Lack of resilience after COVID-19: the role of family firm heterogeneity and behavior. fsQCA versus regression

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Abstract

Purpose – This study analyzes antecedents explaining the lack of resilience in family-owned firms. Our model suggests that family-owned firms' strategic behaviors and heterogeneity explain a particular crisis outcome: a lack of recovery.

Design/methodology/approach – Our evidence is based on a sample of 842 European family-owned firms. We complement regression analysis results with fuzzy-set qualitative comparative analysis (fsQCA).

Findings – Our results show that lack of resilience is relevant. In fact, in our sample, 60% of family firms (FFs) failed to recover their sales. This evidence supports the role played by exploitation and exploration behavior as well as family heterogeneity in explaining the lack of recovery.

Research limitations/implications – Our results may offer guidance to practitioners and policymakers on the pathways that explain the lack of resilience.

Practical implications – Although it is unlikely that an external crisis such as COVID-19 will occur again to the same extent, other threatening events may occur and impact FFs. Understanding how FFs can avoid non-recovery is crucial: it can inform managers on how to deal with stressful events and provide guidance to economic authorities on how to help FFs around the world avoid non-recovery, which affects the economy.

Originality/value – First, the study contributes to FF research by offering a theoretical explanation for the different effects of FF attributes on non-recovery in the context of a global crisis. Second, it contributes to the literature on organizational resilience by examining explorative and exploitative behaviors as antecedents of FF non-recovery. Third, we show the usefulness of combining fsQCA and regression analysis to understand complex phenomena.

Keywords Resilience, Exploration, Exploitation, Recovery, Family firm

Paper type Research paper

1. Introduction

Family firms (FFs) account for much of the world economy and are subject to stressful disruptions, abrupt changes and extreme events during their lives. Importantly, some of

these events are external and worldwide, such as the COVID-19 or the global financial crisis (GFC) and have drawn the attention of strategic research to firms that recover and are able to bounce back to their pre-event state (i.e. achieve resilience outcomes, Linnenluecke, 2017; Williams *et al.*, 2017). Thus, recent studies have focused on FFs' responses to these threats (Amore *et al.*, 2022; Rivo-López *et al.*, 2020), attempting to clarify which FFs can resist these events.

However, during these worldwide crises, although some FFs demonstrated resilience outcomes (i.e., survival and recovery), many did not recover. In fact, three years after the GFC, European manufacturing firms had not recovered their turnover figures (EUROSTAT, 2022). In the case of FFs and COVID-19, 64% of European FFs had not recovered their revenue in October 2020 (KPMG, 2021). Thus, these global and distressful crises provide acute challenges for FFs. Therefore, managers, society and policymakers will benefit from a better understanding of what explains FFs' inability to rebound after these worldwide events (Campopiano *et al.*, 2019).

To answer this question, we follow a line of research that argues that, from a strategic level of analysis of resilience outcomes, post-crisis recovery may be influenced by two core elements: the organization's characteristics and its strategic behavior during the crisis (Conz and Magnani, 2020; Hillmann and Guenther, 2020).

First, we argue that a firm's strategic behavior must address the opportunities and threats arising from these global crises in order to recover from them. On the one hand, in order to reduce costs, a firm may choose to engage in exploitative behavior by downsizing its workforce, increasing productivity, or cutting unnecessary costs. On the other hand, it can focus on generating additional income from new and diverse sources through exploration-oriented behavior (Schmitt *et al.*, 2010; Dolz *et al.*, 2019). Thus, firms must make crucial decisions that entail exploitation behaviors, such as cutting operating costs, divesting key assets, workforce or wage reductions (McGuinness *et al.*, 2018; Rivo-López *et al.*, 2020). Additionally, as new opportunities emerge, some firms may take extraordinary risks and engage in high levels of exploration (Leppäaho and Ritala, 2022; Mahto *et al.*, 2022). While firms are exposed throughout their life to internal and external crises that undermine their stability, global crises such as the recent pandemic may give them a chance to do what once seemed unimaginable (Wenzel *et al.*, 2020). For example, in terms of exploitation behaviors, changes in regulations and state contingency measures may allow actions that were unthinkable before the crisis; or in terms of exploration, as occurred regarding the physical and online distribution channels, the lockdown made some distribution channels obsolete, which called for new ones (Parida *et al.*, 2016). Recent research highlights that FFs change their usual strategic behaviors when faced with threatening events, including exploitative behavior through labor cost reduction (KPMG, 2021), or explorative behavior and a risk-taking approach at such a time (Leppäaho and Ritala, 2022). We argue that both strategic behaviors may affect the likelihood of FFs' non-recovery.

Second, as for organizational attributes, we argue that specific FF characteristics can be crucial for decision-making when dealing with a stressful global external event. We claim that these extraordinary events bring FFs' financial and emotional goals to the fore (Chua *et al.*, 2018) since non-recovery will put them at stake. However, FFs are heterogeneous and, as such, may handle extraordinary events differently, as indicated by Calabrò *et al.* (2021), Le Breton-Miller and Miller (2022) and Zahra (2022) for the COVID-19 pandemic. Thus, following researchers who state that FFs vary in terms of family involvement in ownership, management, the generation in control (GC), or size (Arteaga and Escribá-Esteve, 2021), we argue that these attributes may help explain the likelihood of non-recovery since they affect FFs' likelihood of achieving their financial and emotional goals.

To explain this complex phenomenon of non-recovery in extreme circumstances through FF strategic behaviors and heterogeneous attributes, we examined a sample of 842 European

FFs surveyed by affiliates of the well-established *Successful Transgenerational Entrepreneurship Practices* (STEP) project as part of a study completed in October 2020. We rely on classical regression models and complement them with fuzzy-set qualitative comparative analysis (fsQCA). fsQCA is a novel qualitative method that uses qualitative inquiry with quantitative exploration through configurational analysis to understand complex phenomena and has been applied to the FF phenomena (Calabrò *et al.*, 2022b). This methodology allows researchers to uncover and explain contrarian cases relevant to the research question. As Gligor and Bozkurt (2020) note, the "all-or-nothing" relationship covered by regression analyses can be supplemented with the fsQCA methodology.

2. Literature review and hypotheses development

2.1 Firm resilience
In the last decades, firms have been dealing with an increased number of unexpected and extreme events, e.g. the GFC, the COVID-19 pandemic and the Russo–Ukrainian war. How to deal with these unexpected events that undermine the stability and security of an organization (Annarelli and Nonino, 2016) demands considerable attention from both academicians and managers. One fruitful line sheds light on which capabilities allow firms to achieve resilience outcomes (Annarelli and Nonino, 2016; Iborra *et al.*, 2020, 2022). However, the lack of recovery –a widespread outcome of firms' vulnerability/non-resilience after these crises– calls for additional research.

