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ESSAYS ON ORGANISATIONAL RESILIENCE AND ANTICIPATION STRATEGY

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INTRODUCTION

The purpose of this doctoral thesis is to investigate the choice of adopting an anticipation strategy of adversities in the small business context. The first paper is aimed to explore the organisational and individual (entrepreneurial) factors associated with the choice of adopting a strategy that aims to anticipate and prepare for potential threats for the business survival. The second paper is aimed to investigate the outcome of this choice, in terms of firm performance and in relation to the organisational structure.

Building on the recent capability-based conceptualisation of resilience, the first paper aims to explore whether the experience of a previous crisis and entrepreneur resilience are associated with Small- and Medium-Sized Enterprises (SMEs') adoption of different anticipation strategies for adversities. Using original survey data on 959 Italian and German SMEs, the research uses a multinomial logistic regression model in order to test the influence of the prior experience of a crisis and the entrepreneur resilience on the likelihood of adopting different anticipation strategies. The paper shows that the previous experience of a crisis increases the likelihood of regularly adopting proactive but non-formalised anticipation actions while decreasing the likelihood of adopting a pure reactive strategy to adversities; in addition, entrepreneur resilience is nonlinearly associated with anticipation strategies. The main originalities rely on eschewing a pure binary view in relation to the organisational choice of adopting a reactive or a proactive approach toward adversities and on considering the entrepreneur resilience as a factor with both 'bright' and 'dark' side effects in relation to the anticipation of adversities.

The second paper is aimed to investigate the benefit of adopting an anticipation mentality in SMEs. Anticipation of adversities improves the potential resilience of a firm. However, no prominent studies have investigated (1) the influence of the adoption of a strategy that aims to anticipate and prepare for an adversity on the firm performance in a small business context, and (2) the role of the organisational structure in amplifying or diminishing the positive effects of the adoption of an anticipation strategy of adversities. The purpose of this paper is to shed some light on the benefit of building potential resilience in SMEs and the role of the organisational structure. Using an original dataset of 409 Italian SMEs, the research uses a Generalized Structural Equation Modelling in order to test whether the adoption of an anticipation strategy of adversities influences the firm performance and whether there is a mediation effect of the organisational structure. The paper shows the positive influence of the anticipation and preparation for adversities on the firm performance and the partial mediation effect of the coordination mechanism based on standardisation. The originalities rely on the investigation of the benefit related to the adoption of

an anticipation strategy of adversity in small business context out of an actual crisis and the link that is suggested between organisational resilience and organisational structure. Cultivating the potential resilience of the firm and the coordination mechanisms based on standardisation means improving the performance even if an actual crisis does not happen.

I. REACTION OR ANTICIPATION? RESILIENCE IN SMALL AND MEDIUM-SIZED ENTERPRISES

Abstract

Purpose – Building on the recent capability-based conceptualisation of resilience, this paper aims to explore whether the experience of a previous crisis and entrepreneur resilience are associated with Small- and Medium-Sized Enterprises (SMEs') adoption of different anticipation strategies for adversities.

Design/Methodology/Approach – Using original survey data on 959 Italian and German SMEs, the research uses a multinomial logistic regression model in order to test the influence of the prior experience of a crisis and the entrepreneur resilience on the likelihood of adopting different anticipation strategies.

Findings – The paper shows that the previous experience of a crisis increases the likelihood of regularly adopting proactive but non-formalised anticipation actions while decreasing the likelihood of adopting a pure reactive strategy to adversities; in addition, entrepreneur resilience is nonlinearly associated with anticipation strategies.

Originality/value – The main originalities rely on eschewing a pure binary view in relation to the organisational choice of adopting a reactive or a proactive approach toward adversities and on considering the entrepreneur resilience as a factor with both 'bright' and 'dark' side effects in relation to the anticipation of adversities.

Keywords Anticipation, Adversities, Small and medium-sized enterprises, Organisational resilience, Entrepreneur resilience, Crisis management.

Paper type Research paper

1. Introduction

Modern organisations operate and compete in a turbulent and challenging environment that presents several serious threats. Pandemics, economic instability, natural disasters, cyberattacks and the emergence of new competitors are only a subset of the potential events that could cause organisations to fail. Moreover, other risks for firm survival could originate from within, such as technical failures, man-made hazards or an entrepreneur's personal circumstances. In such a context, small- and medium-sized enterprises (SMEs) are more vulnerable than larger organisations because of their relative shortcomings regarding technological, managerial and human capabilities (Pelletier and Martin Cloutier, 2019), lower diversification opportunities and a strong dependence on a few customers and suppliers (Branicki *et al.*, 2018; Chowdhury, 2011). In periods of prolonged economic crisis, SMEs' weaknesses may be exacerbated. Indeed, they are generally the first to feel the effects of crises and undergo the most critical consequences of these crises (Etemad, 2020; Juergensen *et al.*, 2020).

To endure and thrive in an uncertain business world, adopting an *anticipation strategy* is crucial. Here, anticipation refers to "the ability to detect critical developments within the firm or in its environment and to adapt proactively" (Duchek, 2020, p. 225). Anticipating threats and preparing accordingly can reduce organisational vulnerability and improve organisational resilience (Burnard and Bhamra, 2011; Burnard *et al.*, 2018; Comfort *et al.*, 2001; Latifah *et al.*, 2021; Mpekiaris *et al.*, 2020; Vargo and Seville, 2011; Williams *et al.*, 2017). The literature on resilience has identified several methods to anticipate and prepare for risks, such as continuity planning and disaster recovery planning (Davison, 2014; Herbane, 2010a, 2010b; Sahebjamnia *et al.*, 2014). However, the most studies provide limited knowledge about anticipation strategies and their determinants in SMEs (Han and Nigg, 2011; Herbane, 2015; Mpekiaris *et al.*, 2020; Sadiq and Graham, 2016; Spillan and Hough, 2003). On the one hand, the literature on SMEs' resilience has emphasised their capabilities to adapt and react to crises (Ates and Bititci, 2011; Pauluzzo, 2021; Smallbone *et al.*, 2012), hence neglecting more in-depth investigations of these firms' anticipation of adversity (Branicki *et al.*, 2018). On the other hand, the strategies adopted to anticipate risks have mainly been studied within the context of larger companies. Indeed, as suggested by Corey and Deitch (2011), SMEs may suffer from limitations in the amount and kind of resources to be allocated to risk prevention that call for different anticipation strategies (Battisti and Deakins, 2017; Burnard and Bhamra, 2011; Herbane, 2015; Mpekiaris *et al.*, 2020; Vargo and Seville, 2011).

Drawing on the recent capability-based model on organisational resilience (Duchek, 2020), this study contends that the organisational experience of previous adversity and the individual resilience of the entrepreneur can influence a SME's ability to anticipate business threats. Both

these factors can be considered as critical sources of knowledge upon which a firm builds its preventive actions (Duchek, 2018, 2020). Therefore, the current paper addresses the following main research question: Is the organisational experience of previous adversity and the individual resilience of the entrepreneur increasing the likelihood that a SME will adopt anticipation strategies for adversities? In particular, it is hypothesised that the experience of previous adversity activates "a self-enhancing process" that "helps organizations regain contextual awareness to be ready for further challenges" (Ma *et al.*, 2018, p. 257). Conversely, as far as the entrepreneur is concerned, it is hypothesised that his/her resilience can positively influence the firm's likelihood of committing to the adoption of anticipation strategies (Duchek, 2018; Korber and McNaughton, 2018; Williams *et al.*, 2017) but that the effect is positive up to a certain level of individual resilience. In fact, the positive effect might turn into a negative effect at high level of entrepreneur resilience, where the entrepreneur's self-confidence could be so strong that individual resilience creates a positive illusion of control over both personal and organisational outcomes (Cannon and Edmondson, 2005), thus reducing the organisational anticipation for adversities ("dark side" effect).

Using an original dataset on 959 German and Italian SMEs, the model is tested through a multinomial logistic regression. The results show that in SMEs, the experience of a previous shock increases the likelihood of adopting regular anticipation strategies while decreasing the likelihood of adopting a reactive strategy to adversities and that entrepreneur resilience is nonlinearly associated with anticipation strategies.

The contribution to studies on resilience is threefold. First, by proposing and analysing the adoption of a set of anticipation strategies to adversities that are characterised by a growing level of commitment, this study adds to previous studies that – in particular as SMEs are concerned – have focused on the organisational capabilities to react to crises rather than anticipate them (Herbane, 2015, 2019). Second, considering that extant empirical studies are not unanimous regarding the advantages given by the previous shock's experience and the role played by entrepreneurs' resilience, this study shows the non-linear effect of individual and organisational experience on building anticipation capabilities. Third, by analysing both individual- and organisational-level variables, the study addresses the call for more "insights into how these different levels of analysis are linked to each other" (Linnenluecke, 2017, p. 25) in contributing to organisational resilience.

The present study proceeds as follows: next section reviews extant literature on anticipation of adversities in SMEs and its antecedents. Then, section three presents data, variables and methodology. Section four describes the results, while section five reports the discussion and section six highlights the theoretical and practical implications. Finally, section seven assesses the limitations and possible avenues for further studies.

2. Literature review

2.1. Anticipating adversities in SMEs

The literature on organisational resilience has suggested that micro, small-sized and medium-sized enterprises are more vulnerable to crises than larger organisations (Pal *et al.*, 2014; Tognazzo *et al.*, 2016) and that their capacity to anticipate threats is limited (Burnard and Bhamra, 2011). As suggested by Duchek (2020) drawing on environmental scanning literature (Fahey and King, 1977; Fahey *et al.*, 1981) and high reliability theory (Weick and Sutcliffe, 2006, 2007; Weick *et al.*, 1999), to anticipate the unexpected, companies need to enhance their 'attention' to the internal and external environment and preparing accordingly. This includes the ability to look forward to the opportunities and potential sources of crises while recognising threats and their consequences ahead of time. Indeed, critical events often start with weak signals and discontinuities that can be noticed by organisational members. Therefore, a major crisis can be prevented by developing an organisational state of alert that permits the organisation to anticipate problems and prepare for them (Weick and Sutcliffe, 2007).

Notwithstanding the relevance of anticipation in preventing crises and limiting their negative effects, there is a lack of empirical evidence in management studies about crisis-prevention activities in SMEs. Specifically, whereas SMEs display a comparatively higher capacity to react in the face of hardships than larger firms (Ates and Bititci, 2011; Battisti and Deakins, 2017; Campagnolo *et al.*, 2022; Pauluzzo, 2021; Smallbone *et al.*, 2012), they are less likely to possess the ability to anticipate adversities because of a lack of resources and dedicated organisational processes (Budge *et al.*, 2008; Herbane, 2013; Ritchie *et al.*, 2011; Runyan, 2006; Spillan and Hough, 2003). Moreover, as suggested by Herbane (2015), crisis management studies adopt a definition of adversity planning that is focused on the practices adopted by large companies, hence overlooking SMEs where planning is less likely to be formalised into organisational procedures (Falkner and Hiebl, 2015; Gao *et al.*, 2013; Herbane, 2015).

Addressing these limitations, this paper states that to detect weak signals of crises in the internal and external environment, SMEs can adopt different anticipation strategies characterised by an increasing level of organisational commitment. In particular, the present study defines organisational commitment as a combination of the frequency of the anticipation activities activated by the company and their level of formalisation. As noted by Fahey and King (1977) and Fahey *et al.* (1981), frequency and formalisation are strongly interrelated when it comes to the activities devoted to scanning the environment in search for adversities.

In particular, this study identifies four anticipation strategies that are characterised by a growing level of organisational commitment. Companies adopting a *reactive strategy* devote little or no resources to the identification and evaluation of adversities; rather than planning, they react to unanticipated crises. Facing a crisis, they leverage their organisational capability to improvise and solve problems by recombining already existing resources (Weick, 1993). SMEs adopting a *desultory anticipation strategy* devote their attention to the analysis of the components of the environment deemed important. Such a strategy does not entail the development of formal planning procedures, but it is instead based either on ad hoc analyses of relevant information (e.g., studies, reports) or on monitoring the warnings coming from employees who operate in direct contact with major contingencies. As a result, the detection of a forthcoming crisis may happen 'by chance', exploiting sensemaking capabilities of single individuals or groups. The adoption of a *regular anticipation strategy* draws on individual and organisational expertise in different fields (i.e., evolution of consumer tastes, technological innovation, and labour market legislation) to gather information on potential risks. The SME moves from occasional problem solving to regular threat detection, with the aim of assessing the impacts of adversities, hence planning the responses to them. The formulation of contingency plans may involve multiple roles, requiring collaboration and dedicated planning activities. This strategy aims to enhance the organisation's capability to handle environmental uncertainty rather than just sensing them. Finally, SMEs adopting a *continuous anticipation strategy* emphasise the capability of constantly monitoring internal and external environment through organisationally structured procedures. Potential threats to the business' survival and corresponding organisational responses are codified in formal risk registers, which collect information from different sources, updated crisis scenarios and response actions.

