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**Bouncing Back from a sudden-onset extreme event:
exploring retail enterprises' resilience capacity.**

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Bouncing Back from a sudden-onset extreme event: exploring retail enterprises' resilience capacity.

A feature of recent decades has been the sudden and unexpected occurrence of catastrophic events seriously affecting people and territories. From an economic viewpoint, this has led scholars to pay increasing attention to factors and determinants taking enterprises face-to-face with extreme and catastrophic events, through the resilience lens. In this context, this study aims to contribute to the literature on resilience to natural disasters which is currently still limited in the business and management fields, both theoretically and empirically. This is particularly true as regards retailing, despite the key role played by retail in the aftermath and recovery periods following on from sudden-onset extreme events such as earthquakes. The 2012 Emilia earthquake is a case in point with which to explore small retail enterprises' resilience to sudden-onset disasters. Specifically, our empirical research consisted of administering a structured questionnaire to a sample of small retail enterprises experiencing an earthquake. The unit of analysis adopted was retail enterprise. Data was processed applying Covariance-Based Structural Equation Modeling (CB-SEM). The structural model aims to verify the impact of sales capabilities, market orientation and networking capabilities on the resilience capacity of retail enterprises affected by an extreme event, controlling for certain financial indicators such as suppliers' payment timeframes and the use of debt capital, as well as respondent age and gender. The findings show that all the antecedents analysed exert a significant and positive effect on small retail enterprises' resilience capacity and ability to bounce back from natural disasters. Moreover, suppliers' payment timeframes showed a direct relationship with retail enterprises' resilience capacity, with lower use of debt capital equalling higher retail business resilience. Age and gender do not exert any significant effect. Scientific, managerial and public policy implications are derived.

Keywords: resilience capacity; small enterprises; retail; extreme events; structural equation modelling

Introduction

Sudden-onset extreme events pose an enormous threat to business survival. Apart from the loss of life, the impact of a catastrophic event on an economic setting may be significant and long term and involve resilience capacity difficulties in bouncing back. This is particularly

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2
3 true not only at a macro- but also at a micro-level: businesses can be seriously damaged by
4 extreme events, both directly and indirectly, experiencing recovery and survival difficulties.
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6 Despite this, extant management and business literature in the study of resilience, both
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8 theoretically and empirically, is limited (Linnenluecke 2017). This is particular true of small
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10 businesses (Battisti and Deakins 2017; Chang and Falit-Baiamonte 2002; Dahles and
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12 Susilowati 2015; Corey and Deitch 2011) and retailing (Martinelli et al. 2018), despite the key
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14 role that this latter sector plays in recovery processes in areas hit by catastrophic events
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16 (Baker et al. 2007; Liu et al. 2012), as a result of its capacity to provide support and first aid
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18 (Peterson et al. 2010).

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20 In this context, the aim of this paper is to explore the resilience capacity of retail enterprises to
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22 natural disasters, verifying the impact of some of the main resilience capacity antecedents. The
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24 business effects of the extreme event examined here are related to the earthquake that hit the
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26 Emilia region in Italy in 2012. By means of a survey involving a structured questionnaire
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28 administered to a sample of 213 small retail enterprises, the study aims to assess the ways in
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30 which typical retail business capabilities – namely sales capability, market orientation and
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32 networking capability - may impact on resilience capacity. In this way, our aim is to contribute
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34 to the literature on resilience and retailing, proposing a conceptual model that posits resilience
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36 capacity antecedents in the case of sudden-onset extreme events and empirical support for this.
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38 This paper also contributes to further reinforcing the current research on small businesses and
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40 small retail enterprises, since it examines resilience within the retail context from a business
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42 capability perspective. Implications are not only theoretical but also managerial – in evidencing
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44 the drivers that small retail enterprises should invest in, in order to cope with sudden-onset
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46 extreme events - and public policies – in posing some guidelines to support the recovery process
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48 for the community and economic landscape.
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3 The paper is structured as follows. After a brief literature review on resilience with particular
4 regard to retail activities, the paper's conceptual model and the research hypotheses are
5 presented, followed by the methodology used to perform the survey. Subsequently, findings
6 are described and discussed and conclusions and study limitations set out.
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13 **Enterprise resilience and retailing: facing up to natural disasters**