The literature on FFs has tried to answer if FFs outperform non-family ones in terms of resilience after global crises. Evidence for 2008s GFC has been inconclusive: some studies indicate that FFs do better than non-family ones (Minichilli *et al.*, 2016), while others show the opposite (Lins *et al.*, 2013). Concerning the COVID crisis, a recent study highlighted that FFs outperform non-family ones (KPMG, 2021). Also, in a sample of 365 listed Italian firms, Amore *et al.* (2022) found that FFs outperformed non-family ones after COVID-19. Contrary to this, Kryeziu *et al.* (2022) found in a set of 320 SMEs that FFs were more affected by COVID-19 and experienced higher income declines.

A second line of research aims to delve deeper into these inconclusive results in order to understand how resilience differs within the FF label. As Calabrò *et al.* (2021, p. 2) state, "the focal question of interest is how FFs differ in their crisis management and why some FFs are more resilient than others." In this sense, FF researchers provide evidence that during a crisis, there are changes in FFs' strategic behaviors (Le Breton-Miller and Miller, 2022; Leppäaho and Ritala, 2022; Rivo-López *et al.*, 2020) and/or in relevant FF features that may explain their resilience results (Czakon *et al.*, 2022; Zahra, 2022).

In this line, we argue that on the one hand, according to strategic resilience research (Iborra *et al.*, 2020, 2022), firms' exploitation and exploration behaviors play a role in recovery from global crises; on the other hand, FFs are heterogeneous, which can affect their lack of recovery.

2.2 Family firms' exploitation and exploration behaviors and non-recovery
How firms behave during a crisis and how this relates to minimizing its consequences has been a core part of strategy research. Specifically, researchers have tried to understand how turnaround strategies that rely on some types of exploitative, explorative behaviors or both can help overcome this situation (Dolz *et al.*, 2019; Iborra *et al.*, 2020; Schmitt and Raisch, 2013).

Exploitation and exploration orientations have been analyzed at various levels; specific ones, e.g. exploitative and explorative innovation (Arzubiaga *et al.*, 2019), as well as general ones, like this study, in which exploration and exploitation orientations are defined at the firm

level (Iborra *et al.*, 2020). Exploitative firms concentrate on freeing up resources, establishing key priorities and improving efficiencies (e.g. layoffs or wage cuts), while explorative companies aim to develop new markets, products, or technologies, thereby obtaining new revenue sources (Schmitt and Raisch, 2013).

March (1991) described exploitation in terms of refinement, efficiency and productivity. In the case of FFs, researchers indicate that they can adopt an exploitation orientation because they monitor operations closely, thereby ensuring cost savings and efficiency (Gedajlovic *et al.*, 2012).

Researchers have analyzed the impact of exploitation on the lack of recovery. Furthermore, several studies have shown that exploitative behavior in crisis situations involves cost-saving activities, reductions in raw material costs, wages and incentives and lowering business costs related to marketing, logistics, or other functions (Iborra *et al.*, 2022; McGuinness *et al.*, 2018). In the context of a global crisis, many firms embrace exploitative behavior. This is because retrenchment activities may help them survive, reducing the likelihood of bankruptcy, although they may not fully recover. In order to achieve recovery, new revenue sources must be found (Schmitt and Raisch, 2013).

In addition, we argue that FFs' exploitative responses in reaction to events, such as COVID-19, can also adversely affect their Socioemotional Wealth (SEW). In contrast to exploitative behavior, ensuring job stability or caring for close relational connections with suppliers when facing hardship (Calabrò *et al.*, 2021; Le-Breton-Miller and Miller, 2022; Zahra, 2022) will help preserve the bonds with employees and stakeholders. For example, Rivo-López *et al.* (2020) observed that FFs that had developed emotional bonds with their employees responded during the GFC by maintaining these ties and firing fewer people than non-FFs. Also, Le-Breton-Miller and Miller (2022) describe that some FFs reacted to COVID-19 with strong and superior relationships with employees.

In summary, a too strong focus on exploitative behavior can hinder activities that might contribute to recovery, as well as damage the bonds with employees or stable stakeholders, thereby weakening their psychological attachment to the organization and reducing their long-term commitment. As a result, exploitative-oriented FFs are more likely to fail to recover. Therefore, we can state that in the context of an external crisis,

> *H1.* There is a positive relationship between exploitation orientation and non-recovery in FFs.

March (1991) described exploration in terms of variation, experimentation and innovation. Full recovery may require efforts based on quick awareness of disruption and changes by developing novel alternatives and providing unconventional responses. These types of strategic behaviors are linked to experimentation. Additionally, some authors in the resilience literature highlight that recovery from a disruptive event relies on novelty and responding to adversity through increased innovation (Williams *et al.*, 2017).

Exploration behavior allows for supporting new proposals and gaining relevant knowledge that can be applied to new products and markets (Schmitt *et al.*, 2010) expanding their revenue streams.

According to Moreno-Menéndez *et al.* (2021), FFs' tendency to protect their social status and identity may explain why they react to unexpected environmental changes by improving their resilience. Campopiano *et al.* (2019) state that resilient FFs can benefit from unexpected environmental changes, since these will encourage them to capitalize on business opportunities created by these changes. Thus, explorative behavior may increase FFs' capacity to absorb and react to environmental jolts (Campopiano *et al.*, 2019).

Explorative behavior is associated with higher risks and uncertain results. FFs tend to adopt risk-averse behaviors. However, recent research highlights that these firms will transition to risk-taking behaviors when faced with disruptive events that challenge their

survival. For example, Mahto *et al.* (2022) confirmed this tendency by examining 20 cases following an earthquake in Chile. In an exploratory single-case study, Leppäaho and Ritala (2022) found support for risk-taking behavior and innovation during exogenous shocks. Their study of Finnboat, a traditional Finnish FF, shows how this family enterprise engaged in exploration and risk-taking behavior to achieve increased performance during the 1990, 2008 and COVID-19 crises. Also, in analyzing FFs, Arzubiaga *et al.* (2019) state that launching new products or offering new services to a market can lead to increased revenue. So, we can expect that FFs engaging in explorative behavior will increase their revenue sources when confronted with events that threaten their future. Accordingly, we can state that in the context of an external crisis,

> *H2.* There is a negative relationship between exploration orientation and non-recovery in FFs.