2.2. Experience of crisis and anticipation in SMEs

The experience of a prior crisis (i.e., an high-impact and low-probability event; see, among others, Burnard and Bhamra, 2011) has been identified as a crucial factor in informing the organisational capability to anticipate adversities (Duchek, 2020), because how an organisation makes sense and responds to new challenges depends on knowledge derived from prior events (Sutcliffe and Vogus, 2003). Investigating business disaster preparations in Memphis and Des Moines, Dahlhamer and D'Souza (1997, p. 277) find that a previous disaster experience is "a significant predictor of preparedness" because prior experience may lead to a valorisation of disaster-related preparedness. Similarly, Spillan and Hough (2003) suggest that *before* a crisis event, a SME maintains a natural tendency to passively wait for future potential challenges instead of proactively detecting and preparing for threats. On the other hand, *after* the appearance of an

event that threatens a firm's survival, the organisation tends to anticipate and prepare for potential subsequent adversities. In line with this, Herbane (2015, p. 584) observes a positive influence of the recent experience of a crisis on SMEs' "distinctness and formality of preparations for acute business interruptions".

However, not all the empirical studies confirm the learning advantages of a prior experience of adversity when it comes to preparedness for another crisis. In a case study about a severe flood in 1997 that caused the evacuation of Grand Forks, North Dakota, and damages of USD 1 billion, Flynn (2007) finds that the experience of adversity contributed only marginally to preparedness planning for firms operating during the disaster. Studying business recovery after a natural disaster, Dahlhamer and Tierney (1998) report an insignificant association between the experience of past adversities and recovery after a subsequent negative event. As for the reasons of these findings, authors (e.g., Josephson *et al.*, 2017; Spillan and Hough, 2003) suggested that prior knowledge may restrict a firm's scanning activities when it comes to familiar sources of crises. In addition, firms could find it difficult to learn from crises because such events are rare.

Overall, empirical studies in crisis management lack a consensus about the influence of prior experience of a crisis on anticipation and preventive actions towards future adversities. Concentrating on SMEs, further considerations are possible. Although SMEs may be poorly equipped for transferring the experiences of previous crises into future formal prevention strategies because of a lack of managerial resources, their limited size can favour the sharing of information and interpretation among individuals. Therefore it may be expected that SMEs which experienced a crisis are more likely to generate common mental maps among employees, retaining interpretations of problems, solutions and lessons learned (Sutcliffe and Vogus, 2003). This cognitive capability is essential for perceiving and making sense of adversities in the environment, and therefore anticipating future crises. As a consequence, notwithstanding the limited organisational resources devoted to formalisation, this study hypothesises that in SMEs the experience of a prior shock increases the likelihood of adopting anticipation strategies with a higher level of commitment:

H 1: The previous experience of a crisis increases the likelihood of adopting anticipation strategies characterised by higher levels of commitment.

2.3. Entrepreneur resilience and anticipation strategies in SMEs

Individual resilience can be defined as the individual ability of adaptation and thriving in face of adversities through anticipation, management, recovery and learning from personal and professional threats (Branicki *et al.*, 2018; Duchek, 2018; Fisher *et al.*, 2016). Resilient individuals

tend to excel in the face of ambiguity and change, identify previously unexploited opportunities, persist during times of adversity, and proactively take initiatives. All these behaviours are common attributes of an entrepreneur (Adomako, 2020; Branicki *et al.*, 2018; Fisher *et al.*, 2016; Markowska, 2018; Smallbone *et al.*, 2012) and can conduct to organisations' resilience, in particular in the case of SMEs, in which entrepreneurs directly shape the strategy and structure of the organisation (Ayala and Manzano, 2014; Branicki *et al.*, 2018; Santoro *et al.*, 2021). Indeed, organisational resilience "can be conceptualized as a meta-capability consisting of a set of organizational capabilities/routines that allow for a successful accomplishment" of anticipation, coping and adaptation in face of adversities (Duchek (2020, p. 224). However, not all studies support the existence of a positive relationship between the resilience of the entrepreneur and the resilience of the organisation ('bright' side effect). Conversely some studies suggest that the resilience of the entrepreneur can also negatively affect the resilience of the organization ('dark' side effect) (Korber and McNaughton, 2018; Williams *et al.*, 2017).

  According to the 'bright side' perspective, entrepreneur resilience increases organisational resilience as the former is expected to positively influence the organisation's ability to anticipate threats (Duchek, 2018; Korber and McNaughton, 2018; Williams *et al.*, 2017). As suggested by Korber and McNaughton (2018), entrepreneurs play a prominent role in anticipating and preparing for potential threats: resilient entrepreneurs "are better equipped to deal with disruptions" (Korber and McNaughton, 2018, p. 1133) because as a result of the combination of their individual characteristics (e.g., personal traits, skills and emotions) and situational factors (e.g., parents' behaviours and experiences, personal lives and business failures), they acquire the capacity to constantly sense the environment, adjust their perceptions and re-evaluate different situations (Duchek, 2018). Entrepreneur resilience is connected with the human capacity to anticipate and learn from the past (Gallopín, 2006). Therefore, because the "entrepreneurial activities and resilience strategies" are "interconnected" (Kantur and İşeri-Say, 2012, p. 772), it can be expected that resilient entrepreneurs positively affect the anticipation capability of their enterprise.

  The 'bright side' view of entrepreneur resilience as a positive meta-capability that contributes to organisational resilience (Lengnick-Hall *et al.*, 2011; Ma *et al.*, 2018) is contrasted by the 'dark side' perspective of individual resilience (Korber and McNaughton, 2018; Williams *et al.*, 2017). The 'dark side' perspective points out that the individual aspects associated with entrepreneur resilience (e.g., self-confidence, self-efficacy and positive self-image; for example, see De Vries and Shields, 2006, and Fatoki, 2018) might nurture optimistic self-conception (also "self-enhancing biases", per Westphal and Bonanno, 2007, p. 422) that, at higher levels, could produce negative organisational outcomes. As suggested by Cannon and Edmondson (2005, p. 302), "high

self-esteem is accompanied by […] 'positive illusions'" of control over both personal and organisational outcomes, and this "may be incompatible with an honest acknowledgement of failure, and thus, while promoting happiness, can inhibit learning". Hence, such positive illusion may reduce the likelihood to dedicate organisational resources to anticipation and preparation for adversities: overcoming or avoiding one or more business adversities may increase entrepreneurs' self-esteem and perception of self-efficacy in facing professional challenges (Tinsley *et al.*, 2012; Williams *et al.*, 2017). Entrepreneurs' self-confidence could increase to such an extent to consider their individual resilience as a substitute for organisational anticipation strategies, in particular in SMEs where the costs of resilience are potentially prohibitive (Branicki *et al.*, 2018).

Drawing on the conflicting expectations indicated by the bright and dark side perspectives on the relationship between the entrepreneur and the organisational resilience, this paper hypothesises a nonlinear association between entrepreneur resilience and the likelihood of adopting different anticipation strategies according to their level of commitment. In particular, in the case of anticipation strategies characterised by lower levels of commitment (reactive and desultory), it is expected that with the increase in the resilience of the entrepreneur there will be an initial reduction in the likelihood of adopting those strategies subsequently followed by an increase in their adoption (U-shaped relationship). Conversely, in the case of anticipation strategies characterised by higher levels of commitment (regular and continuous anticipation), it is expected that with the increase in the resilience of the entrepreneur there will be an initial increase in the likelihood of adopting those strategies progressively followed by a decrease in their adoption (inverted U-shaped relationship).

Concerning the first hypothesis (U-shaped relationship), it is expected that anticipation strategies characterised by lower levels of commitment (reactive and desultory) are most likely to be adopted in companies either by entrepreneurs with a low or a high level of individual resilience. Low resilient entrepreneurs are scarcely equipped to sense adversities and notice anomalies, and they are likely to transfer their low attention towards risks to their companies (the descending part of the U-shape). Conversely, highly resilient entrepreneurs would devote reduced attention to organisational anticipation because according to the 'dark side' perspective of individual resilience, they are confident in their individual ability to sense risks and detect weak signals in the market; therefore, they would not implement organisational processes to address this issue (the ascending part of the U-shape). Again, it is expected that anticipation strategies characterised by lower levels of commitment would less likely be adopted by entrepreneurs with an intermediate level of resilience because they are expected to possess a personal awareness about the potential negative effects of adversities and, hence, about the necessity to build organisational capabilities for detecting business threats. Therefore, hypothesis 2a is formulated:

H 2a: Entrepreneur resilience has a U-shaped relationship with the likelihood of adopting anticipation strategies characterised by lower levels of commitment (i.e., reactive strategy and desultory anticipation strategy).

Concerning the second hypothesis (inverted U-shaped relationship), it is expected that anticipation strategies characterised by higher levels of commitment (regular and continuous anticipation) are most likely to be adopted in companies by entrepreneurs with a medium level of individual resilience.

Entrepreneurs low on individual resilience are more likely to share their concerns about the environment and their preoccupations with failure with their collaborators and employees (the ascending part of the inverted U-shape). However, in the case of highly resilient entrepreneurs, it is expected that overconfidence about their personal ability and judgement of the environment will likely prevent them from committing their organisation to the prevention of adversities (the descending tract of the inverted U-shape). Therefore, hypothesis 2b is formulated:

H 2b: Entrepreneur resilience has an inverted U-shaped relationship with the likelihood of adopting anticipation strategies characterised by higher levels of commitment (i.e., regular anticipation strategy and continuous anticipation strategy).

3. Data and methodology

The sample for the current study comprises 959 German and Italian SMEs (according to the Commission Recommendation of 6 May 2003 concerning the definition of micro, small-sized and medium-sized enterprises). The data were collected through the research project 'Building Better Business Resilience', a two-year study on small business resilience in five peripheries of big cities (Paris, Frankfurt, Milan, Madrid, and London), funded by the JPMorgan Chase Foundation and led by the Enterprise Research Centre (ERC) at Warwick Business School and Aston Business School [1]. Data collection was conducted in late 2018 and early 2019. The data were surveyed using a computer-assisted telephone interview (CATI). The respondents were all leaders of their businesses. The current research is based on data from German and Italian SMEs, given that (1) these countries "present both similar institutional and economic features" (Delmestri, 1997, p. 93), (2) the SMEs in these countries present a similar "investment and innovation behavior", whose activities decline "throughout a crisis" (Abel-Koch *et al.*, 2015, pp. 12-13), and (3) the two national contexts present

certain similarities in terms of their entrepreneurial characteristics (Del Junco and Brás-dos-Santos, 2009).

To analyse the several strategic choices towards the SMEs' anticipation and preparation for business adversities, the multinomial logit model (MLM) is used. This regression model is used with a categorical dependent variable that has more than two categories (outcomes) and can also be used when the categories are ordered, especially "ordered on multiple dimensions" (Long and Freese, 2014, p. 385), or when there are doubts or failure in meeting the assumption of parallel regression. It "may be understood as a set of binary logits among all pairs of outcomes" (Long and Freese, 2014, p. 389). In this study, the *reactive strategy* is the 'natural' base outcome used to compare the different categories of *anticipation*. Note that the MLM is characterised by a certain complexity in interpretation aggravated by the nonlinearity of the model (Long and Freese, 2014). However, this study refers to Wulff (2015) to clearly present and interpret the results of the regression.

3.1. Dependent variable

3.1.1. Anticipation strategies. This categorical and ordered variable represents four anticipation strategies for adversities that are characterised by a growing level of organisational commitment. Specifically, the strategic choices are derived from the question 'Which one of the following best describes how you feel about business risks?' with four possible answers:

1) 'We don't think about risks at all until they arise, and then, we deal with them'.
2) 'We sometimes think about risks but do not make specific plans to deal with them'.
3) 'We regularly think about risks and formulate plans'.
4) 'We have a formal risk register with response strategies, which is kept under review'.

The first item delineates a *reactive strategy*, which characterises 148 firms (15.43% of the sample), whereas the others represent a *desultory anticipation strategy* (item 2, 291 firms, 30.34% of the sample), a *regular anticipation strategy* (item 3, 406 firms, 42.34%) and a *continuous anticipation strategy* (item 4, 114 firms, 11.89%), respectively.

3.2. Independent variables

3.2.1. Experience of a previous crisis. This dichotomous variable indicates whether a firm has experienced (or not) a crisis that has threatened the firm's survival in the previous 5 years as compared with the year of the dependent variable. In the sample, 262 firms (27.32% of the sample) had experienced a crisis, whereas 697 firms (72.68%) had not.