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16 The concept of resilience has been applied by a number of scholars from many different study
17 fields, leading to context-dependency and fragmentation in its definition and
18 conceptualization. It was originally ecological in perspective and defined as the ability of a
19 system to return to a state of equilibrium after a disturbance (Holling 1973). It was then
20 borrowed by socio-ecological system currents of thought (Walker et al. 2004) and in
21 individual and organizational psychology (Powley 2009), crisis and disaster management
22 (Paton and Johnston 2001), and even strategic management contexts (Hamel and Välikangas
23 2003; Kantur and İşeri-Say 2012) – the perspective adopted here. Whilst a broadly accepted
24 definition of resilience is still lacking, it can be generalised as the capacity of systems,
25 individuals and organizations to resist, react to and recover from a critical event which puts
26 their stability and functioning at risk, minimizing its effects (Linnenluecke 2017; Sutcliffe and
27 Vogus 2003; Williams et al. 2017).
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44 Analysing the business and management literature on resilience reveals that there are still
45 very few studies of the topic and a lack of empirical investigation (Linnenluecke 2017). This
46 became more evident when we reviewed the studies specifically exploring the impact of
47 sudden-onset extreme events on retail activities - a result that is surprising considering the
48 importance of this sector to local community recovery processes. Indeed, consumption is the
49 means by which individuals are able to regain a sense of normality and safety after a high
50 impact devastating event – such as a natural disaster. Specifically, daily consumption
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3 behaviour is an expression of personal control over event unpredictability and disruption
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5 (Ballantine et al. 2014; Forbes 2017).
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8 From the few studies which emerged from our analysis of the extant literature and empirical
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10 researches, current academic knowledge can be summarised as follows. Firstly, the retail
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12 sector displays a greater level of vulnerability to natural disasters than other sectors (Kroll et
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14 al. 1990; Wasileski et al. 2011; Webb et al. 2000), due to the direct consequences it
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16 experiences. For example, it has been reported that a very large number of retail businesses
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18 experienced significant economic losses in Seattle following the 2001 Nisqually earthquake
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20 (Chang and Falit-Baiamonte 2002), and in a higher proportion as compared to other kinds of
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22 businesses. Secondly, the causes of retail's higher level of exposure to catastrophic events
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24 comprises not only direct damages (store buildings and fixtures, equipment, merchandise) but
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26 also indirect damages, especially in the medium and longer term. For example, Pearson et al.
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28 (2011) highlighted a serious decline in the number of retailers five years after Hurricane
29
30 Katrina. Previous studies have highlighted longer term indirect consequences concerned with
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32 a lower propensity to purchase by local populations (Meszaros 2002) and consumption
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34 adjustment trends and changes in demand preferences (Frank and Schvaneveldt 2016). Retail
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36 sales also generally undergo significant decreases as a consequence of people moving
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38 elsewhere and a generalized lower propensity to purchase after natural disasters (Zhang et al.
39
40 2009). Thirdly, and related to our specific context of analysis, small retailers usually possess
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42 lower resources – in economic, but also skill and human capital terms – than franchise-
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44 affiliated retailers potentially supported by franchisor chains in the recovery process (Runyan
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46 2006).
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53 Overall, focusing on the way retail should ideally behave after natural disasters, the literature
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55 clearly shows that retail businesses have to cope with changed purchasing patterns in the post-
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57 disaster phase, leading to: decreases in luxury goods consumption (Meszaros 2002, Zhang et
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3 al. 2009, Forbes 2017), higher price consciousness and consequent replacement of more
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5 expensive goods with cheaper products and an increase in “do-it-yourself” solutions (Liu and
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7 Black 2011). These effects – previously named as indirect damages - require revised retail
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9 business models and positioning, as well as reconfiguration of retail resources and
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11 capabilities. Therefore, the methods used by small retail enterprises in the face of changed
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13 market conditions and consumer preferences, the ways in which they reconfigure their
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15 marketing skills in the face of market and demand fluctuations, as well as the behaviours they
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17 use to adapt and support their capabilities to improve sales, may play an important role in
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19 supporting resilience capacity, smoothing the indirect consequences of catastrophic events.
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21 However, as far as we are aware, to date no empirical study has analysed the market and
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23 networking skills of small retail enterprises in facing up to the indirect effects of large-scale
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25 sudden-onset extreme events – such as earthquakes – through the resilience lens.
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30 31 **Conceptual model and hypotheses**