2.3 Family-owned firm heterogeneity and non-recovery

FFs differ in specific characteristics that may impact their control over key behaviors when hit by a global crisis. In that sense, we argue that the heterogeneity of FFs may help explain the likelihood of non-recovery. Calabrò *et al.* (2021) suggested it would be interesting to analyze which features of FFs matter most for understanding their resilience. FFs may differ in terms of their size, the degree to which the family is involved in management, the generation in charge and/or the stage of their life cycle. These variables influence other corporate aspects, such as their governance mechanisms, the nature of their goals and strategic behaviors (Arteaga and Escriba-Esteve, 2021; Calabrò *et al.*, 2022a). We argue that these aspects, in turn, affect their likelihood of non-recovery.

Family involvement in management (FIM), implies that FFs differ in the degree to which they are managed by family or non-family members (Arteaga and Escriba-Esteve, 2021). FIM captures the extent to which family members influence strategic decision-making, firm actions and behaviors (Zahra, 2003).

FIM may take on various forms, such as membership in the top management team, board positions, with one of the critical distinctions being the presence or absence of a family chief executive officer (CEO) (Stanley *et al.*, 2019; Nordqvist *et al.*, 2014).

Stanley *et al.* (2019) argue that the existence of a family CEO increases the likelihood that the firm will rely on a single decision-maker and that this family CEO will dominate the key decisions. Additionally, Gedajlovic *et al.* (2012) state that FFs have extensive control over company activities and the discretion to take necessary measures in crisis situations.

Under disruptive conditions, family CEOs can be clearly relevant since their position explicitly grants them the power to influence the company's actions. When a family member is the CEO of a firm, he/she will be able to respond to events more quickly than non-family CEOs and take appropriate action. From day one, a family CEO strives to be in control of the situation, and he/she has more power and discretion than non-family CEOs to seize environmental challenges and reconfigure their firms accordingly. Czakon *et al.* (2022) support the idea that FF owners involved in management may have developed a resilience mindset, i.e., they believe that their firm can survive any crisis.

In contrast, when under those unusual circumstances, the CEO is not a family member, it may take longer for him/her to respond and will take safer, more conservative measures, which could delay recovery and put the firm's financial health at risk. Kraus *et al.* (2020) examined 27 cases of company managers confronted with the COVID-19 crisis. They found that in crisis situations, family owners' interests may diverge from those of non-family managers, who may take decisions that reduce the speed of action.

Therefore, we may anticipate that FFs with FIM -with a family CEO–will have the power and discretion to respond swiftly to changes in the environment. Accordingly, we can state that in the context of an external crisis,

H3. There is a negative relationship between FIM and non-recovery.

The generation in control (or the generational stage) (GC) is one of the key elements that help to distinguish the stage of the lifecycle of the FF (Magrelli *et al.*, 2022; Stanley *et al.*, 2019). The GC is a factor that introduces different levels of complexity in terms of personal and family relationships (Arteaga and Escriba-Esteve, 2021) and can affect the likelihood of recovery from a crisis such as COVID-19. In this line, Meroño-Cerdán (2023, p. 1) states that in "*situations of vulnerability (i.e., performance below aspirations), SEW and economic objectives are aligned, activating SEW as a catalyst for change,*" and that this alignment varies with the GC. In this regard, Beck *et al.* (2011) demonstrated that when first generations are in control, they show higher levels of market-oriented behaviors than later generations and this market orientation can influence the chances of recovery.

Arrondo-García *et al.* (2016) evidenced that first-generation FFs grew more during the GFC than their later-generation counterparts. As they demonstrate in a sample of large private Spanish FFs, the importance of preserving SEW in crises is higher for the first generation than for the later generations, where family ties weaken and differences between family branches emerge, since, in later-generational stages, several categories of owners, including relatives by marriage, coexist (Nordqvist *et al.*, 2014). Also, Rivo-Lopez *et al.* (2020) argue that later generations place less weight on socio-emotional goals than financial goals.

Consequently, in the event of an external crisis, we can expect that,

H4. A firm's lack of recovery is lower when the first generation is in control.

One of the key elements in determining the stage of an FF's life cycle is its size (Stanley *et al.*, 2019), which is a factor in differentiating FFs [1] (Arteaga and Escriba-Esteve, 2021).

Company size is closely related to FFs' survival, investment activities and needs (Nordqvist *et al.*, 2014). The size of FFs has been associated with a more dispersed distribution of ownership and additional complexity in their structure and hierarchical system, which lead to less engagement with the FF's emotional goals. However, in terms of financial goals, size has been linked to financial resources availability during a crisis (McGuinness *et al.*, 2018). In this sense, Crespí and Martín-Oliver (2015) argue that lenders may be less reluctant to lend to FFs during a crisis. Using a sample of 19,443 firm-year observations, they found that during the GFC, FFs had greater access to finance compared to non-FFs and that funding depended on the FF's' size. We argue that larger FFs will have better access to finance and other resources during turbulent times. Therefore, we can expect that, in the context of an external crisis,

H5. There is a negative relationship between firm size and non-recovery in FFs.

Finally, age is also related to the FF life cycle (Stanley *et al.*, 2019). FFs in the early stages of their life cycle tend to be less professionalized than their mature counterparts and prefer less formal governance mechanisms (Nordqvist *et al.*, 2014).

Age has been linked to key choices made by FFs during crises. In crisis situations, firms' survival may be at risk, so it can be expected that more established FFs will fight to preserve their welfare. In this sense, based on the SEW theory, Miralles-Marcelo *et al.* (2014) contend that FFs' age may affect performance because older FFs will be more concerned with the continuity and preservation of their business in order to ensure their family's welfare and reputation. Hence, we can argue that, in the context of an external crisis,

H6. There is a negative relationship between age and non-recovery in FFs.

Several of the above-mentioned potential antecedents of the likelihood of non-recovery have been the focus of separate research. However, some researchers provide reasons for thinking that these factors may act together and encourage us to seek to understand how different combinations of these antecedents lead to non-recovery (Calabrò *et al.*, 2021). For example, De Massis *et al.* (2019) state that FF behaviors regarding innovation and strategic change (i.e. exploration orientation) differ due to FF heterogeneity. According to the SEW theory, the FF's unique traits and loss aversion characteristics will influence their investment decisions in risky exploration activities (Chrisman and Patel, 2012). Also, Stanley *et al.* (2019) argue that the FF literature has begun to acknowledge the underlying heterogeneity among FFs and has obtained evidence for its impact on innovative orientations. For example, Beck *et al.* (2011) claim that the market orientation of the GC fosters innovation and that subsequent generations exhibit less market-oriented behavior. Thus, the combinations of FF heterogeneity and strategic behavior may affect their likelihood of non-recovery.