3.2.2. *Entrepreneur resilience*. This continuous variable represents the level of resilience of the entrepreneur. It is measured by the 10-item Connor Davidson Resilience Scale (10-item CD-RISC) (Campbell-Sills and Stein, 2007; Connor and Davidson, 2003), which is similar to Fatoki (2018). Every item is rated on a 5-point Likert scale (from 1, 'not true at all', to 5, 'true nearly all the time'), and the measure is calculated by summing the 10 items and ranging them from 0 to 40 (Shin *et al.*, 2018). The Cronbach's α for this measure is 0.79, which suggests an adequate level of internal consistency (Acock, 2018). The mean of the variable is 31.90, and the standard deviation is 5.23.

3.3. Control variables

Following the previous literature on organisational preparedness for adversities, this study controls for firm age and size (Herbane, 2015) as well as the gender of the leader (Bremser *et al.*, 2014), and whether the firm is migrant led or not (migrant-led firms are typically more prone to informality; see Pugliese, 1993). Moreover, this study controls for the geographical location of the SMEs through a dummy variable in which Italy is the base category. Following the literature on entrepreneur resilience, this study controls for factors that could be involved with resilience, such as the entrepreneur's age, education and experience (Ayala and Manzano, 2014; Markowska, 2018). Table I reports information about the control variables.

SMEs	*N*	*%*	*Entrepreneurs*	*N*	*%*
Location	959		Experience	959	
Germany		45.6	Limited		63.8
Italy		54.4	High		36.2
Age	959		Age	959	
Less than 3 years		5.0	Less than 35 years old		9.0
Over 3 up to 5 years		7.7	35-44 years old		21.6
Over 5 up to 10 years		19.5	45-54 years old		31.8
Over 10 up to 20 years		23.0	55-64 years old		28.1
More than 20 years		44.7	More than 65 years old		9.5
Size	959		Education	959	
Micro		56.9	Below A-levels		16.7
Small		39.1	A-levels or an apprenticeship qualification		41.6
Medium		4.0	A Bachelor Degree or equivalent		15.1
Female-led Firm	959		A Doctorate or Master's Degree		26.6
Yes		47.5			
No		52.5			
Migrant-led Firm	959				
Yes		22.6			
No		77.4			

Table I. Control Variables – Descriptive Statistics

As reported by Velu *et al.* (2019, p. 12), "controlling for endogeneity is not advisable in predictive modelling whereas for explanatory modelling, controlling for endogeneity is essential". Considering that the MLM is predictive modelling and that the purpose of the research is not to explain but to predict a certain strategic choice towards anticipation and preparation for business adversities, this study eschews endogeneity issues. Moreover, potential common method bias is considered. Both a procedural and statistical remedy to control for this (Podsakoff *et al.*, 2012) are used. First, a proximal separation between the dependent variable and predictors has been created by putting the questions in different sections of the questionnaire (procedural remedy). Second, the Harman's single factor test (Podsakoff *et al.*, 2003) is performed through an exploratory factor analysis, examining the unrotated solution to define how many factors are necessary to explain the variance in the variables. The results of the principal component factor analysis show that neither a single factor emerges nor a single factor accounts for the majority of the variance. Therefore, common method variance does not call the findings into question.

4. Results

Table II presents the correlation table for the dependent and independent variables.

	1a	1b	1c	1d	2	3	4	5	6	7	8	9	10	11
1a. Reactive Strategy	-	-	-	-										
1b. Desultory Anticipation S.	-	-	-	-										
1c. Regular Anticipation S.	-	-	-	-										
1d. Continuous Anticipation S.	-	-	-	-										
2. Experience of a previous crisis	-.107**	.003	.100*	-.037	-									
3. Entrepreneur Resilience	.047	-.085**	-.019	.098**	-.034	-								
4. Entrepreneur Resilience ^2	.056†	-.081*	-.031	.100**	-.038	.993***	-							
5. Firm's Age	-.037	-.028	.043	.016	.047	-.018	-.020	-						
6. Firm's Size	-.064†	-.069*	.043	.105**	-.029	.007	.005	.121***	-					
7. Female-led Firm	.022	.018	-.049	.025	-.048	.088**	.088**	.100**	.010	-				
8. Migrant-led Firm	.121**	-.015	-.060†	-.022	-.041	-.000	-.006	-.364***	-.032	-.025	-			
9. Entrepreneur's Education	-.149**	-.028	.151**	-.024	.090**	-.043	-.051	.045	.079*	-.122***	-.097**	-		
10. Entrepreneur's Experience	-.033	-.086**	.084**	.032	.035	.083**	.086**	-.149***	-.047	-.151***	.049	.057†	-	
11. Entrepreneur's Age	.044	-.077*	.021	.029	-.041	.101**	.108***	.255***	-.023	.078*	-.210***	-.016	.155***	-
12. Location	-.119**	-.016	.161**	-.090**	.073*	.043	.045	.053	-.055†	-.027	.081*	.231***	.052	.089**

Note: For clarity and simplicity, we have reported a single coefficient also for the categorical variables firm's age, firm's size, entrepreneur's education and age, considering them as continuous variables, since they are ordered.

† $p \leq 0.10$ * $p \leq 0.05$ ** $p \leq 0.01$ *** p 0.001

Table II. Correlation Table

Table III presents the results of the multinomial logit regression. In Model A, only the control variables are considered, whereas in Model B, the experience of a previous adversity, entrepreneur resilience and its squared term are introduced. These results are not immediately interpretable. As stated by Wulff (2015), interpreting the results from a MLM requires several steps based on the results of the regression. First, the model fit is tested while also comparing the final model with the model in which there are only the control variables. Second, the statistical significance of the crucial variables is confirmed through a Wald or likelihood ratio (LR) test; finally, the predicted probabilities of the strategic choices and the marginal effects of the key variables are analysed.

First, the LR test in the model with only the control variables (Model A) is significant ($p < 0.001$, R^2 Nagelkerke $= 0.152$), thus suggesting that at least a subgroup of independent variables has nonzero effects. The final model (Model B) shows an increase both in LR (from 145.035 to 180.219, with $p < 0.001$) and in Nagelkerke R^2 (from 0.152 to 0.186). These results demonstrate the improved explanatory power of the final model. Moreover, the AIC of Model B (2.478) is lower than the AIC of Model A (2.496), suggesting that the fit of Model B is increased enough to compensate for its greater complexity than that of Model A. Overall, these results suggest a good model fit with the predictors introduced here: the dichotomous variable regarding the experience of a prior adversity, the continuous variable entrepreneur resilience and its squared term.

	Model A			Model B		
	Reaction vs. Desultory Anticipation	Reaction vs. Regular Anticipation	Reaction vs. Continuous Anticipation	Reaction vs. Desultory Anticipation	Reaction vs. Regular Anticipation	Reaction vs. Continuous Anticipation
Experience of a previous crisis						
Yes	-	-	-	0.5229† (0.2703)	0.6942** (0.2600)	0.3001 (0.3277)
Entrepreneur Resilience	-	-	-	0.2027 (0.1562)	0.5273** (0.1678)	0.2987 (0.2283)
Entrepreneur Resilience^2	-	-	-	-0.0040 (0.0026)	-0.0091*** (0.0027)	-0.0043 (0.0037)
Firm's Age						
Over 3, up to 5 years	1.1010* (0.5626)	0.9295 (0.5760)	0.9861 (0.7759)	1.0808† (0.5660)	0.8413 (0.5818)	0.9152 (0.7780)
Over 5, up to 10 years	0.0419 (0.4737)	0.6093 (0.4710)	0.8069 (0.6563)	-0.0437 (0.4778)	0.4902 (0.4765)	0.7654 (0.6600)
Over 10, up to 20 years	0.4378 (0.4726)	0.6373 (0.4749)	0.3908 (0.6743)	0.3414 (0.4770)	0.4889 (0.4805)	0.2991 (0.6776)
More than 20 years	0.0759 (0.4641)	0.4157 (0.4656)	0.4105 (0.6513)	-0.0357 (0.4694)	0.2499 (0.4719)	0.3502 (0.6546)
Firm's Size						
Small	0.0340 (0.2237)	0.3602† (0.2138)	0.7401** (0.2697)	0.0584 (0.2256)	0.3918† (0.2168)	0.7555** (0.2711)
Medium	0.6956 (0.8016)	1.0176 (0.7704)	1.7022* (0.8391)	0.7553 (0.8023)	1.0623 (0.7732)	1.6847* (0.8415)
Female-led firm						
Yes	0.1453 (0.2150)	0.0340 (0.2079)	0.2730 (0.2655)	0.1894 (0.2178)	0.0691 (0.2113)	0.2457 (0.2675)
Migrant-led firm						
Yes	-0.9053*** (0.2724)	-0.9638*** (0.2610)	-0.8414* (0.3449)	-0.9215*** (0.2774)	-0.9971*** (0.2661)	-0.8654* (0.3486)
Entrepreneur's Education						
A-levels or an apprenticeship qualification	0.2539 (0.2822)	0.5712* (0.2794)	0.0682 (0.3583)	0.2449 (0.2854)	0.5854* (0.2839)	0.1148 (0.3601)
A Bachelor Degree or equivalent	0.8024* (0.4076)	1.1586** (0.3974)	1.1687* (0.4689)	0.6883† (0.4112)	1.0222* (0.4026)	1.1164* (0.4739)
A Doctorate or Master's Degree	0.5061 (0.3359)	1.0285*** (0.3232)	0.3240 (0.4211)	0.4129 (0.3395)	0.9113** (0.3284)	0.2993 (0.4244)

Entrepreneur's Experience						
High	-0.0142 (0.2363)	0.4476* (0.2239)	0.4864† (0.2812)	0.0193 (0.2393)	0.4739* (0.2278)	0.4547 (0.2832)
Entrepreneur's Age						
35 – 44	-0.9371† (0.5025)	-0.9097† (0.5012)	-0.9449 (0.5925)	-0.8805† (0.5069)	-0.8647† (0.5070)	-0.9378 (0.5959)
45 – 54	-1.5159** (0.4933)	-1.2788** (0.4894)	-1.3338* (0.5786)	-1.4399** (0.4981)	-1.2078* (0.4954)	-1.3168* (0.5838)
55 – 64	-0.8809† (0.5178)	-0.8028 (0.5143)	-0.4156 (0.5949)	-0.7544 (0.5236)	-0.6707 (0.5212)	-0.4015 (0.6004)
More than 64	-2.0366*** (0.5759)	-1.5427** (0.5526)	-1.3816* (0.6618)	-1.8998*** (0.5824)	-1.3909* (0.5609)	-1.3620* (0.6677)
Location						
Germany	0.6024* (0.2380)	0.9751*** (0.2294)	0.0623 (0.2946)	0.6325** (0.2412)	1.0152*** (0.2335)	0.0736 (0.2964)
Constant	1.224† (0.6524)	0.3746 (0.6541)	-0.5851 (0.8482)	-1.1495 (2.3946)	-7.0755** (2.6001)	-5.5836 (3.5853)
R^2 **Nagelkerke**	0.152	0.152	0.152	0.186	0.186	0.186
AIC	2.496	2.496	2.496	2.478	2.478	2.478
Chi-squared	145.035	145.035	145.035	180.219	180.219	180.219
Change in Chi-squared	-	-	-	+35.184	+35.184	+35.184
N	959	959	959	959	959	959

Notes: The base-levels of the categorical independent variables are the followings:
Experience of a previous crisis: No
Firm's Age: Less than 3 years
Firm's Size: Micro
Female-led Firm: No
Migrant-led Firm: No
Entrepreneur's Education: Below A-levels
Entrepreneur's Experience: Limited
Entrepreneur's Age: Less than 35 years old
Location: Italy
Standard Error in brackets

† $p \leq 0.10$ * $p \leq 0.05$ ** $p \leq 0.01$ *** $p \leq 0.001$ Table III. Multinomial Logistic Regression Results

Second, a Wald test is used to examine the significance of the predictors, here with more than one coefficient for each variable. The category of firms that have experienced a crisis is statistically significant (chi-squared = 8.21, p = 0.0418). Moreover, both entrepreneur resilience (chi-squared = 10.65, p = 0.0138) and its squared term (chi-squared = 11.47, p = 0.0094) are statistically significant (jointly, chi-squared = 24.90, p = 0.0004). In sum, the crucial variables are all statistically significant, with $p < 0.05$. To analyse the direction of the relationships, this study estimates the predicted probabilities of each anticipation strategy and the marginal effects of the key variables.

