these factors positively influences family firms' willingness to take risk in a post-disaster scenario. This finding confirms those

reported by scholars who assert that competitive aggressiveness leads firms to innovate when developing new market strategies, which in turn reflects a high willingness to take risks (Wincent et al. 2014).

Conclusions

This study contributes to the scarce literature on how family firms cope with post disaster scenarios. It also contributes to our understanding of the behaviour of small and medium-sized family enterprises in Latin America, a topic that has scarcely been addressed in the literature. Overall, the results of this study contribute to research by Marshall et al. (2015) and enhance our understanding of how small and medium-sized family enterprises manage and take decisions on the strategic dimension of risk-taking in a post-disaster scenario. This study also contributes to furthering our understanding of the perspective of socioemotional wealth in a key area, namely family firms' disposition to take risk when the continuity of the firm is threatened (Llanos-Contreras and Jabri 2019; Arrondo-Garcia et al. 2016). This study is also useful to understand family entrepreneurs' confidence in keeping developing their business when facing major losses that threaten their continuity (Simon and Kim 2017). Finally, from a methodological perspective, this study contributes by drawing upon two methodologies, namely PLS-SEM and fsQCA (Llanos-Contreras and Alonso-Dos-Santos 2018).

Risk taking is a key strategic decision for firms facing important threats to continuity. For the particular case of family firms, risk taking decisions will be driven not only by economic criteria but also by socioemotional criteria. Family firms assess gain and loss of both financial and non-financial wealth. Thus, if increased expectation of financial returns as a consequence of a more entrepreneurially oriented behavior is not at the expense of more important losses of socioemotional wealth (in terms of family control, family prominence and/or family continuity), it will be expected that family firms would be willing to engage in actions that increase their risk. That is, entrepreneurial orientation will increase the firms' survival expectation (which implies increased financial returns) but at the same time will provide the family with more chances of preserving socioemotional wealth (as they will have more options of keeping control of their business in the long run). However, family business owners will be less willing to engage in actions that increase their risk if more entrepreneurially oriented behavior leads them to lose the control of their firm, which means total loss of their socioemotional wealth.

From a practical perspective, this study provides relevant insight for owners and managers of family firms to help them understand the socioemotional bias in their risk-taking decisions when they find themselves in situations where the continuity of their firms is threatened. Managers and owners of firms should reflect upon the effects of this decision bias in terms of the capacity to ensure the continuity of their firms. When performing their analyses, they should consider business capabilities and entrepreneurial orientation as factors that can stabilise this bias (Jimenez et al. 2017).

This study is not free from limitations, and it leaves room for further study. One limitation relates to the sample. We were unable to calculate its representativeness. The sample was also limited in terms of its geographical scope, cultural representativeness and time-related biases in the data collection. Particularly on the cultural dimension there is evidence indicating it is relevant in the understanding of the entrepreneurial

activity (Ribeiro Soriano 2003; Kedmenec and Strašek 2017; Pejic Bach et al. 2018). These limitations can be resolved in future research. Similarly, a case- or interview-based qualitative study could provide a better explanation of the social and emotional processes that define the willingness of these firms to take different types of risk in a scenario where the everyday reality has been severely distorted by a natural disaster.