Complexity theory supports the argument that when different antecedents are combined, the presence or absence of certain components in the combination might positively or negatively impact the outcome variable (Gligor and Bozkurt, 2020). This might provide researchers with different possibilities by which a confluence of causes leads to a specific outcome, in our case, a failure to recover. For this reason, we investigated the presence of logical implications or set relationships in terms of necessity and sufficiency (Thomann and Maggetti, 2020). In summary, we expect the following:

Research Proposition: Different combinations of strategic choices, SEW priorities and FF traits may drive FFs to non-recovery and both types of strategic behavior (exploitation, exploration) may be contingent on family SEW priorities but also on FF heterogeneity, wherein factors such as family detachment, the first generation not being in charge of the firm or the small size and young age of the firm may be contributing causal conditions that prevent FFs from recovering during times of global crisis.

However, we do not expect any of these causal conditions to be absolutely necessary for non-recovery.

3. Methods

3.1 Data collection and sample description

Family business data was collected globally by the STEP Global Family Business Survey, COVID-19 edition. The survey was launched in June 2020. For this study, we focused on a sample of 842 FFs from eight European countries. Countries were included when at least 40 questionnaires were available. The firms selected were those from non-resilient industries (neither electricity, gas, steam and air conditioning supply nor human health and social work activities were included) in which family ownership exceeded 50%. Observations corresponding to micro FFs with less than or equal to 10 employees were removed from our sample. Appendix 1 contains information about the respondents.

3.2 Variables and measures

3.2.1 Non-recovery. Resilience was measured by sales recovery in October 2020 compared to the pre-pandemic period in the country of each company in our sample. The variable called *Non-recovery* takes three values: revenue does not return to its previous level = 1; revenue reached its previous level = 0; revenue has increased = – 1. Revenue is a variable directly affected by demand changes due to external shocks. Smallbone *et al.* (1999) found that downturns affect revenue first, then profitability and finally, survivability.

3.2.2 Exploitation and Exploration orientations. We used 12 items to measure *Exploitation* (Appendix 2). Responses to these items in the survey are dichotomous (yes or no), so we chose

an approach based on the extent of change to operationalize the construct. Consequently, the *Exploitation* variable was constructed as the sum of the items' values (1 or 0) divided by the number of items. This approach to operationalizing strategy change has been previously used in the literature (Goodstein and Boeker, 1991; Zajac and Shortell, 1989).

We measured the *Exploration* construct with 5 items (Appendix 2). Unlike the questions related to the items used to assess exploitation, which were binary, those pertaining to exploration were answered using a five-point Likert scale. The *Exploration* construct was subjected to a confirmatory factor analysis (CFA) with structural equation modeling (SEM) techniques. This provided a model suitable for the proposed one-factor structure, with values that are considered acceptable ($\chi^2 = 35.3$, $df = 5$, $p = 0.00$, adjusted goodness-of-fit index (AGFI) = 0.95, comparative fit index (CFI) = 0.97 and root mean square error approximation (RMSEA) = 0.08). All items were loaded on the construct with a standardized factor loading of ≥ 0.6 and were statistically significant ($p < 0.01$). This result provides evidence of convergent validity. We measured the construct through factorial punctuations (subsequently normalized on a 0 to 1 scale) to be able to work with observable variables due to the constraints of the statistical techniques used.

3.2.3 Age, size, first generation and FIM. Age is the company's years as of October 2020. *Size* is the number of full-time employees at that date. *First generation* is a dichotomous variable that measures whether the first generation is involved in the management of the company (value 1) or not (value 0). And *FIM* measures if the firm's CEO is from the family, taking the value of 1 if yes and zero otherwise (Arteaga and Escribá-Esteve, 2021).

3.3 Regression analysis

First, we used ordinal regression analysis to explore the relationship between *Non-recovery* and the variables of interest. Appendix 3 provides the descriptive statistics, and Figure 1 and Table 1 show the regression results.

Table 1 shows that *Exploitation* has a significant positive direct effect on *Non-recovery* and that *Size*, *First Generation* and *Exploration* have a significant negative direct effect on *Non-recovery*. Thus, hypotheses 1, 2, 4 and 5 are supported. Contrary to expectations, *Age* and *FIM* do not have a significantly negative relationship with our dependent variable. Hence, hypotheses 3 and 6 are not supported.

Additionally, we tested the model with direct effects and interactions between FF behaviors (*Exploitation* and *Exploration*) and FF heterogeneity (*Age, Size, First generation*

Figure 1.
Hypothesis testing via ordinal regression
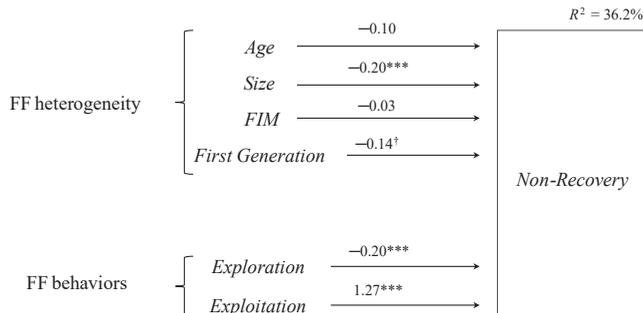
Note(s): †$p < 0.10$; ***$p < 0.001$
Source(s): Figure by authors

and *FIM*) and the new eight terms add very little to the explanatory power ($\Delta R^2 = 1.43\%$) of
the model without interactions and the $\Delta\chi2$ is not statistically significant.

3.4 QCA analysis

We used fsQCA (Ragin *et al.*, 2007) to create the data set and construct the truth table from
fuzzy-set data.

The prefix fs precedes the names of the variables to denote the calibrated condition used in
the fsQCA analysis. In some cases, the variable's name in the regression analysis was
deliberately changed to clarify its meaning, e.g. *Age* was changed to *Old* (degree of
membership in the set of old firms). Moreover, the symbol ∼ means "no" or the absence of the
condition. Consequently, the variable *Non-recovery* is named ∼ *fsRecovery* in the fsQCA
analysis.

While the regression analysis results indicate a positive linear relationship between
fsExploitation and ∼*fsRecovery*, the results presented in Figure 2 show a significant number
of cases where ∼ *fsRecovery* is high and *fsExploitation* is low (positive contrarian cases) and
many cases where ∼ *fsRecovery* is low and *fsExploitation* is high (negative contrarian cases),
which justifies the complementary use of qualitative comparative analysis (QCA).