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34 The objective of this study is to explore the determinants of resilience capacity in small retail
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36 enterprises, in the case of an earthquake. Norris et al. (2008, 128) define a disaster as “a
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38 potentially traumatic event that is collectively experienced, has an acute onset, and is time
39
40 delimited; disasters may be attributed to natural, technological or human causes”. In our study
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42 we focus on the natural disaster category and specifically on a sudden-onset disaster, namely
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44 an extreme natural event occurring with little warning, such as an earthquake, in order to
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46 distinguish it from the other disaster category, the slow-onset type, namely disasters which
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48 evolve over time, such as famines and drought (Van Wassenhove 2006).
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53 As Figure 1 shows, the proposed model is based on the combined action of several factors,
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55 believed to help in mitigating the indirect effects of natural disasters: sales capabilities;
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57 market orientation; networking capabilities. Previous studies showed that retail behaviour and
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59 the strategies adopted in the aftermath of natural disasters play a key role in supporting
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3 business recovery (Liu et al. 2012). In particular, market orientation – defined as the capacity
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5 to understand and adapt proactively to changes in demand needs and desires in terms of
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7 assortment and level of service offered - and sales capabilities – defined as retail’s ability to
8
9 generate sales – are thought to be key to coping with the indirect effects generated by natural
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11 disasters (Meszaros 2002; Pearson et al. 2011; Zhang et al. 2009).

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14 As sudden-onset natural disasters impact on demand and purchase patterns (Liu and Black
15
16 2011), it is reasonable to expect that sales skills may play a fundamental role in supporting
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18 retail businesses in the bouncing-back process. Small retail enterprises may be well placed to
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20 implement such an approach because of their potential flexibility and closeness to their
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22 customer base. Therefore, we might postulate the following:
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27 *H1: Sales capability exerts a significant and positive impact on resilience capacity.*
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30 Market-led strategies may arguably be considered a key factor in determining future survival
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32 in an increasingly dynamic and competitive environment, even where small retail enterprises
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34 are concerned (Megicks and Warnaby 2008). In the context of a natural disaster, market
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36 orientation strategies taking account of the changed economic conditions of the affected
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38 population and committed to assuring service continuity can be rewarded by customers with a
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40 higher retention rate. In fact, Liu et al.’s study (2012) evidenced that retailers putting
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42 themselves at the service of populations struck by natural disasters, guaranteeing continuity in
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44 service at the expense of profit, are supported by their clientele and loyalty boosted. The role
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46 played by small retail enterprise behaviour in the aftermath of a disaster and its ability to
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48 respond to change emerged as a key tool in long-term recovery. Consequently, we might
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50 propose the following hypothesis:
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55 *H2: Market orientation exerts a significant and positive impact on resilience capacity.*
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3 Resilience may also depend on an ability to cultivate strong and dependable relationships
4 within the network of companies and individuals with whom the small retail enterprise
5 interacts, and customers and suppliers in particular. This relationship factor has been observed
6 in the aftermath of natural disasters in the form of the willingness of some suppliers to extend
7 payment timeframes or suspend payments in the emergency period (Chamlee-Wright and
8 Storr 2014; Martinelli et al. 2018). Similarly, a legacy of customer loyalty built up over time
9 may boost small retail enterprise recovery. The following hypothesis is thus postulated:

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20 *H3: Networking capabilities exert a significant and positive impact on resilience capacity.*

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23 [Figure 1 about here]

24 25 26 **Methodology**

27 28 *Context of analysis*

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30 To achieve the study's goals a sample of 213 small retail enterprises was surveyed. The
31 extreme sudden-onset event examined was the earthquake that took place in the Emilia
32 Romagna region (I) in 2012, affecting the northern part of a number of provinces (Bologna,
33 Ferrara, Modena, Reggio Emilia), in two waves, the first on May 20th 2012 (magnitude ML
34 5.9) and the second on May 29th 2012 (ML 5.8). The earthquake caused widespread
35 devastation in 33 towns with a total of 550,000 residents and 66,000 local productive units,
36 but particularly in Modena province where it caused financial damage worth €13 billion and
37 led to 28 deaths and 300 injuries and left 45,000 homeless (Regione Emilia Romagna 2017a).
38 Some minor damage was registered in a further fifty neighbouring cities. €1,748 million was
39 spent on restoring buildings and equipment damaged by the earthquake in the first five years
40 after the disaster (Regione Emilia Romagna 2017a) with around half of the reconstruction
41 sites being completed within this time frame (Regione Emilia Romagna 2017b).