4.1. Predicted probabilities and marginal effects

The predicted probabilities refer to the likelihood of adopting a certain strategy towards adversities, which is computed considering the value of the independent variable. They provide "informative graphical information about the direction and magnitude of the relationship" (Wulff, 2015, p. 305). However, to complete the interpretation of the results of the regression model, an analysis of the marginal effects of the independent variables on each anticipation strategy is essential. The marginal effects permit an analysis of the change in predicted probabilities given by the change of a particular independent variable. The marginal effects calculated both for the variable means and average are reported, in which the former is calculated based on the mean values of the predictors and the latter on the independent variables' actual values.

Following the graph, Figure 1 plots the predicted probabilities of each anticipation strategy with respect to the experience of a previous adversity. In general, SMEs are more likely to adopt an anticipation strategy (desultory, regular or continuous) of adversities rather than one based on reaction regardless of prior crisis. Such evidence contradicts previous literature towards the pure reactive character of SMEs towards adversities. However, comparing the adoption of a reactive strategy with the likelihood to practice a continuous anticipation – therefore a formalised anticipation strategy usually adopted by large firms – it may be noticed that the former strategy (reactive) is more likely than the latter one (continuous anticipation).
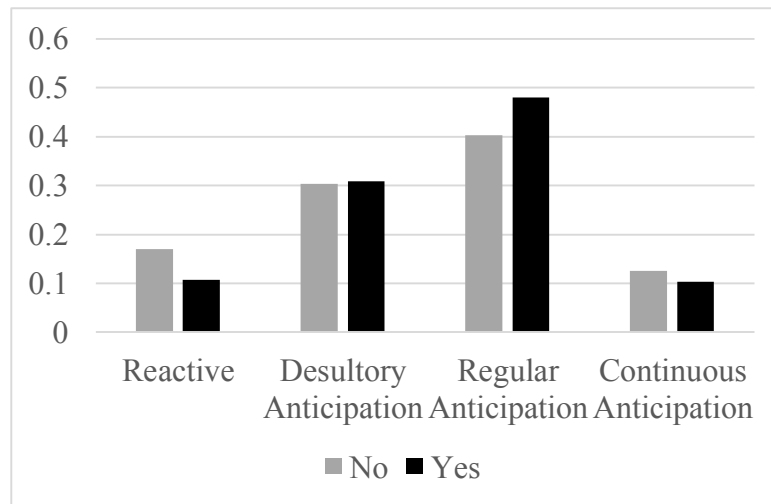
Figure 1. Predicted Probabilities of the Adversities Strategies based on the experience of a previous crisis

Tables IV and V present the predicted probabilities of different SMEs' strategic approaches towards business adversities and the marginal effects of the crucial variables on them. For the continuous variable measuring entrepreneur resilience, these measures are calculated at low (1 standard deviation below the mean), medium and high levels (1 standard deviation above the mean).

As reported in Table IV, the experience of previous adversity decreases the likelihood of adopting a *reactive strategy* towards business adversities from 16.96% to 10.77%. The difference, which is represented by the marginal effects calculated for both the variable means and average, is statistically significant. Moreover, the probability of adopting a *regular anticipation strategy* increases from 40.25% to 47.98%, and the difference is statistically significant. However, neither *desultory anticipation* nor *continuous anticipation* significantly change the likelihood of being adopted after the experience of a prior adversity. These findings suggest that the previous experience of a crisis reduces the likelihood of adopting a *reactive strategy*, conversely increasing the likelihood of implementing a *regular anticipation strategy,* thus confirming Hypothesis 1.

Anticipation Strategies	Experience of a previous crisis			
	No	Yes		
	Predicted Probabilities	Predicted Probabilities	Marginal Effects	
			Marginal Effects at Variable Means	*Average Marginal Effects*
Reactive	.1696*** (.0134)	.1077*** (.0200)	-.0525** (.0199)	-.0619* (.0243)
Desultory Anticipation	.3029*** (.0171)	.3090*** (.0284)	-.0035 (.0345)	.0061 (.0334)
Regular Anticipation	.4025*** (.0181)	.4798*** (.0302)	.0794* (.0379)	.0773* (.0354)
Continuous Anticipation	.1250*** (.0122)	.1035*** (.0190)	-.0235 (.0211)	-.0215 (.0227)

Note: Standard Error in brackets

* $p \leq 0.05$ ** $p \leq 0.01$ *** $p \leq 0.001$

Table IV. Predicted Probabilities and Marginal Effects of the experience of a previous crisis on the several SME's anticipation strategies toward adversities

Considering entrepreneur resilience, Figures 2, 3, 4 and 5 plot the predicted probabilities of the several strategic choices towards adversities. They are reported starting from the value of entrepreneur resilience, in which the predicted probabilities are statistically significant (at least with $p < 0.10$). Every plot has a different scale. The graphs show that the adoption of a reactive strategy has a U-shaped relationship with entrepreneur resilience, whereas the other *anticipation strategies* have a different relationship: an inverted U-shaped for the *regular anticipation strategy* and a convex nonlinear relationship for both the *desultory* (inverted J-shaped) and *continuous anticipation strategies* (J-shaped). Therefore, this results partially confirmed Hypothesis 2a (for the *reactive strategy*) and Hypothesis 2b (for the *regular anticipation strategy*).
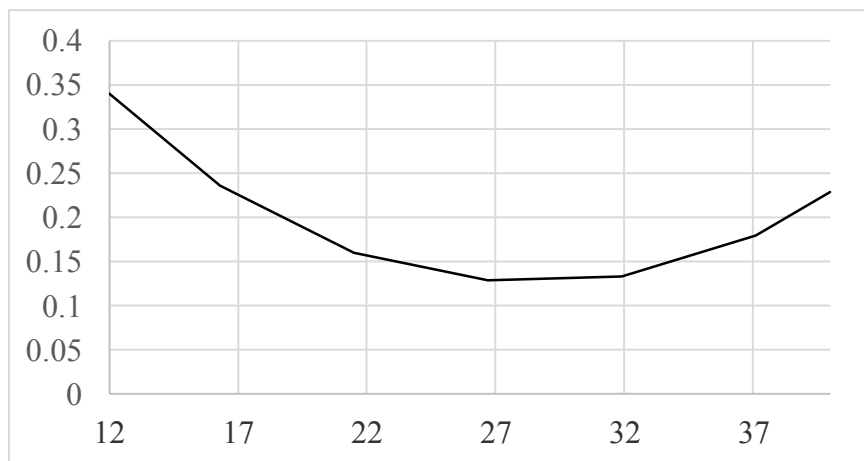

Figure 2. Predicted Probabilities of the *Reactive Strategy* based on the entrepreneur resilience
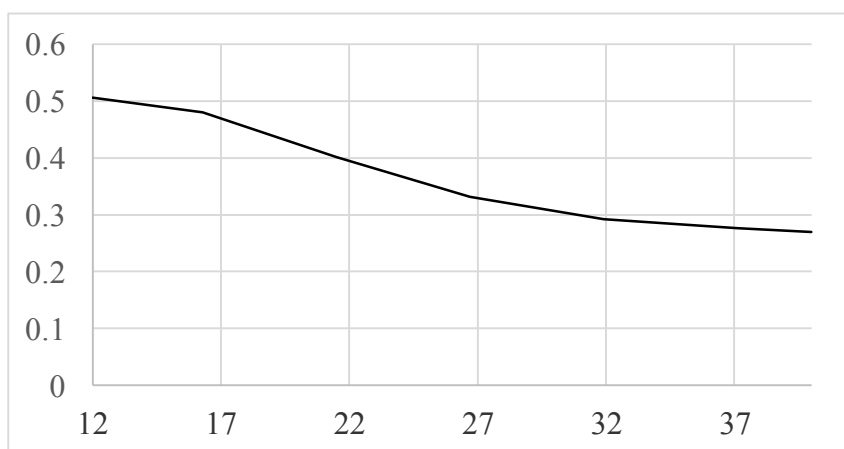

Figure 3. Predicted Probabilities of the *Desultory Anticipation Strategy* based on the entrepreneur resilience
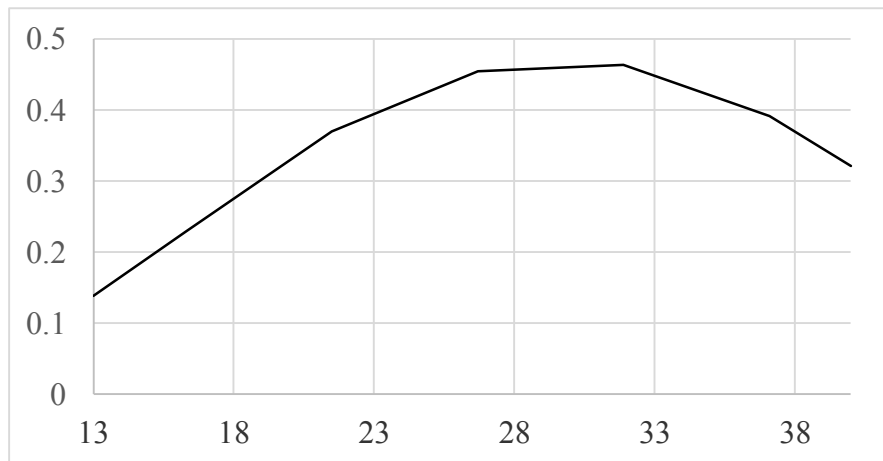
Figure 4. Predicted Probabilities of the *Regular Anticipation Strategy* based on the entrepreneur resilience
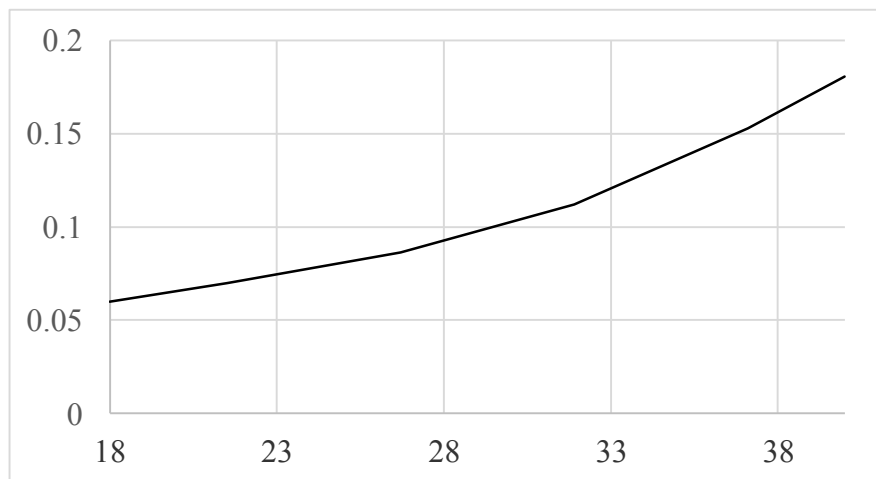

Figure 5. Predicted Probabilities of the *Continuous Anticipation Strategy* based on the entrepreneur resilience

Analysing the results in Table V, which represents the point estimation of predicted probabilities and marginal effects based on specific values of entrepreneur resilience, the likelihood of adopting a *reactive strategy* towards business adversities moves from 12.84% for lower levels of resilience (i.e., 1 standard deviation below the mean) to 13.32% for medium levels and 17.91% for higher levels (i.e., 1 standard deviation above the mean). Moreover, the marginal effects increase in the *continuum* of entrepreneur resilience and are statistically significant for the medium and high levels. Thus, strongly resilient entrepreneurs are less likely to adopt anticipatory and preventive actions towards business adversities.

The likelihood of adopting a *desultory anticipation strategy* decreases along the *continuum* of resilience (from 33.11% to 29.17% and 27.63%), even if the marginal effects suggest that the

lower levels of resilience have a higher influence on this choice, being that the related marginal effects are statistically significant (and negative).

The probability of adopting a *regular anticipation strategy* significantly increases passing from low to medium levels of resilience (from 45.44% to 46.31%), but after that, it decreases at higher levels (39.17%). The marginal effects are weakly statistically significant for lower and medium levels of resilience, positive for lower levels and negative for medium levels but only when considering the marginal effects calculated as 'average marginal effects'. The marginal effects are strongly statistically significant for higher levels but negative otherwise.

The probability of adopting a *continuous anticipation strategy* increases along the *continuum* of resilience of the entrepreneur. The curve increases from low to medium and high levels of resilience, from 8.62% to 11.19% and, finally, 15.29%, with the tendency to increase. The marginal effects are positive and significant for medium and high levels.