We transformed the variables into fuzzy-set membership scores using three anchors
(direct method). The selected thresholds for full membership, full non-membership and
crossover points are reported in Appendix 4. We used the following model:

$$\sim fsRecovery = \mathrm{f}(fsExploitation, fsExploration, Big, Old, FIM, First\ Generation)$$

We did not identify any necessary conditions for non-recovery (see Appendix 5) with a
consistency value greater than or equal to 0.9 (Ragin, 2006). The truth table is reported in
Appendix 6. We set the frequency cutoff to 3 and the consistency cutoff to 0.84. Proportional
Reduction in Inconsistency (PRI) consistency always exceeded 0.7 for positive configurations
(Greckhamer *et al.*, 2018; Pappas and Woodside, 2021).

3.5 QCA results

Table 2 shows the combinations that lead to non-recovery (∼*fsRecovery*) following the
guidelines suggested by Ragin and Fiss (2008) to display the results and illustrate the
presence (●; black circles) or absence (⊗; crossed-out circles) of certain conditions. While
large circles indicate core conditions, small circles refer to peripheral conditions. Blank spaces
in a solution indicate a "don't care" situation in which the causal condition may be present or
absent. Specifically, ten solutions were identified, supporting the anticipated research
hypotheses. Namely, various configurations of strategic behavior and family traits that
exhibit acceptable consistency (≥ 0.80; Ragin, 2008) are equifinal, leading to non-recovery.

Variable	B	*p*-value	95% CI	
Age	−0.10	0.18	−0.24	0.05
Size	−0.20	0.00	−0.32	−0.09
FIM	−0.03	0.57	−0.14	0.08
First Generation	−0.14	0.05	−0.28	0.00
Exploration	−0.20	0.00	−0.32	−0.09
Exploitation	1.27	0.00	1.10	1.45
−2 Log Likelihood	1260.94	0.00		
Nagelkerke R^2	36.2%			
Source(s): Table by authors				

Figure 2.
Fuzzy XY plot

Note(s): ~fsRecovery (Y) vs fsExploitation (x)
Source(s): Figure by authors
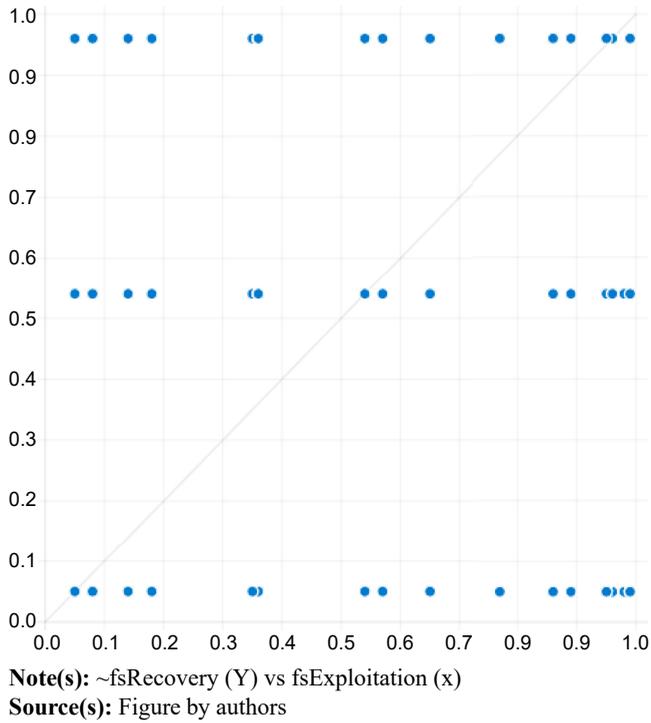
Condition	Conf. 1	Conf. 2	Conf. 3	Conf. 4	Conf. 5	Conf. 6	Conf. 7	Conf. 8	Conf. 9	Conf. 10
fsExploitation	●	●		●	●		⊗			●
fsExploration			•	⊗	⊗		⊗	⊗	⊗	•
Big		⊗	⊗		⊗	⊗	⊗	●	⊗	
Old	•	●	⊗	•		•	⊗	•	•	⊗
FIM				⊗		⊗	⊗	⊗	●	⊗
First generation	⊗		⊗		•	•		⊗	⊗	•
raw coverage	0.44	0.44	0.21	0.23	0.08	0.07	0.16	0.12	0.11	0.07
unique coverage	0.06	0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.02	0.01
consistency	0.89	0.91	0.86	0.92	0.88	0.84	0.87	0.87	0.89	0.89
solution coverage					0.64					
solution consistency					0.85					

Table 2.
Configurations leading to non-recovery

Note(s): ● = core causal condition (present); ⊗ = core causal condition (absent)
• = contributing causal condition (present); ⊗ = contributing causal condition (absent)
Source(s): Table by authors

The results in Table 2 show an overall solution coverage of 0.64 and an overall solution consistency of 0.85, indicating that these ten alternative configurations capture a significant part of non-recovery. Configurations 1 and 2 have the highest raw coverage (0.44) and represent the most parsimonious (three-condition recipe) combination of attributes that provides the most accurate picture of non-recovery. Configuration 1 indicates that firms are not resilient when the following conditions are simultaneously present: (1) high levels of exploitative activity, (2) the FF is old and (3) the family business is not in the first generation.

These ten combinations linked to non-recovery are similar in that they all include exploitation and/or exploration behaviors and some aspects of firm heterogeneity (size, family involvement, generation in charge and/or firm age). Five configurations (1, 2, 4, 5 and 10) include embracing an exploitative behavior (*fsExploitation*) as a decisive causal ingredient and another five (4, 5, 7, 8 and 9) exclude an explorative behavior (∼*fsExploration*) as a core causal condition. Three configurations (7, 8 and 10) comprise family detachment (∼*FIM*) as a decisive causal ingredient and another three (1, 3 and 9) contain the first generation not being in charge (∼*First Generation*) as a core causal condition. Surprisingly, configuration 9 shows that even when the family is involved in management, FFs are not resilient when (1) there are low levels of explorative activity, (2) the company is not big, (3) the firm is old and (4) the family business is not in the first generation. These results confirm that the causal conditions linked to non-recovery are combinatorial in nature and that it is possible to discern relevant combinations when cases are viewed as configurations.

Appendix 7 provides and in-depth discussion between both methodologies.

4. Conclusions
COVID-19 has brought substantial changes for all of us and created new challenges for FFs that demand our attention (Zahra, 2022). Some of the unresolved questions include whether FFs outperform non-FFs, why they do so if they do, or what specific features of FFs or constellations may help explain their results (Calabrò *et al.*, 2022a; Le-Breton-Miller and Miller, 2022). Our results provide evidence that the lack of resilience in our sample is relevant, as 60% of FFs did not recover their sales, highlighting the need to understand this phenomenon.

Following recent works, in this study, we developed a model showing that their behavior and specific family attributes may explain their lack of recovery in times of crisis. We provide evidence that both FF behaviors and FF attributes are relevant, i.e., they matter in explaining the lack of recovery.