References

- Alonso Dos Santos, M., Calabuig Moreno, F., Rejón Guardia, F., & Pérez Campos, C. (2016). Influence of the virtual brand community in sports sponsorship. *Psychology & Marketing*, 33(12), 1091–1097.
- Arrondo-García, R., Fernández-Mendez, 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.
- Banalieva, E. R., Puffer, S. M., McCarthy, D. J., & Vaiman, V. (2018). The impact of communist imprint prevalence on the risk-taking propensity of successful Russian entrepreneurs. *European J. of International Management*, 12(1/2), 158–190.
- Basco, R. (2015). Family business and regional development—A theoretical model of regional familiness. *Journal of Family Business Strategy*, 6(4), 259–271.
- Benavides-Espinosa, M. M., & Roig-Dobón, S. (2011). The role of entrepreneurs in transferring knowledge through human resource management and joint venture. *International Journal of Manpower*, 32(1), 117–131.
- Chrisman, J. J., & Patel, P. C. (2012). Variations in R&D investments of family and non family firms: Behavioral agency and myopic loss aversion perspectives. *Academy of Management Journal*, 55(4), 976–997.
- Covin, J. G., & Wales, W. J. (2012). The measurement of entrepreneurial orientation. *Entrepreneurship Theory and Practice*, 36(4), 677–702.
- Criado-Gomis, A., Iniesta-Bonillo, M. A., & Cervera-Taulet, A. (2018). Sustainable entrepreneurial orientation within an intrapreneurial context: Effects on business performance. *International Entrepreneurship and Management Journal*, 14(2), 295–308.
- 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.
- Cyert, R. M., & March, J. G. (1963). *A behavioral theory of the firm*. Englewood Cliffs, NJ: Prentice Hall.
- Debicki, B. J., Kellermanns, F. W., Chrisman, J. J., Pearson, A. W., & Spencer, B. A. (2016). Development of a socioemotional wealth importance (SEWi) scale for family firm research. *Journal of Family Business Strategy*, 7(1), 47–57.
- DeTienne, D. R., & Chirico, F. (2013). Exit strategies in family firms: How socioemotional wealth drives the threshold of performance. *Entrepreneurship Theory and Practice*, 37(6), 1297–1318.
- Fiss, P. C. (2011). Building better causal theories: A fuzzy set approach to typologies in organizational research. *Academy of Management Journal*, 54(2), 393–420. <https://doi.org/10.5465/AMJ.2011.60263120>.
- Garcés-Galdeano, L., Larraza-Kintana, M., García-Olaverri, C., & Makri, M. (2016). Entrepreneurial orientation in family firms: The moderating role of technological intensity and performance. *International Entrepreneurship and Management Journal*, 12(1), 27–45.
- Glover, J. L., & Reay, T. (2015). Sustaining the family business with minimal financial rewards: How do family farms continue? *Family Business Review*, 28(2), 163–177.
- Goldsby, M. G., Kreiser, P. M., Kuratko, D. F., Bishop, J. W., & Hornsby, J. S. (2018). Social proactiveness and innovation: The impact of stakeholder salience on corporate entrepreneurship. *Journal of Small Business Strategy*, 28(2), 1–15.
- Gomez-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.
- Gomez-Mejia, L. R., Makri, M., & Kintana, M. L. (2010). Diversification decisions in family-controlled firms. *Journal of Management Studies*, 47(2), 223–252.
- Gomez-Mejia, L. R., Cruz, C., Berrone, P., & De Castro, J. (2011). The bind that ties: Socioemotional wealth preservation in family firms. *Academy of Management Annals*, 5(1), 653–707.