Anticipation Strategies	Entrepreneur Resilience								
	Low (1 *SD* below)			Mean			High (1 *SD* above)		
	Predicted Probabilities	Marginal Effects		Predicted Probabilities	Marginal Effects		Predicted Probabilities	Marginal Effects	
		Marginal Effects at Variable Means	*Average Marginal Effects*		*Marginal Effects at Variable Means*	*Average Marginal Effects*		*Marginal Effects at Variable Means*	*Average Marginal Effects*
Reactive	.1284*** (.0148)	-.0023 (.0024)	-.0024 (.0026)	.1332*** (.0128)	.0043* (.0018)	.0044* (.0019)	.1791*** (.0170)	.0141* (.0056)	.0138** (.0054)
Desultory Anticipation	.3311*** (.0225)	-.0115* (.0046)	-.0106* (.0043)	.2917*** (.0179)	-.0045 (.0033)	-.0047 (.0031)	.2763*** (.0214)	-.0015 (.0063)	-.0020 (.0059)
Regular Anticipation	.4544*** (.0237)	.0102† (.0053)	.0093† (.0049)	.4631*** (.0200)	-.0061 (.0037)	-.0060† (.0035)	.3917*** (.0232)	-.0225*** (.0071)	-.0210*** (.0065)
Continuous Anticipation	.0862*** (.0131)	.0036 (.0025)	.0038 (.0026)	.1119*** (.0129)	.0064*** (.0020)	.0063** (.0020)	.1529*** (.0168)	.0099† (.0059)	.0092 (.0057)

Note: Standard Error in brackets

† p ≤ 0.10 * p ≤ 0.05 ** p ≤ 0.01 *** p ≤ 0.001

Table V. Predicted Probabilities and Marginal Effects of the entrepreneur resilience on the several SME's anticipation strategies toward adversities

5. Discussion

Drawing on the resilience literature (Burnard and Bhamra, 2011; Duchek, 2018, 2020; Korber and McNaughton, 2018; Sutcliffe and Vogus, 2003; Williams *et al.*, 2017), in particular on the recent capability-based conceptualization of organisational resilience (Duchek, 2020), the present research has proposed and tested a model of the relationship between the organisational experience of previous adversity and the individual resilience of the entrepreneur to the likelihood that a SME adopts anticipation strategies for adversities.

Regarding the relationship between the organisational experience of previous adversity and a SME's anticipation strategies, the results show that such experience diminishes the probability of adopting a reactive approach towards adversity through coping actions aimed at limiting only the consequences of adversity once the crisis has occurred. Conversely, the results confirm that if the firm experienced a crisis in the past, it has a higher probability of committing more time and resources to proactively scanning the environment, identifying potential threats and preparing accordingly through regular actions of anticipation. It is worth noting that the results do not confirm that experiences of adversities promote the highest level of commitment for anticipation, that is, the use of continuous formal procedures. These results can be explained by both the learning advantages that a firm has gained through the experience of a prior shock and the limits of formalisation that SMEs usually encounter. Knowledge and sensing go hand in hand (Weick *et al.*, 2005), and several contributions on resilience have pointed out that learning is an essential outcome of the process that begins with crisis recognition and ends with enhancing environmental monitoring (Burnard and Bhamra, 2011; Duchek, 2020; Ma *et al.*, 2018; Tasic *et al.*, 2020). Contributing to these studies, the results confirm that SMEs that have experienced a crisis are more likely to anticipate adversities but with an intermediate level of commitment, therefore without formalising a structured risk planning procedure. In developing their resilience, SMEs balance adaptation and planning (Herbane, 2015; Vargo and Seville, 2011). By adopting a regular anticipation strategy, SMEs temper both the risk of rigidity associated with formalised planning (i.e., through the adoption of a *continuous anticipation* strategy) and the risk of uncertainty associated with simple adaptation (i.e., a *reactive strategy*) or occasional anticipation (i.e., *desultory anticipation*). In other words, what could count the most for a SME is a diffused, not occasional forward-looking, mentality that a consistent, albeit informal, anticipation strategy produces.

As far as the relationship between the entrepreneur resilience and SME's anticipation strategies is concerned, the results show the existence of a nonlinear and quadratic relationship. The resilience of the entrepreneur is an individual capability resulting from addressing and overcoming

personal and professional difficulties (Bernard and Barbosa, 2016). Entrepreneurs with low levels of resilience are less characterised by the experience of challenging events and successful actions compared to both medium and highly resilient entrepreneurs. When it comes to entrepreneurs characterised by low levels of resilience, the results suggest that they are more likely to adopt anticipation strategies characterised by low commitment compared to entrepreneurs with medium levels of resilience. This can be the result of less experience of prior challenge events and the related subsequent actions to overcome those difficulties.

Entrepreneurs with medium levels of resilience show more attention to anticipation, decreasing the tendency to adopt strategies characterised by a low organisational commitment and increasing the likelihood of adopting strategies characterised by high commitment. In this case, entrepreneurs' resilience could 'complements' the adoption of organisational practices aimed at anticipating for adversities. Again, entrepreneurs displaying medium level of individual resilience and who are leveraging their awareness of adversities, recognise problems and understand their implications. Compared to entrepreneurs with low resilience, such entrepreneurs have experienced more negative events, are better aware of their consequences and of how to cope with them (Bernard and Barbosa, 2016). As a consequence, it is more likely that they know that both to identify potential threats in complex and uncertain environments and to react promptly to crises, they can hardly build only on their own resources. Instead, the support of the whole organisation is essential. Hence, they are more likely to promote the adoption of actions of regular detection and preparation that draw on their individual sensemaking and collections of information (i.e., research reports, informal exchanges with business partners), as well as on employees' cognitive capabilities (Santoro *et al.*, 2021).

Highly resilient entrepreneurs demonstrate an increasing tendency to both passively react and continuously anticipate business threats. What diminishes is the likelihood of adopting anticipation strategies that, sometimes emerging by occasional interactions, are not formally planned. Passively reacting can be in line with recent studies (Bonini *et al.*, 2019) that show the risk of overconfidence due to high individual resilience and, consequently, the higher probability to incur in risky situations without planning in advance because highly resilient people have the tendency to believe that they can control, or at least influence, outcomes that are governed by chance ('dark side' effects of resilience). On the other hand, the results on continuously anticipating business threats by highly resilient individuals counter this belief by showing that the resilience of the entrepreneur can lead to the adoption of a formal strategy of planning for adversities that also incorporates the risk of rigidity. The findings do not offer conclusive results on the role of high level of individual resilience on the adoption of anticipation strategies: it was out of the scope of the

paper demonstrating whether firms led by highly resilient individuals should adopt organisational resilience practices based on anticipation or could, conversely, leverage on such trait of their founder. However, it is worth underlying that even if the formal planning can lead to a certain organisational rigidity in face of threats, having a continuous review process of the formal plan and response strategy can help to better adapt the organisation in face of crises thanks to the anticipation mentality formal planning advances. Again, having a pure reactive approach can help to promptly and flexibly respond to a negative event that does not match the assumptions of planning through ad hoc and intuitive decisions (Duchek, 2020). Different professional (and personal) adverse events, upon which the resilience of the individual entrepreneur is built (Bernard and Barbosa, 2016; Duchek, 2018), could have influenced the perceived benefit of an approach instead of the other. Individuals with high resilience more likely experimented highly traumatic adversities. This means that they can rely on more (negative) experiences, which have helped to distinguish the benefits of a purely reactive strategy compared to those of a formal planning approach. Furthermore, this accumulated experience can positively affect the possibility to transfer resilience from the individual to the organisation, since that the higher the experience of adversities (and of the actions adopted to overcome it), the higher the probability the individual will share the associated knowledge within the organization.

In sum, the relationship between the individual resilience of the entrepreneur and the adoption of anticipation strategies is a nonlinear relationship that relies on the prior individual traumatic experiences and the knowledge of the benefit of adopting a reactive or a more formal proactive approach to threats.

6. Conclusion and limitations

The findings contribute to the studies on resilience in several ways. First, by demonstrating that SMEs adopt different anticipation strategies for adversities, this study addresses the limitations of the literature, which has focused on the ability of SMEs to react to crises rather than to anticipate them. In particular, this study adds to such studies by demonstrating that because SMEs are characterised by limited resources, it is unlikely that a SME adopt a formal plan for adversity, but this does not imply that the SME does not have any anticipation capability. On the contrary, SMEs regularly scan internal and external environments, anticipating risks and preparing for possible solutions, even if such a process does not lead to a formalised risk register. Second, testing the effects of the organisational experience of previous crises and of the individual resilience of the entrepreneur on the likelihood that a SME adopts anticipation strategies, it is demonstrated that learning from critical events (either experienced at the individual or organisational levels) is an

essential element of anticipation that can foster a developmental process of building resilience. In this way, this paper contributes to the theoretical perspective of resilience as a process (Duchek, 2020), and it is addressed the call by Korber and McNaughton (2018, p. 1141), who assert that "while this learning aspect of resilience is often mentioned, insights into the underpinning practices and processes are largely missing". Third, the literature on resilience has highlighted that there is a direct but complex link between individual and organisational resilience (Branicki *et al.*, 2018; Lengnick-Hall *et al.*, 2011), even if the comprehension of this link is still limited (Linnenluecke, 2017; Santoro *et al.*, 2021; Tasic *et al.*, 2020). This study adds to the understanding of this relationship, opening the possibility that the individual resilience of the entrepreneur is linked with the organisational resilience of a SME through the adoption of different anticipation strategies.

The results also have relevant managerial implications. First, the study suggests that SMEs can leverage experience to build future resilience. Although demonstrating the microfoundations of learning from experience was out of the scope of this paper, this research shows that the experience accumulated in previous crises can represent a prior knowledge base that purposefully drives the development of the observation and identification practices that nurture the anticipation and preparation capabilities of resilience. Therefore, managers and entrepreneurs should promote cognitive processes of the articulation of knowledge derived from reflection on experiences to activate regular strategies of anticipation. Second, practical implications for entrepreneurs (and owners/managers) in SMEs are represented by the importance of knowing and valorising their own resilience, being aware of the 'dark side' of this factor and not underestimating the importance and benefits of anticipating adversities at the organisational level.

This study has several limitations. First, even though a time lag is left between the independent and dependent variables, further research could improve the analysis using longitudinal data in order to explore the processual view of the capability model. Second, in the model, the organisational experience of a prior crisis and the entrepreneur resilience are treated as separate factors since the entrepreneur resilience seems to be more associated with the entire personal history of the entrepreneur (Bernard and Barbosa, 2016) rather than with a specific experience of a firm's crisis. Further research could investigate the influence of a specific crisis of the firm on the individual resilience of the entrepreneur. Third, the point of transition between bright and dark side effects requires further study since this study considers entrepreneur resilience as static but – being an ability – it may be nurtured and it may change over time (Duchek, 2018). Further studies could investigate the likelihood of adopting different anticipation of adversities over the life of an entrepreneur as a consequence of the learning process activated by having faced multiple crises.

Notes

1. "Building Better Business Resilience" is a two year, five-country study into small business resilience, funded by the JPMorgan Chase Foundation and led by the Enterprise Research Centre (ERC) at Warwick Business School and Aston Business School. The research was carried out in collaboration with academic partners from the University of Nice Sophia Antipolis, the Institut für Mittelstandsforschung (IfM) in Bonn, IE Business School in Madrid and the University of Padova. The study examines the ways in which small- and medium-sized enterprises in general and those led by underrepresented groups in particular experience and respond to adversity.

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II. THE RELATIONSHIP BETWEEN ANTICIPATION OF ADVERSITIES, ORGANISATIONAL STRUCTURE, AND FIRM PERFORMANCE IN SMALL AND MEDIUM-SIZED ENTERPRISES (SMEs)

Abstract

Purpose – Anticipation of adversities improves the potential resilience of a firm. However, no prominent studies have investigated (1) the influence of the adoption of a strategy that aims to anticipate and prepare for an adversity on the firm performance in a small business context, and (2) the role of the organisational structure in amplifying or diminishing the positive effects of the adoption of an anticipation strategy of adversities. The purpose of this paper is to shed some light on the benefit of building potential resilience in SMEs and the role of the organisational structure.

Design/methodology/approach – Using an original dataset of 409 Italian SMEs, the research uses a Generalized Structural Equation Modelling in order to test whether the adoption of an anticipation strategy of adversities influences the firm performance and whether there is a mediation effect of the organisational structure.

Findings – The paper shows the positive influence of the anticipation and preparation for adversities on the firm performance and the partial mediation effect of the coordination mechanism based on standardisation.

Originality/value – The originalities rely on the investigation of the benefit related to the adoption of an anticipation strategy of adversity in small business context out of an actual crisis and the link suggested between organisational resilience and organisational structure. Cultivating the potential resilience of the firm and the coordination mechanisms based on standardisation means improving the performance even if an actual crisis does not happen.

Keywords Firm Performance, Anticipation, Adversities, Small and medium-sized enterprises, Organisational resilience, Crisis Management.