In terms of behavior, FFs respond to opportunities and threats brought on by disruptive and extraordinary crises (Kraus *et al.*, 2020; Leppäaho and Ritala, 2022; Mahto *et al.*, 2022). We show that FFs' explorative and exploitative behaviors have different effects on the chances of recovery. Our results are consistent with Kraus *et al.* (2020), who, based on 27 cases, found that FFs pursue different strategies in the short term to adapt to crises and become stronger in the long run. FFs adapt their business models to changing environmental conditions faster.

Contrary to what one would expect in normal times, our research shows that FFs that achieve recovery are those firms that engage in extraordinary levels of exploration, innovation and risk-taking (Leppäaho and Ritala, 2022; Mahto *et al.*, 2022). They seek creative ways to find effective solutions to unprecedented circumstances (Iborra *et al.*, 2020, 2022; Leppäaho and Ritala, 2022). Similar to what Leppäaho and Ritala (2022) concluded through a case study, when FFs see bankruptcy as a possibility, they can shift from their risk-averse orientation to a risk-taking one. The QCA results reinforce this view. Given that in each of the configurations provided, exploration appears as a core dimension for explaining FF recovery, we may state that exploration decreases the likelihood of non-recovery, while the absence of exploration is core to explaining non-recovery in five of the configurations.

As expected, we find that exploitation behaviors are linked to non-recovery. FFs are well known for their strong control and efficiency capabilities, but the COVID-19 crisis created an entirely different environment. As shown by Le Breton-Miller and Miller (2022), it was, in a way, a "moment of truth," in which FFs' bonds and engagement with their employees, stakeholders, suppliers and local communities came first, preserving their SEW (Calabrò et al., 2021; Le-Breton-Miller and Miller, 2022; Zahra, 2022). Our regression analysis confirms these findings and provides evidence for the strong negative effect of exploitation on non-recovery, which also clearly appears in half of the configurations, especially the first two with higher coverage.

Regarding FF attributes, not all factors considered affect non-recovery. Although we expected FIM to affect recovery, we did not find a significant association. This result is in agreement with Amore et al. (2022), who found that FFs outperform non-family ones, no matter whether the CEO is a family member or not. An additional explanation may come from our sample. We focused on FFs in which the family owns at least 50% of the shares and found out that in the context studied, FIM is not relevant, since family members will play a relevant role when recovery is at risk, regardless of whether the CEO belongs to the family or not.

Firm age is also not related to lack of recovery. Age is typically linked to experience and FFs' belief that they can survive any crisis (Czakon et al., 2022). However, our results do not confirm this point. In fact, they open the question of whether experience is always positive and also if global crises are so different that they should be treated as rare events (Zollo, 2009), in which firms – especially FFs whose owners have a natural obligation to consider previous experience (Czakon et al., 2022) – are confronted with superstitious learning.

We did find that lack of recovery is associated with FF size and the generation responsible for the firm, specifically, that there is a lower likelihood of non-recovery when the family's first generation is in control and the FF is large. The results of our analysis concerning the generation in charge also raise questions about the role of experience. Recent studies highlight that FFs, with later generations in charge, have survived generational change, thereby enhancing their ability to adapt and respond to complex situations, providing them with a high level of resilience (Ventura et al., 2020). Our results do not confirm that acquiring experience in dealing with internal events during generational change increases resilience to external events.

fsQCA sheds some light on this. According to our results, big FFs have a higher likelihood of failing to recover if they are old, not run by a family CEO and not managed by the first generation. It seems that in such cases, critical facets related to superior resilience, such as rapid adaptation of business models, strong cohesion and solidarity (Kraus et al., 2020), would have been lost. On the other hand, old small FFs do not recover (configuration 2), even if they are managed by a family CEO from a later generation. In this latter case, family CEOs can use their discretion and power to engage in behaviors aimed at short-term benefits for family members instead of long-term resilience (Le Breton-Miller and Miller, 2022). Two other family configurations are linked to non-recovery: young firms with a non-family CEO and young firms with the second or later generations in charge.

4.1 Practical implications

Although an external crisis such as COVID-19 is unlikely to occur again to the same extent, other events may occur and impact FFs. Understanding how FFs can avoid non-recovery can inform managers about how to deal with stressful events, thereby reducing the likelihood of non-recovery during disruptions, and it can also provide guidance to economic authorities on how to help FFs around the world avoid non-recovery, which affects the economy. Although our study shows that FF exploration behaviors are key to recovery, this is a challenging requirement because, under normal circumstances, innovation is a challenge for many firms,

especially for FFs. It is evident from this study that no single recipe applies to all FFs, but different configurations of FFs may be linked to the likelihood of non-recovery. Managers cannot easily change the firm size or age, but they can bring about changes to FIM or use the experience and knowledge of the first generations.

4.2 Contributions

This study makes several contributions. First, it contributes to FF research by offering a theoretical explanation for the different effects of FF attributes on non-recovery in a global crisis. Second, it contributes to the growing literature on organizational resilience by investigating explorative and exploitative behaviors as antecedents of FF non-recovery. Third, we show that combining fsQCA and traditional regression analysis to comprehend complex phenomena is useful.

In that sense, as previous studies in different disciplines have shown (e.g. Gligor and Bozkurt, 2020; Pappas and Woodside, 2021), this study makes methodological contributions to FF research by going beyond the "all-or-nothing" association assumed by the widely used regression models. This manuscript demonstrates the convenience of using multiple methods to deal with the complexity inherent in the causal relationships of the variables of interest. Although each method has inherent limitations, combining both can offer a more comprehensive perspective of causal relationships than either approach used alone. For example, previous studies showed direct links between recovery and exploitation, exploration, age and size (Iborra et al., 2020). Our findings suggest that the presence of all of these variables is not always necessary. In particular, a combination of one of these factors with the presence of some of the other factors can compensate for the absence of any of them.

4.3 Limitations

The study has certain empirical limitations. We measured two constructs with adapted scales, and we have not been able to control for aspects such as companies' pre-pandemic financial health due to limited data in the STEP questionnaire. However, the database contains a large number of companies from many industries and countries, which allows us to obtain reliable statistical contrasts. Moreover, the recipes found for this sample of FFs proved the existence of several equifinal configurations leading to non-recovery. In this regard, set-theoretic methods allow for a detailed analysis of the prerequisites for non-recovery configurations. Nevertheless, it is imperative to note that these methods also contemplate causal asymmetry, since configurations that result in non-recovery may be different from those that result in high recovery.