- Gomez-Mejia, L. R., Campbell, J. T., Martin, G., Hoskisson, R. E., Makri, M., & Sirmon, D. G. (2014). Socioemotional wealth as a mixed gamble: Revisiting family firm R&D investments with the behavioral agency model. *Entrepreneurship Theory and Practice*, 38(6), 1351–1374.
- Gomez-Mejia, L. R., Patel, P. C., & Zellweger, T. M. (2018). In the horns of the dilemma: Socioemotional wealth, financial wealth, and acquisitions in family firms. *Journal of Management*, 44(4), 1369–1397.
- Hadida, A. L., Tarvainen, W., & Rose, J. (2015). Organizational improvisation: A consolidating review and framework. *International Journal of Management Reviews*, 17(4), 437–459.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–152.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135.
- Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: Updated guidelines. *Industrial Management & Data Systems*, 116(1), 2–20.
- Hernández-Perlines, F., Moreno-García, J., & Yáñez-Araque, B. (2019). The influence of socioemotional wealth in the entrepreneurial orientation of family businesses. *International Entrepreneurship and Management Journal*, 1–22.
- Hoskisson, R. E., Chirico, F., Zyung, J., & Gambeta, E. (2016). Managerial risk taking: A multitheoretical review and future research agenda. *Journal of Management*, 43(1), 137–169.
- Huang, K. H. (2018). Entrepreneurship for long-term Care in Sharing Economy. *International Entrepreneurship and Management Journal*, 14(1), 97–104.
- Jimenez, A., Matos, R. F., Cámara, C. P., & Ragland, D. (2017). Enrolment in education and entrepreneurship in Latin America: A multi-country study. *European J. of International Management*, 11(3), 347–364.
- Kedmenec, I., & Strašek, S. (2017). Are some cultures more favourable for social entrepreneurship than others? *Economic Research-Ekonomska Istraživanja*, 30(1), 1461–1476.
- Kotlar, J., Signori, A., De Massis, A., & Vismara, S. (2018). Financial wealth, socioemotional wealth and IPO underpricing in family firms: A two-stage gamble model. *Academy of Management Journal*, 61(3), 1073–1099.
- La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (1999). Corporate ownership around the world. *Journal of Finance*, 54(2), 471–517.
- Leal-Rodríguez, A. L., Albort-Morant, G., & Martelo-Landroguez, S. (2017). Links between entrepreneurial culture, innovation, and performance: The moderating role of family firms. *International Entrepreneurship and Management Journal*, 13(3), 819–835.
- Linnenluecke, M. K., & McKnight, B. (2017). Community resilience to natural disasters: The role of disaster entrepreneurship. *Journal of Enterprising Communities: People and Places in the Global Economy*, 11(1), 166–185.
- Llanos-Contreras, O. (2015). *A cross-cultural study of the underlying meaning of socioemotional wealth and its impact on family business entrepreneurial behaviour*. University of New England, Armidale, NSW.
- Llanos-Contreras, O., & Alonso-Dos-Santos, M. (2018). Exploring the asymmetric influence of socioemotional wealth priorities on entrepreneurial behaviour in family businesses. *European Journal of International Management*, 12(5–6), 576–595.
- Llanos-Contreras, O., & Jabri, M. (2019). Exploring family business decline with socioemotional wealth perspective. *Academia Revista Latinoamericana de Administración*, 1(32), 386–407.
- Mahalanobis, P. C. (1936). On the generalized distance in statistics. In *Proceedings of the National Institute of Sciences of India* (Vol. 12, pp. 49–55).
- Mahto, R., Ahluwalia, S., Khanin, D., & Walsh, S. (2018). Financial performance enhancing strategies: Small family firms vs. small non-family firms. *Journal of Small Business Strategy*, 28(3), 18–30.
- March, J. G., & Shapira, Z. (1987). Managerial perspectives on risk and risk taking. *Management Science*, 33(11), 1404–1418.
- Markin, E., Swab, R. G., & Marshall, D. R. (2017). Who is driving the bus? An analysis of author and institution contributions to entrepreneurship research. *Journal of Innovation & Knowledge*, 2(1), 1–9.
- Marshall, M. I., Niehm, L. S., Sydnor, S. B., & Schrank, H. L. (2015). Predicting small business demise after a natural disaster: An analysis of pre-existing conditions. *Natural Hazards*, 79(1), 331–354.
- Martin, W. L., & Lumpkin, G. T. (2003). From entrepreneurial orientation to “family orientation”: Generational differences in the management of family businesses. In W. D. Bygrave (Ed.), *Frontiers of entrepreneurship research: Proceedings of the 23rd annual Entrepreneurship Research Conference* (pp. 309–321). Babson Park, MA: Babson College.
- Mishra, C. S., & McConaughy, D. L. (1999). Founding family control and capital structure: The risk of loss of control and the aversion to debt. *Entrepreneurship Theory and Practice*, 23(4), 53–64.