Paper type Research paper

1. Introduction

Resilience implies a combination of flexibility, adaptability and foresight to overcome changes that are not predictable representing unforeseen threats and opportunities (Duchek, 2020). Today's turbulent business environment challenges the firm's resilience (Annarelli and Nonino, 2016; Burnard and Bhamra, 2011; Linnenluecke, 2017; Williams *et al.*, 2017), stimulating the understanding of risks (Hardy *et al.*, 2020) and the adoption of adequate strategies and structures to reach better performance (Miller, 1988). This is particularly true in small and medium enterprises (SMEs) (Herbane, 2010; Sullivan-Taylor and Branicki, 2011), which are well known for their ability to react and leverage on the individual resilience of the entrepreneur (Ates and Bititci, 2011; Battisti and Deakins, 2017; Branicki *et al.*, 2018; Marcazzan *et al.*, 2022; Smallbone *et al.*, 2012). However, as firms grow reactive capabilities and individual resilience are less likely to be sufficient to ensure the resilience of a broader, more complex, system and even for SMEs having an anticipation strategy for adversity becomes essential to sustain a firm's organisational resilience and performance (Seville, 2009; Vargo and Seville, 2011).

An anticipation strategy for adversity requires a variety of practices that starts from enhancing forecasting and trend analysis to anticipate possible threats and prepare accordingly and continue with buffering, redundancy, and external alliances to cope with such events when they occur (Gray and Jones, 2016; Somers, 2009; Sutcliffe and Vogus, 2003; Weick and Sutcliffe, 2007). However, an anticipation strategy for adversity does not translate automatically into enhanced organisational resilience. The latter also depends on a firm's organisational structure and systems that allow to function reliably both in "business usual" times as well as under turbulent times (Faraj and Xiao, 2006; Vargo and Seville, 2011). Organisational structure and systems represent how a firm solve the so called "universal problems of organizing" (Puranam, 2018), i.e., the division of labour and the integration of efforts. The former (division of labour) is the breakdown of the organisation's goals into contributory sub-goals and tasks and their allocation to individual members of the organisation. The latter (integration of efforts) is an aggregation process that requires mechanisms that promote cooperative behaviours and ensure that the information needed to coordinate efforts is available to the employees. Where unexpected challenges are more frequent, integration of efforts is paramount and even more important than task division and allocation (Faraj and Xiao, 2006). However, even if unexpected negative events represent the more urgent threats, these events are not the unique type of adversity that can threaten the business survival. In this research, adversity is defined in a broad way, meaning both negative expected and unexpected threats for the organisation survival, since adverse events can also derive from risks that are manageable with traditional risk management practises (van der Vegt *et al.*, 2015).

In this paper is argued that, although anticipation strategies for adversity create potential resilience, plan for adversities can hardly anticipate any threats. Therefore, the organisational solutions a firm regularly adopts to ensure integration are pivotal to ensure that the resilience potential turns effective. The research's view is in line with mainstream contributions on the relationship between strategy and structure. Indeed, Chandler (1962, p. 383) maintains that "a company's strategy in time determined its structure", conceptualising strategy as "the plan for the allocation of resources to anticipated demand". In this conceptualisation, it is possible to read strategy in terms of planning in order to be prepared to anticipate opportunities and threats for the business survival and prosperity. Again, the relationship between anticipation strategy and organisational structure is also advanced by Wildavsky (1988, p. 8) who states that decentralised structure "can achieve a greater degree of safety" compared to centralised organisations. Very recently, Meyer *et al.* (2022, p. 512) state that, compared to larger organisations, SMEs' "strategy to sustain a competitive advantage and be prepared for future changes may be more likely in strengthening their organizational structure" than in exploration of "global environmental changes". This statement suggests, on one side, the limits of the SMEs (i.e., being proactive toward unexpected global events) and, on the other side, that organisational structure is the outcome of a process of planning and preparedness that involves the thinking of potential threats for the business survival (i.e., a process of anticipation) in order to reach the desired (economic) sustainability. Specifically, this paper investigates whether different coordination mechanisms mediate the relationship between an anticipation strategy for adversity and firm performance "*before* organizations need to recover*" (Välikangas and Romme, 2013, p. 44), since the actions taken during the period that precedes an adverse event can be crucial for the organisational success (Sull, 2005). Using an original dataset on 409 Italian SMEs, the model is tested using a Generalized Structural Equation Modelling (GSEM). The results show that the anticipation of adversities is related to better (expected) firm performance, and that mediation effects between the anticipation of adversities and the firm performance is significant only via SME's standardisation (as a partial mediation). Moreover, the potential endogeneity problem is tested in the relationship between strategy and structure, confirming the exogeneity of the anticipation of adversities.

The research contributes to the SMEs' organisation design, crisis management and organisational resilience literatures, since it is measured to what extent the choice of adopting an anticipation strategy for adversities is related with firm performance and which is the role played by coordination mechanisms in mediating this relationships. Moreover, the research contributes to the organisation design literature in comparing mutual adjustment (and standardisation) with hierarchy

in terms of organisational performance. The results show that the anticipation of adversities and the standardisation are crucial elements to explain the performance in small business.

The study proceeds as follows. In the next section the literature toward the anticipation and preparation for adversities in SMEs, its relationship with the structure and performance is reviewed and the hypotheses are developed. Then, in the methodological section, the data are presented, the variables are described and the methodology is introduced. After that, the results, the discussion, implications, limitations of the study are reported, giving also suggestions for further research.

2. Literature review and hypotheses development

2.1. Anticipation of adversities in SMEs

The organisational resilience stream of research suggests that SMEs are less able to anticipate threats for their business survival (Burnard and Bhamra, 2011) and, thus, are more prone to the negative effects of crises than larger organisations (Pal *et al.*, 2014). Drawing on environmental scanning literature (Fahey and King, 1977; Fahey *et al.*, 1981) and high reliability theory (Weick and Sutcliffe, 2006, 2007; Weick *et al.*, 1999), Duchek (2020) suggests that, in order to anticipate the unexpected, business organisations need to improve their focus both on to the internal and the external environment and, according to this investigation, preparing their business to avoid or to stem a subsequent crisis. Even if an organisation cannot anticipate any unexpected event, it can prevent these unexpected events from growing into troubles by tracking small failures, resisting oversimplification and remaining aware of the ongoing operations (Weick and Sutcliffe, 2007). This continuous state of alert can help the organisation in day-to-day activities. Alongside the unexpected, that represent the more urgent challenges for today's organisations, firms can also encounter expected adverse events, manageable with traditional risk management practices (van der Vegt *et al.*, 2015). Therefore, in this research adversity is defined in a broad manner, identifying both expected and unexpected events that can threaten the organisational survival.

Notwithstanding the importance of anticipating adversities before they escalate in a major adverstiy, there is a lack of empirical studies in management research about crisis-prevention in small businesses. This is due to the fact that SMEs have a general limited capacity to anticipate threats (Burnard and Bhamra, 2011) and are generally described as firms with a higher capacity to react in the face of crises than their larger counterparts (Ates and Bititci, 2011; Battisti and Deakins, 2017; Smallbone *et al.*, 2012). Due to the lack of organisational resources and dedicated processes, SMEs have structural limits in preventing crises (Budge *et al.*, 2008; Herbane, 2013; Ritchie *et al.*, 2011; Runyan, 2006; Spillan and Hough, 2003). Moreover, generally SMEs present a less formalised planning for adversities and risk and crisis management practices (Falkner and Hiebl,

2015; Gao *et al.*, 2013; Herbane, 2015). Acknowledging SMEs' peculiarities, it is suggested that, in order to anticipate adversities, small businesses can choose different strategies characterised by a different degree of organisational commitment. Here organisational commitment is defined as a combination of frequency and formalisation of the anticipation activities implemented by the firm (Aguilar, 1967; Fahey and King, 1977; Fahey *et al.*, 1981). Specifically, in this paper four strategies characterised by an increasing degree of commitment are considered: reaction (i.e. absence of anticipation), desultory anticipation, regular anticipation and continuous anticipation. As a firm moves from a reactive strategy to a desultory, regular and continuous anticipation strategy, it progressively increases its level of commitment toward the proactive actions of anticipation and preparation (Marcazzan *et al.*, 2022).

2.2. Anticipation of adversities and performance in SMEs

Notwithstanding the benefits of anticipation, preparation and pre-adversity planning, (Battisti and Deakins, 2017; Prayag *et al.*, 2018; Williams *et al.*, 2017), there are no prominent evidences about its direct influence on the firm performance in small business. As stated by Sull (2005), it is more important what a decision maker does in period of "relative calm", *actively waiting* for both potential threats and opportunities, rather than what she/he does in periods of crisis. Anticipating adversities and preparing accordingly means stimulate the tracking of small failures before they escalate into a major critical event, resisting to simplistic interpretations on what is going wrong inside the organisation, promoting scepticism, information sharing, dialogue and rising of different perspectives regarding the same event, and remaining aware of the ongoing operations, a matter of "situation awareness" or the US navy ships' concept of "having the bubble" (Weick *et al.*, 1999). Moreover, "being prepared means that a firm or agency is equipped to deal with unforeseen adversity and it is ready to capitalize on unexpected opportunities" (Lengnick-Hall and Beck, 2009, p. 3). Being prepared for an adversity can help to discover the hidden opportunity of a critical moment (Vargo and Seville, 2011).

Considering that resilience is a capacity that not only permits an organisation to survive in the aftermath of an adversity, but also to "foster future success" (Duchek, 2020, p. 216), and that Nadine (1998, p. 340) stated that "in some cases, the growth of the firm may occur to the detriment of current income and profits" in order to build future success, this paper focuses on the SMEs' future (short-term) expected performance. Specifically, it is focused on the expected *turnover* in SMEs as a binary variable (combining Blanchard, 2020, Nadine, 1998, and Wood, 2006).

H 1: The anticipation of adversities has a positive relationship with the SME's performance.

2.3. Anticipation of adversities and organisational structure

Organisational structure and systems represent the way in which a firm solves the "universal problems of organizing" (Puranam, 2018), i.e. the division of labour and the integration of efforts. The division of labour is the breakdown of the organisation's goals into contributory sub-goals and tasks and their allocation to individual members of the organisation. Integration of efforts is an aggregation process that requires mechanisms that promote cooperative behaviours and ensure that the information needed to coordinate efforts is available to the employees.

Integration of effort is more important than task division and allocation where adverse events are more frequent (Faraj and Xiao, 2006). Indeed, dynamic environments make the division of labour less strict, tasks broader and increasingly interdependent. It is essential that employees integrate their efforts having the right information to execute actions and contribute towards the goals of the organisation. Integration of efforts call for cooperation and coordination. Dynamic environments and the risks of threats rise the probability of cooperation and coordination failures. Cooperation failures implies the lack of motivation to achieve a collective outcome, while coordination failures the inability of anticipating each other's actions and adjust accordingly. Integration of efforts is essential both before or during possible threats because shirking and free-riding or misunderstanding and delays, that are the outcomes of cooperation and coordination failures respectively, might have catastrophic consequences and put the survival of firms at risk.

Based on mainstream organisational theory, integration of efforts can be achieved through a variety of coordination mechanisms. Following Mintzberg (1980), integration can be achieved through feedback mechanisms, i.e., direct supervision and mutual adjustments, or through standardisation mechanisms. Feedback and standardisation mechanisms differ because the former rely on ongoing direct exchange of information and knowledge among actors executing actions and taking decisions in a vertical or horizontal relationship respectively, whereas the latter (standardisation) is based on stable parameters, routines and rules that are established ex-ante and on which actors must adhere when performing their tasks. Whereas standard rules best fit situations in which dynamism is limited, mutual adjustment is more effective when the rate of change is high. Again, the use of hierarchy through direct supervision fits situation of limited variety and ensures fast decision-making processes and the preservation of a unitary vision. Although it is well known that such coordination mechanisms fit different environmental conditions, much less is known about their effect when coupled with the adoption of anticipation strategies for adversities.

2.3.1. Anticipation of adversities, standardisation and performance in SMEs. Mintzberg (1980, p. 324) defines standardisation as a coordination mechanism through which "the work is coordinated by the imposition […] of standards, to guide the doing of work itself" or "by the imposition […] of standard performance measures or specifications concerning the output of the work", or again "by the internalization by individuals of standard skills and knowledge, usually before they begin to do the work". Anticipating adversities and preparing accordingly could stimulate the adoption of standardisation, since planning for adversities is useful in identifying "expected procedures, and employee and manager areas of responsibility" (Preble, 1997, p. 785).