4.4 Future research agenda

The findings and conclusions of this study provide valuable insights into the behavior and attributes of FFs and their impact on recovery during crises. Based on these conclusions, several future research directions can be identified. First, this study focused primarily on the immediate impact of FF behaviors and attributes on recovery during the pandemic. Future research could explore the long-term effects of these factors on FF performance. Understanding how FFs evolve and adapt over time will provide a more comprehensive understanding of their recovery capabilities. Second, while this study focused on the COVID-19 pandemic, FFs might face other crises. Future research could explore how FF behaviors and attributes influence recovery in different crisis contexts. Third, we found that both FF behaviors and attributes play a role in recovery. Future research could delve deeper into their microfoundations to understand the underlying mechanisms. For example, examining FFs' decision-making processes, strategic choices and resource allocation

strategies during crises could provide valuable insights into their recovery dynamics. Finally, the study's limitations have important implications for future research.

Note

1. While the features discussed in hypotheses 3 and 4 are specific to FFs, size and age explain firm heterogeneity both in FFs and non-FFs. We acknowledge one reviewer for this point.

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(The Appendix follows overleaf)

Appendix 1

	N	%
Position		
CEO	381	45.2%
Board member	176	20.9%
TMT member	121	14.4%
Other*	164	19.5%
Total	842	100.0%
Do you belong to the owning family?		
Yes	721	85.6%
No	121	14.4%
Total	842	100.0%

Note(s): *Basically, people who hold several of the above positions (e.g. TMT managers who sit on the board), general managers of not-limited liability companies who are not formally CEOs, shareholders who are not on the board, shareholders of companies without a board of directors, top executives of firms without a board of directors and/or management team, and managers who are not part of the management team
Source(s): Table by authors

Table A1.
Information about the respondents

Appendix 2
Exploration and exploitation items

Exploitation items

(1) Regarding employees: reducing employee hours; reducing employee pay; laying off employees; putting employees on furlough; moving all or some employees to remote positions, and freezing all hiring.

(2) Related to executives: considering alternative types of incentive compensation and deferring or reducing executive pay

(3) Business-related items: temporarily closing down my business, closing down my business permanently, renegotiating vendor contracts, and delaying payment of all or part of vendor bills and loan obligations.

Exploration items

(1) Explored new revenue-generating products and services to be offered during the COVID crisis.

(2) Encouraged revenue-generating ideas from the next generation of family business members.

(3) Quickly and cheaply developed new ideas that were in high demand during the crisis.

(4) Looked for opportunities to extend existing capabilities to new markets.

(5) Invested in new ideas, products, and services.

Appendix 3

Variable	Mean	S.D.	1	2	3	4	5	6
1. Non-recovery	0.45	0.75						
2. Age	59.24	46.88	−0.01					
3. Size	736.70	3890.32	−0.05	0.29				
4. FIM	0.33	0.47	−0.01	0.01	0.02			
5. First generation	0.25	0.43	−0.04	−0.64	−0.19	0.02		
6. Exploration	0.57	0.28	−0.10	−0.06	0.01	−0.06	0.03	
7. Exploitation	0.34	0.23	0.47	0.02	0.16	−0.01	−0.03	0.02

Note(s): All correlations equal to or above |0.10| are statistically significant at $p < 0.01$ (bilateral)
Source(s): Table by authors

Table A2.
Descriptive statistics

Appendix 4

Fuzzy set label and definition	Fuzzy set type	Fully out	Crossover point	Fully in
Sales-Resilient Firms (*fsRecovery*). Degree of membership in the *fsRecovery* set	Three-value fuzzy set (−1; 0; 1)	−1	−0.05	0.9
Firms taking Exploitation actions (*fsExploitation*)	Fuzzyor (EMA, EXA, BUA)			
Firms taking Employee actions (EMA). Degree of membership in the EMA set	Seven-value fuzzy set (0; 16.7; 33.3; 50; 66.7; 83.3; 100)	0	41.5	83
Firms taking Executive actions (EXA). Degree of membership in the EXA set	Three-value fuzzy set (0; 50; 100)	0	47.5	95
Firms taking Business actions (BUA). Degree of membership in the set of BUA	Nine-value fuzzy set (0; 12.5; 25; 37.5; 50; 62.5; 75; 87.5; 100)	5	46	87
Strategically exploring firms (*fsExploration*). Degree of membership in the set of *fsExploration*	Continuous fuzzy set [−2.5; 2.1]	−1.85	−0.125	1.6
Large Firms (*Big*) Degree of membership in the *Big* set	Continuous fuzzy set [11; 90,000]	15	249	2460
Old Firms (*Old*) Degree of membership in the *Old* set	Continuous fuzzy set [5; 786]	6	24.5	140
Family CEO (*FIM*) or not	Crisp (binary) set			
First Generation (*First Generation*) or not	Crisp set			

Source(s): Table by authors

Table A3.
Calibration parameters

Appendix 5

Condition	Consistency	Coverage
fsExploitation	0.65	0.89
~*fsExploitation*	0.49	0.69
fsExploration	0.63	0.76
~*fsExploration*	0.51	0.83
Big	0.34	0.78
~Big	0.77	0.76
Old	0.71	0.77
~Old	0.43	0.83
FIM	0.33	0.69
~FIM	0.67	0.70
First generation	0.24	0.67
~First generation	0.76	0.70

Note(s): Outcome variable: ~*fsRecovery*
Source(s): Table by authors

Table A4.
Necessary conditions

Appendix 6

fsExploitation	fsExploration	Big	Old	FIM	First generation	Number	~fsRecovery	Raw consist.	PRI consist.	SYM consist.
1	0	0	1	1	0	28	1	0.942	0.913	0.916
1	0	1	1	1	0	18	1	0.932	0.885	0.893
1	1	0	1	0	1	13	1	0.93	0.895	0.895
1	0	0	0	0	1	16	1	0.929	0.892	0.892
1	0	0	1	0	0	44	1	0.922	0.887	0.887
1	0	1	1	0	1	6	1	0.919	0.836	0.836
1	1	0	0	1	1	36	1	0.919	0.883	0.892
1	0	0	1	0	0	7	1	0.919	0.862	0.862
1	0	1	0	0	0	3	1	0.917	0.875	0.875
1	1	0	1	0	1	32	1	0.907	0.844	0.847
1	1	0	0	0	0	23	1	0.905	0.866	0.877
1	1	1	0	1	0	4	1	0.904	0.848	0.849
1	0	0	1	0	0	24	1	0.903	0.844	0.848
0	1	1	0	0	1	95	1	0.895	0.856	0.859
0	0	0	1	1	0	4	1	0.887	0.797	0.797
0	0	1	1	0	0	4	1	0.883	0.786	0.786
1	1	0	1	1	1	31	1	0.867	0.771	0.808
0	0	0	0	0	1	22	1	0.865	0.727	0.731
0	0	0	1	0	1	10	1	0.859	0.785	0.785
0	0	1	0	0	0	9	1	0.859	0.741	0.741
1	1	0	1	1	0	15	1	0.853	0.759	0.762
0	1	0	0	1	1	8	1	0.849	0.746	0.765
1	0	0	0	1	0	61	1	0.849	0.771	0.772
0	1	0	1	1	1	7	1	0.847	0.732	0.733
1	0	1	1	0	0	6	1	0.845	0.722	0.722
0	0	1	1	0	0	4	1	0.844	0.751	0.751
1	0	0	1	1	1	5	1	0.841	0.734	0.742
0	0	1	1	1	0	15	0	0.839	0.694	0.726
1	1	1	1	1	1	9	0	0.839	0.704	0.704
0	0	0	1	1	1	50	0	0.837	0.741	0.755
1	1	1	1	1	1	7	0	0.836	0.726	0.726
0	0	0	1	1	1	8	0	0.825	0.618	0.625