- Morck, R., & Yeung, B. (2003). Agency problems in large family business groups. *Entrepreneurship Theory and Practice*, 27(4), 367–382.
- Olugbola, S. A. (2017). Exploring entrepreneurial readiness of youth and startup success components: Entrepreneurship training as a moderator. *Journal of Innovation & Knowledge*, 2(3), 155–171.
- Palacios-Marques, D., Roig-Dobon, S., & Comeig, I. (2017). Background factors to innovation performance: Results of an empirical study using fsQCA methodology. *Quality & Quantity*, 51(5), 1939–1953.
- Patel, P. C., & Chrisman, J. J. (2014). Risk abatement as a strategy for R&D investments in family firms. *Strategic Management Journal*, 35(4), 617–627.
- Pejic Bach, M., Aleksic, A., & Merkac-Skok, M. (2018). Examining determinants of entrepreneurial intentions in Slovenia: Applying the theory of planned behaviour and an innovative cognitive style. *Economic Research-Ekonomska Istraživanja*, 31(1), 1453–1471.
- Poza, E. J., & Dauguerty, M. (2014). *Family business*. Boston: Cengage Learning.
- Ragin, C. C. (2008). *Redesigning social inquiry: Fuzzy sets and beyond*. Chicago, USA: University of Chicago Press.
- Ribeiro Soriano, D. (2003). Modeling the enterprising character of European firms. *European Business Review*, 15(1), 29–37.
- Ringle, C. M., Wende, S., & Becker, J.-M. (2015). SmartPLS 3. Boenningstedt: SmartPLS GmbH. Retrieved from <http://www.smartpls.com>. Accessed 12 Dec 2018
- Rita, M. R., Priyanto, S. H., Andadari, R. K., & Haryanto, J. O. (2018). How entrepreneurs anticipate the future market: An initial approach of a future market anticipation model for small businesses. *Journal of Small Business Strategy*, 28(1), 49–65.
- Roig-Dobón, S., & Ribeiro-Soriano, D. (2008). Exploring alternative approaches in service industries: The role of entrepreneurship. *The Service Industries Journal*, 28(7), 877–882.
- Simon, M., & Kim, J. (2017). Two sources of overconfidence: Incorporating disconfirming feedback in an entrepreneurial context. *Journal of Small Business Strategy*, 27(3), 9–24.
- Stafford, K., Danes, S. M., & Haynes, G. W. (2013). Long-term family firm survival and growth considering owning family adaptive capacity and federal disaster assistance receipt. *Journal of Family Business Strategy*, 4(3), 188–200.
- Villanueva, L., Montoya-Castilla, I., & Prado-Gascó, V. (2017). The importance of trait emotional intelligence and feelings in the prediction of perceived and biological stress in adolescents: Hierarchical regressions and fsQCA models. *Stress The International Journal on the Biology of Stress*, 20(4), 355–362.
- Wincent, J., Thorgren, S., & Anokhin, S. (2014). Entrepreneurial orientation and network board diversity in network organizations. *Journal of Business Venturing*, 29(2), 327–344.
- Woodside, A. G. (2013). Moving beyond multiple regression analysis to algorithms: Calling for adoption of a paradigm shift from symmetric to asymmetric thinking in data analysis and crafting theory. *Journal of Business Research*, 66(4), 463–472.
- Woodside, A. G. (2014). Embrace•perform•model: Complexity theory, contrarian case analysis, and multiple realities. *Journal of Business Research*, 67(12), 2495–2503.
- Yunis, M., El-Kassar, A. N., & Tarhini, A. (2017). Impact of ICT-based innovations on organizational performance: The role of corporate entrepreneurship. *Journal of Enterprise Information Management*, 30(1), 122–141.
- Zellweger, T. (2017). *Managing the family business: Theory and practice*. Cheltenham, UK: Edward Elgar Publishing.
- Zellweger, T., & Sieger, P. (2012). Entrepreneurial orientation in long-lived family firms. *Small Business Economics*, 38(1), 67–68.