A lack of formalisation and standardisation in the organisational structure can lead to role ambiguity (Dalton *et al.*, 1980), that in turn "causes confusion about *who* is supposed to do particular routine tasks" and "about *what* should be done to adapt to new circumstances" (Sine *et al.*, 2006, p. 123). When an event generates a threat for the business survival, in SMEs "the phases of detection and activation may be limited by the low level of strategic planning and lack of formalised decision-making processes within SMEs" (Burnard and Bhamra, 2011, p. 5594). Even if the flexibility could increase the resilience of a SME during an adversity (Sullivan-Taylor and Branicki, 2011), the lack of planning (an activity that could be well-devoted to the anticipation and preparation for adversities, as stated by Duchek, 2020), formalisation and standardisation may expose the same organisation to a delay in detecting the actual negative event, thus undermining the possibility to avoid a crisis, or to promptly stem it. Therefore, having an "anticipatory mentality" should induce the organisation to create standardised rules and procedures in order to coordinate people and/or organisational units in SMEs avoiding role ambiguity. Following Meijaard *et al.* (2005), in this research work formalisation and standardisation are considered as synonymous.

H 2: The standardisation mediates the relationship between anticipation of adversities and firm performance in SMEs.

2.3.2. Anticipation of adversities, hierarchy and performance in SMEs. Mintzberg (1980, p. 324) conceptualises direct supervision as the coordination mechanism according to which "one individual (typically a manger) gives specific orders to others and thereby coordinates their work". Duchek (2020, p. 237), following previous works on resilience, states that "One of the most important principals in fostering organizational resilience is power based on expertise and experience rather than hierarchical position". Weick and Sutcliffe (2007, p. 74) are very clear toward the risk of hierarchy, "Since people in higher positions often get nothing but filtered good news, those senior people continue to believe that things are going well. This filtering can work

against managing the unexpected. As an unexpected event begins to materialize, someone somewhere sees early warning signs. But the first to know tend to be lower in rank, invisible, reluctant to speak up, and may not even realize that what they are seeing is important". This situation could have the effect of worsening the firm performance, since it does not permit a promptly stem to weak negative signals. It is possible to say that in organisations the ability to anticipate a threat is already there and that relies on the lower in the hierarchical rank of the organisation. Planning for adversity could stimulate a reconsideration of the direct supervision and hierarchy in coordinate people and unite in organisations. Therefore, the hierarchy could mediate the relationship between the adoption of an anticipation strategy that aims to plan for negative events and the firm performance.

H 3: The hierarchy mediates the relationship between anticipation of adversities and firm performance in SMEs.

2.3.3. Anticipation of adversities, mutual adjustment and performance in SMEs. Mintzberg (1980, p. 324) defines mutual adjustment as the coordination mechanism through which "individuals coordinate their own work, by communicating informally whit each other". Instead of hierarchy, resilient firms are based on "decentralization, self-organization, and shared decision-making" (Duchek, 2020, p. 237). Relatedly, acting with anticipation means create an internal environment willing to include different analysis about organisational processes from the point of view of different individuals, allowing "those perspectives to be heard and to surface information not held in common" (Weick and Sutcliffe, 2007, p. 63). This could mean favoring "mutual adjustment through informal communication" (Meijaard *et al.*, 2005, p. 88), rising the importance of the lower in the hierarchical rank of the firm, since it is the sentinel toward adverse events. Again, favouring this type of mechanism of coordination may have an impact on the performance, since it leads to improve and correct maladaptive tendencies in the organisation that can create major crisis. Therefore, it is hypothesised that the mutual adjustment can mediate the relationship between the anticipation of adversities and the firm performance in SMEs.

H 4: The mutual adjustment mediates the relationship between anticipation of adversities and firm performance in SMEs.

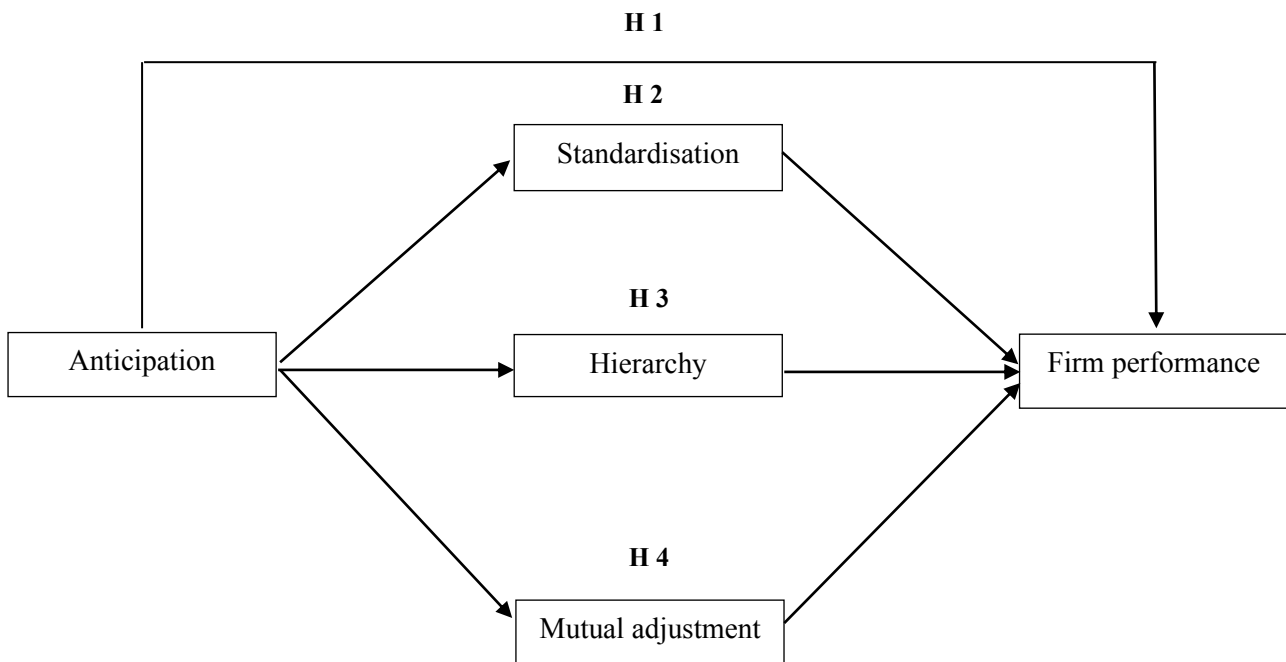Figure 1 reports the hypotheses in a graphical model.

H 1

H 2
Standardisation

H 3
Hierarchy

Anticipation

Firm performance

H 4
Mutual adjustment

Figure 1. Graphical model "anticipation-structure-performance" and the relationships hypothesised

3. Data and methodology

The sample for this study comprised 409 Italian SMEs (according with the Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises). The data were collected through the research project 'Building Better Business Resilience', a two-year study on small business resilience in five peripheries of big cities (Paris, Frankfurt, Milan, Madrid, and London), funded by the JPMorgan Chase Foundation and led by the Enterprise Research Centre (ERC) at Warwick Business School and Aston Business School[1]. Data collection was conducted in late 2018 and early 2019. The data were surveyed using a computer assisted telephone interview (CATI). The respondents were all leaders of their businesses. This research is based on data from Italian SMEs since it represents an ideal landscape for research at the intersection between small business and resilience (Alberti *et al.*, 2018).

To analyse the "anticipation-structure-performance" relationship, it is used the Generalized Structural Equation Modelling (GSEM), since it represents an appropriate tool in order to test mediation (Gunzler *et al.*, 2013) with the presence of a factor variable (Lombardi *et al.*, 2017).

3.1. Dependent Variable

3.1.1. Firm Performance. This variable is a dummy that represents the improvement (1) or the stationarity/worsening (0) toward the short-term (12 months) expected turnover. In the sample, 177 firms a value of 0 (43.28%) and 232 a value of 1 (56.72%).

3.2. Independent Variable

3.2.1. Anticipation strategies. This variable represents the four previous mentioned anticipation strategies for adversities characterised by a growing level of organisational commitment. Specifically, the strategic choices are derived from the question 'Which one of the following best describes how you feel about business risks?' with four possible answers:

1) 'We don't think about risks at all until they arise, and then, we deal with them'.

2) 'We sometimes think about risks but do not make specific plans to deal with them'.

3) 'We regularly think about risks and formulate plans'.

4) 'We have a formal risk register with response strategies, which is kept under review'.

The first item delineates a *reactive strategy*, which characterises 62 firms (15.16% of the sample), whereas the others represent a *desultory anticipation strategy* (item 2, 126 firms, 30.81% of the sample), a *regular anticipation strategy* (item 3, 161 firms, 39.36%) and a *continuous anticipation strategy* (item 4, 60 firms, 14.67%), respectively. For clarity and simplicity in the principal analysis it is considered as a continuous variable (mean = 2.5355; SD = 0.9205).

3.3. Mediators

3.3.1. Standardisation. This variable is a 5-point Likert scale that represents the degree through which procedures and written rules are used to assure the coordination between both people and units in the SME (mean = 3.1100; SD = 1.3613).

3.3.2. Hierarchy. This variable is a 5-point Likert scale that represents the degree through which the hierarchy is used to assure the coordination between both people and units in the SME (mean = 3.2421; SD = 1.3183).

3.3.3. Mutual adjustment. This variable is a 5-point Likert scale that represents the degree through which the mutual adjustment is used to assure the coordination between both people and units in the SME (mean = 2.7702; SD = 1.4673).

3.4. Control Variables

In the relationship between strategy and structure the following control variables are used: firm age, firm size (Lababidi *et al.*, 2020), whether the firm is male or female-led (see Eagly and

Johnson, 1990), whether the firm is non-migrant or migrant-led (typically, the migrant-led firms are more prone to informality, see Pugliese, 1993), and the business sector (considering high-technology manufacturing firms, medium-high-technology manufacturing firms, medium-low technology-manufacturing firms, low-technology manufacturing firms, knowledge-based service firms, non-knowledge-based service firms, and others, similarly to Pertusa-Ortega *et al.*, 2010).

In the relationship between strategy and performance and between structure and performance, the same previous control variables are used, adding crucial entrepreneurial characteristics in predicting firm performance in SMEs, i.e. the entrepreneur's resilience (mean = 31.59; SD = 5.3125; min = 14; max = 40), age, education and experience (Ayala and Manzano, 2014). The following table summarises the statistics of the control variables, except for the entrepreneur's resilience.

SME		*N = 409*	%	*Entrepreneur*		*N = 409*	%
Firm Age				E. Age			
	<4 years	16	3.91		<35 years	41	10.02
	4-5 years	24	5.87		35-44 years	84	20.54
	6-10 years	55	13.45		45-54 years	126	30.81
	11-20 years	104	25.43		55-64 years	112	27.38
	>20 years	210	51.34		>64 years	46	11.25
Firm Size				E. Education			
	Micro	210	51.34		PhD/Master	77	18.83
	Small	184	44.99		Bachelor	60	14.67
	Medium	15	3.67		A-levels	239	58.44
Gender					<A-levels	23	5.62
	Female-led	186	45.48		Other	10	2.44
	Male-led	223	54.52	E. Experience			
Ethnicity					High	140	34.23
	Ethnic-led	9	2.20		Limited	269	65.77
	NEthnic-led	400	97.80				
Bus. Sector							
	L H	38	9.29				
	M/L H	78	19.07				
	M/H H	48	11.74				
	H H	11	2.69				
	KB S	49	11.98				
	NKB S	133	32.52				
	Others	52	12.71				

Table I. Control Variables

4. Results

In the following table the correlation of the variables is reported.

	F. Per.	Hierar.	Std	M. Adj.	Anticip.	F. Age	F. Size	E. Res.	E. Age	E. Educ.	E. Exp.	NoFem-L	NoMig-L
Hierar.	.029												
Std	.118*	.455***											
M. Adj.	.004	.290***	.469***										
Anticip.	.203***	.184***	.229***	.137**									
F. Age	-.163***	.079	.048	-.031	-.014								
F. Size	.116*	.192***	.240***	.198***	.101*	.138**							
E. Res.	.102*	.049	.035	.116*	.025	-.043	-.001						
E. Age	-.140**	.001	.023	.032	.013	.109*	-.007	.090†					
E. Educ.	-.053	-.065	-.054	-.054	-.072	-.046	-.149**	.060	.168***				
E. Exp.	.004	.011	-.021	.046	-.112*	.048	.007	-.045	-.188***	.025			
NoFem-L	.055	-.082†	-.042	-.053	-.040	.008	-.001	-.089*	-.118*	-.067	-.121*		
NoMig-L	.037	-.036	-.049	-.012	-.058	.035	-.078	-.053	.056	.111*	.067	-0003	
Business	.003	.012	-.056	.082†	-.008	-.140**	-.080	.024	-.063	.074	-.004	.026	-.104*

† $p \leq 0.10$ * $p \leq 0.05$ ** $p \leq 0.01$ *** $p \leq 0.001$

Table II. Correlation matrix

4.1. The performance of the GSEM

The goodness-of-fit of the GSEM is given by Aikake Information Criterion (AIC), Bayesian Information Criterion (BIC) and the log pseudo-likelihood (Welsh *et al.*, 2018). They are, respectively, 4794.36, 5119.471, and -2316.18. In order to compare the performance of the model, the AIC and BIC of the GSEM model are considered with the same measures of a Structural Equation Modelling (SEM) that assumes every variable as continuous and linear relationships (Zhang and Zhang, 2018). The AIC of the GSEM is lower than the AIC of the SEM (4794.36 < 15572.53), as well as the BIC (5119.471 < 15729.06). These results suggest the superiority of the GSEM model.