(continued)

Table A5.
Truth table

fsExploitation	fsExploration	Big	Old	FIM	First generation	Number	~fsRecovery	Raw consist.	PRI consist.	SYM consist.
0	1	0	1	1	1	6	0	0.823	0.674	0.678
0	1	1	1	1	0	17	0	0.82	0.664	0.679
0	1	0	1	1	0	27	0	0.819	0.704	0.727
1	1	0	0	1	1	14	0	0.819	0.74	0.74
0	0	0	0	0	1	4	0	0.803	0.608	0.634
0	1	0	0	1	1	6	0	0.798	0.662	0.662
0	1	0	0	1	1	20	0	0.793	0.684	0.706
0	1	1	1	0	0	29	0	0.785	0.6	0.616
0	1	0	1	0	0	63	0	0.774	0.646	0.665

Source(s): Table by authors

Table A5.

Results discussion: regression analysis versus fsQCA

Family businesses are widely known for their mastery of resilience and agility and for their adaptability to overcome any challenge, even if an economic crisis, such as that caused by COVID-19, stands in their way. However, 60% of the European questionnaires showed that revenue had not yet been recovered. Our analysis of European FFs that failed to recover their revenues due to the uncertainties of COVID-19 provides valuable insights into this phenomenon.

Data were analyzed using two distinct methodologies: ordinal regression and fsQCA. Ordinal regression results showed a significant positive relationship between non-recovery and exploitation, a negative relationship between non-recovery and size, generation and exploration and age and family involvement were not statistically significant (Table 1). Conversely, fsQCA unveiled ten different combinations of these antecedents that led to high levels of non-recovery (Table 2). Consistent with the idea of causal complexity, no single organizational characteristic or behavior is sufficient to explain the lack of recovery in the COVID-19 pandemic. Instead, this outcome is related to a number of sufficient combinations of conditions. Hence, our findings are at odds with the idea of considering single indicators, as complementarities affect the lack of recovery or other key performance metrics. This finding is in line with recent research using fsQCA that found a key role of FF configurations in explaining performance (Calabrò et al., 2022b). Comparing the results obtained via ordinal regression with those obtained through fsQCA reveals some interesting insights.

First, the ordinal regression results suggest a significant positive relationship between non-recovery and exploitation. The fsQCA results, however, showed how several factors combine to create several distinct causal recipes that lead to the same outcome: non-recovery. In particular, significant levels of non-recovery occurred in the cases represented by configurations 1, 2, 4, 5 and 10 when high levels of exploitation were present as core conditions. Interestingly, a low level of exploitation as a peripheral condition resulted in high levels of non-recovery for the cases represented by configuration 7, which contradicts the findings proposed by the ordinal regression results. Furthermore, the presence or absence of exploitation makes no difference for the cases represented by configurations 3, 6, 8 and 9, which does not support the ordinal regression results.

Second, the ordinal regression results point to a significant negative relationship between non-recovery and exploration. However, the fsQCA results revealed a different version: low levels of exploration as a core condition resulted in high levels of non-recovery for the cases represented by configurations 4, 5, 7, 8 and 9. Interestingly, for the cases represented by configurations 3 and 10, high levels of exploration as a peripheral condition resulted in high levels of non-recovery, contradicting the findings proposed by ordinal regression results. Also, the presence or absence of exploration made no difference for the cases represented by configurations 1, 2 and 6, not supporting the ordinal regression results either.

Third, the ordinal regression results indicate a significant negative relationship between non-recovery and size, but the fsQCA results showed that for the cases represented by configurations 2, 3, 5, 6, 7 and 9, the risk of non-recovery was higher for small firms as a core and peripheral condition. Remarkably, greater size as a core condition led to high levels of non-recovery for the cases represented by configuration 8, which clearly contradicts the findings proposed by the ordinal regression results. In addition, size made no difference for the cases represented by configurations 1, 4 and 10, which contradicts the ordinal regression results.

Fourth, the ordinal regression results suggest a significant negative relationship between non-recovery and firm age. However, the fsQCA results showed that young age as a core condition resulted in high levels of non-recovery in the cases represented by configurations 3, 7 and 10. Actually, old age, mainly as a peripheral condition, resulted in high levels of non-recovery for the cases represented by configurations 1, 2, 4, 6, 8 and 9, which clearly contradicts the ordinal regression results. Also, age made no difference for the cases represented by configuration 5, which is not in line with the ordinal regression results.

Fifth, the ordinal regression results suggest a non-significant relationship between non-recovery and FIM, but the fsQCA results indicate that low levels of family involvement as core and peripheral conditions resulted in high levels of non-recovery for the cases represented by configurations 4, 6, 7, 8 and 10. Conversely, for the instances defined by configuration 9, a high level of family involvement as a core condition led to high levels of non-recovery, which clearly runs contrary to the ordinal regression

results. Moreover, family involvement makes no difference for the cases represented by configurations 1, 2, 3 and 5, which does not support the ordinal regression results.

Sixth, the ordinal regression results indicate a non-significant relationship between non-recovery and the involvement of the first generation in management. However, the fsQCA results showed that low levels of first-generation involvement as a core condition bring about high levels of non-recovery for the cases represented by configurations 1, 3, 8 and 9. Contrarily, high levels of first-generation involvement as a peripheral condition led to high levels of non-recovery for the cases represented by configurations 5, 6 and 10, which is not in line with the findings proposed by the ordinal regression results. Furthermore, first-generation involvement made no difference for the cases represented by configurations 2, 4, and 7, which does not support the ordinal regression results.

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