4.2. Results of the "anticipation-structure-performance" model

In the following figure the results of the GSEM are reported. Moreover, the indirect effects are computed in order to test the significance of the mediation.
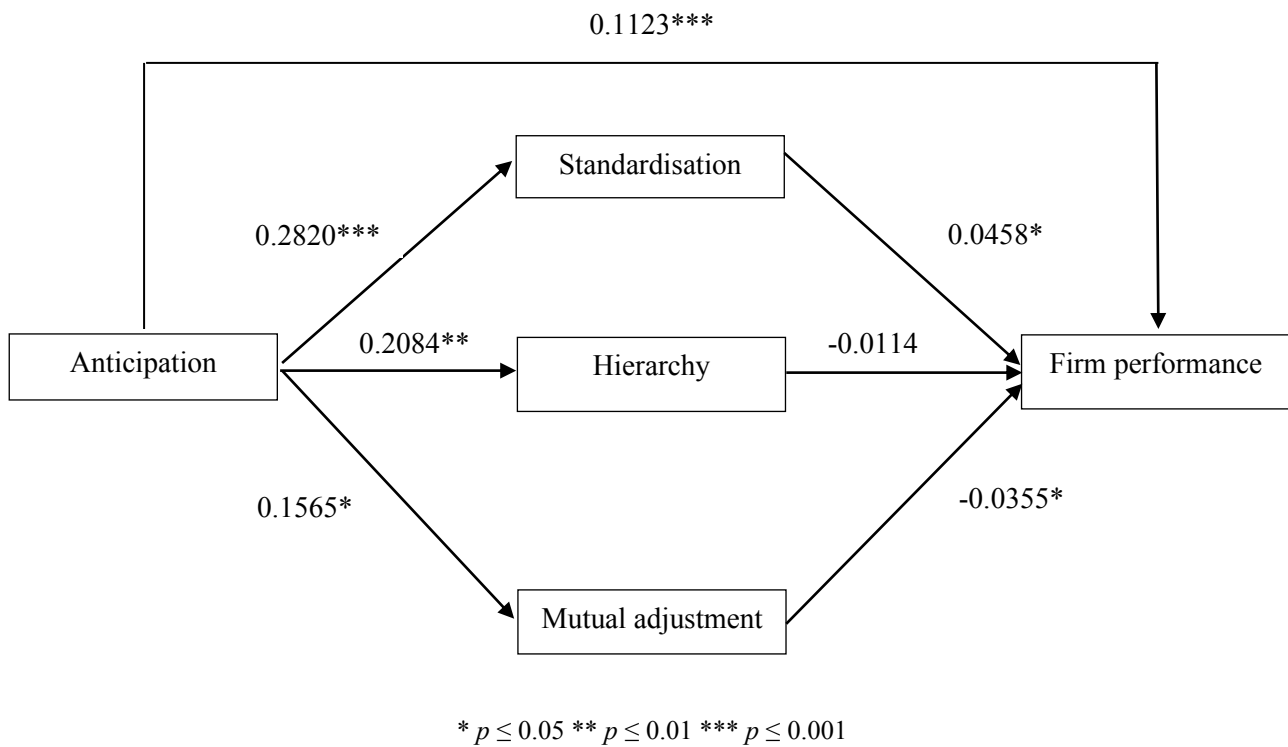
Figure 2. Results of the "anticipation-structure-performance" relationship

Hypothesis 1 predicted that the anticipation of adversities positively influences the firm performance. This hypothesis is confirmed ($\beta = 0.1123$, with $p < 0.001$).

Hypothesis 2 predicted the significant effect of the mediation between anticipation of adversities and firm performance via SME's standardisation. The hypothesis is confirmed. The indirect effect of the relationship between anticipation of adversities and firm performance via SME's standardisation is positive and significant ($\beta = 0.0129$, with $p = 0.055$).

Hypothesis 3 predicted the significant effect of the mediation between anticipation of adversities and firm performance via SME's hierarchy. The hypothesis is not confirmed.

Hypothesis 4 predicted the significant effect of the mediation between anticipation of adversities and firm performance via SME's mutual adjustment. The hypothesis is not confirmed.

The influence of the entrepreneur resilience (not reported in the figure) is positive and significant ($\beta = 0.0106$, with $p = 0.014$).

4.3. Robustness analysis

The model was replied using the anticipation of adversities as a categorical variable. The main results are in line with those related to the principal model, confirming only the hypotheses 1 and 2.

Through the IV regression and the related Durbin, Wu-Hausman and Woolridge's (1995) score tests for endogeneity, the exogeneity in the relationship between anticipation of adversities and structure (i.e. standardisation, hierarchy and mutual adjustment) is confirmed. An instrument that relies on the following question was used: 'in the last 12 months have you sought external advice or information on any matters affecting your business'? The search for advice/information is correlated with the anticipation of adversities (0.1961, with $p < 0.001$), but, at the same time, it should not be directly related to the degree of standardisation, hierarchy and mutual adjustment within the firm. The instrument is not weak (the F-statistic is 12.66, greater than 10, the rule of thumb for one instrument and one potential endogenous regressor, with $p < 0.001$). Through STATA, the previously mentioned tests for endogeneity after the IV regression were computed. Considering that the null hypothesis of the tests considers the crucial variable as exogenous, the insignificant values of the tests confirm the exogeneity of the anticipation of adversities in the relationship with the structure of the firm.

The potential common method bias of this research was taken into account. Hence, both procedural and statistical remedies were adopted (Podsakoff *et al.*, 2012). First, a proximal separation was created between the dependent variable, the mediators and the predictor by putting the questions in different sections of the questionnaire (procedural remedy). Second, the Harman's single factor test was adopted (Podsakoff *et al.*, 2003), through an exploratory factor analysis, examining the unrotated solution to define how many factors are necessary to explain the variance in the variables. The results of the principal component factor analysis show that neither a single factor emerges nor a single factor accounts for the majority of the variance. Therefore, common method variance does not call the findings into question.

The Variance Inflation Factor (VIF) confirms that there are not multicollinearity issues in the model (maximum = 1.88, mean = 1.30).

5. Discussion

This study aimed to shed some light on the benefits of building potential resilience in SMEs. Considering that resilience can lead to future success, the influence of an anticipation strategy of adversities and the structure of the SMEs on the expected performance are tested. An improvement of the performance can be reached mainly through the adoption of an anticipation strategy of adversities, but its effect is partially mediated by the degree of standardisation of the structure. Therefore, net of the entrepreneur's resilience, anticipation of adversities and coordination mechanism based on standardisation are the keys to reach better economic performance in SMEs.

Branicki *et al.* (2018) stated that resilience in SMEs can take two opposite views: on one side, there is the "traditional view", that focuses on the literature developed from the characteristics of the large firms, and that apply the same crucial findings (i.e., abundance of resources, formal systems and processes, redundancy and planning) to the SME's context, finding several constraints to the development of resilience in SMEs; on the other side there is the so-called "alternative view", that mainly focuses on the entrepreneurial resilience as the crucial part for the resilience in SMEs. SME leader's day-to-day pressures is associated with the lack of planning in SMEs, which is not a main limit for the development of resilience in small business context following the "alternative view" (Branicki *et al.*, 2018). However, far from being useless, the "traditional view" of organisational resilience has excellent suggestions in building SME's success.

Focusing on the relationship between anticipation and structure, the results show that the adoption of an anticipation strategy of adversities increases the need of the overall coordination. This could be explained by the fat that thinking about adversities and the subsequent potential responses to them (i.e., planning) means also (and potentially) thinking about the interdependence of the several areas of the organisation, stimulating the strengthening of the coordination within the firm in order to promote information and knowledge sharing. Being aware of expected adversities could stimulate the adoption of procedures and written rules (i.e., standardisation) in order to coordinate people and organisational units, whereas unexpected adversities might stimulate the need of more personal coordination mechanisms in order to promptly share information and knowledge about what is going wrong inside (and outside) the organisation. However, in periods of "relative calm" (i.e., before the organisation needs to implement an adversity's response plan in face of an actual threat) and giving the limits of resources, skills and expertise in crisis management, it is more crucial for SMEs to focus on (expected) adversities strengthening their organisational structure through standardisation (leading to higher expected performance) than mutual adjustment and hierarchy. One limitation is represented by the fact that small firms are typically "more centralized than a large firm because there are fewer hierarchical levels to decentralize" (Pertusa-Ortega *et al.*, 2010, p. 1287). Therefore, there might be a structural limit to decrease the importance of the direct supervision of the entrepreneur in coordinating the work division in a small firm.

The results suggest that in small firms relying on mutual adjustment can be counterproductive but strengthening procedures and written rules can help to capitalise on an anticipation strategy. This seems to partially contradict the suggestions given by the high reliability theory (Cantu *et al.*, 2020; Weick and Sutcliffe, 2006, 2007; Weick *et al.*, 1999) toward the coordination, but is in line with Gunasekaran *et al.* (2011), according to which the results of the

study can be explained by the benefit of addressing the typical weaknesses of small firms in terms of resilience (and, thus, in terms of future success).

If a small organisation plans for adversities but relying on a high degree of hierarchy, it can create myopic scenarios, and slow processes of detection and activation when a threat rises, with no improvement of the firm performance. If a SME plans for adversities but incentivising mutual adjustment, it could create role ambiguity issues, with negative effects on performance. Planning for adversities relying on standardised coordination mechanism could increase resilience potential in small firms, improving the firm performance. This is more in line with an engineering perspective of organisational resilience and the presence of expected and repeated adverse events.

6. Theoretical and practical implications

The research contributes to the SME's organisation design, organisational resilience and crisis management literatures, since it adds the anticipation of adversities as a crucial element in order to explain the performance in small business, and sheds some light on the relationship between anticipation and organisational structure (in terms of coordination mechanisms). The paper adds to other research on organisational resilience in small business that focuses on the importance of the "traditional" factors associated with resilience, suggesting that the "traditional" and the "alternative" view of resilience in small business are complementary perspectives. Moreover, the research shows that in SMEs the adoption of a strategy that aims to develop potential resilience can be more effective within an organisational structure that relies on standardisation instead of mutual adjustment or hierarchy before an organisation needs to recover form an unexpected event. Finally, theoretically speaking the research work contributes to the organisation design literature suggesting that, in period of "relative calm", SMEs' procedures and written rules in coordinating people and organisational units are more effective in traducing in higher (expected) performance, coupled with an anticipation strategy of adversities, than mutual adjustment and hierarchy.

Practically speaking, the research is crucial for entrepreneurs and owners/managers in small business, since it suggests the importance, in terms of performance, of the adoption and development of an anticipation strategy of adversities and the standard coordination mechanisms to make this strategy more effective. Instead of being a sort of luxury, an entrepreneur should consider to invest resources in this type of proactivity toward adversities, even promoting the standardisation of the organisational structure.

7. Limitations and further research

The research could have several limitations. First, it is based on cross-sectional data. Further research could use longitudinal data in order to strengthen the results. Second, the dependent variable is represented by the expected performance. Using longitudinal data, further research could test the influence of the adoption of an anticipation strategy of adversities on the actual performance, even adding more dimensions of the firm performance (e.g., sales growth, return on equity, cash flow, turnover, etc.). Third, the research relies on a Chandlerian perspective over the relationship between strategy and structure. Further research could consider other perspectives (e.g., resource-based view), increasing also the complexity of the relationship. Fourth, standardisation, hierarchy and mutual adjustment are considered as the coordination mechanism of the organisations. Further research could distinguish between standardisation of work processes, outputs or skills. Fifth, in the paper it is considered an organisational strategy that focuses on a single feature, i.e. the anticipation of adversities. Further research could enlarge the concept of strategy involving other features (cost, differentiation, etc.).

Notes

1. "Building Better Business Resilience" is a two year, five-country study into small business resilience, funded by the JPMorgan Chase Foundation and led by the Enterprise Research Centre (ERC) at Warwick Business School and Aston Business School. The research was carried out in collaboration with academic partners from the University of Nice Sophia Antipolis, the Institut für Mittelstandsforschung (IfM) in Bonn, IE Business School in Madrid and the University of Padova. The study examines the ways in which small- and medium-sized enterprises in general and those led by underrepresented groups in particular experience and respond to adversity.

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