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3 The fact that the affected territory is one of Italy's most industrialised, accounting for 2% of
4 national GDP, and the direct and indirect damages caused to the local economy make this
5 natural disaster an appropriate and remarkable study context in relation to our study aims.
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10 However, what makes this case of particular interest as an example of a sudden-onset event is
11 the fact that it was completely unexpected, as the territory was classified non-seismic. This
12 amplified its devastating effects and impacted on initial reactions and the subsequent recovery
13 process.
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19 ***Data Collection***

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23 The consequences of the 2012 Emilia Romagna earthquake affected 6,893 commercial
24 businesses, 2,137 of which were small retail companies. As far as data collection is
25 concerned, the survey focused on small retail enterprises from five towns which suffered the
26 most negative effects of the disaster. In particular, a sample of small retail enterprises which
27 experienced the earthquake directly and were in business at the time of the survey, were
28 involved, with the support of local authorities. A structured questionnaire was administered in
29 the February - April 2017 period by three appropriately trained interviewees.
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40 ***Sample***

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43 The final dataset was made up of 213 small retail enterprises hit by the 2012 Emilia
44 earthquake divided up between the towns examined as follows: 16.9% from Cavezzo, 3.3%
45 from Concordia sulla Secchia, 40.4% from Mirandola, 13.6% from Novi di Modena and
46 25.8% from San Felice sul Panaro.
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52 The sample was predominantly female (57.3%), Italian in nationality (93.9%), with an
53 average age of 53 years, and average retail sector experience of more than 25 years - from a
54 minimum of 5 years to a maximum of 60 years. Regarding respondents' educational level,
55 most were high school graduates (52.2%), and about one third had a lower secondary school
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3 diploma (36.1%), a small number were graduates (7.5%) or had attended primary school only
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5 (3.8%). Only 24 (11.3% of the total) had more than one sales outlet, mostly outside the town.
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7 Of these, 59.1% had one other store, 27.3% had two and 9.1% had three or more than the one
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9 for which they were selected. Specifically, 44.1% of respondents had one employee and
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11 27.2% had two employees. 26.3% of the companies examined had three to ten employees,
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13 while a small number of companies had more than ten employees (2.5%).
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16 17 ***Measurement*** 18

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20 The items on the structural questionnaire were coded on a 7-point Likert scale (1= “strongly
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22 disagree” and 7= “strongly agree”). Resilience capacity was measured on the scale tested by
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24 Kantur and İşeri Say (2015) to measure companies’ robustness, agility and integrity. Retail
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26 enterprise sales capabilities were measured via two items, asking interviewees to compare
27
28 their ability to develop sales currently and in the future with reference to their main direct
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30 competitor. A four-item scale adapted from Verreynne et al. (2016) was used to measure the
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32 market orientation construct. Finally, small retail enterprise networking capabilities were
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34 measured using two items from Verreynne et al. (2016). All items are shown in Table 1.
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36 Two questions were included in the questionnaire to measure current financial trends
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38 compared to the pre-earthquake situation in terms of suppliers’ payment timeframes and use
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40 of debt capital. Items were measured on a 7-point Likert scale (1= “strongly decreased” and
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42 7= “strongly increased”). Respondent age and gender were also employed as control
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44 variables.
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Empirical Analysis

A covariance-based Structural Equation Modelling (SEM) approach was used to empirically process data. A two-step approach was adopted to analyse data as suggested by Anderson and Gerbing (1988). Confirmatory Factor Analysis (CFA) aimed at assessing the unidimensionality and convergent validity of the constructs was first performed. Secondly, a structural equation model based on a Maximum Likelihood method (SEM) was estimated to measure the structural effects between constructs. Lisrel 8.80 (Jöreskog & Sörbom, 2006) software was used to perform both procedures.

The confirmatory factor analysis (CFA) led to one item being dropped from the resilience capacity construct due to high modification indices and standardized residuals. The convergent validity of the measurement model based on sixteen items was verified as all the items were substantially (factor loading >0.500) and significantly different from 0 (all t -values ≥ 5). Thus, all factors represent distinct constructs in the structural equation model. Constructs' AVEs are greater than the cut-off of 0.5 (Fornell and Larcker 1981), except for the value of the resilience capacity construct, which is 0.42. This result may derive from the second-order nature of the original construct proposed by Kantur and İşeri Say (2015) and was measured as a first order factor in the present study. Nevertheless, all constructs presented good values for CR as it is greater than its cut-off of 0.7 in all cases (Steenkamp and van Trijp 1991) confirming the discriminant validity of the constructs. This is set by the Fornell and Larcker criterion (1981) as the square root of each construct's AVE is nearly greater than the correlations of that construct with the other constructs, showing that each construct shares more variance with its own measures than it shares with other constructs.

[Table 2 about here]

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6 The structural model presents good fit values. Although the Satorra and Bentler chi-square
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8 (1991) is not significant $\chi^2_{(SB)(146)} = 192.643$, $p < 0.006$, the χ^2/df indicator (1.315) and the not-
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10 significant Close-Fit RMSEA (p-value= 0.899) prove no collinearity among data. The model
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12 has no substantial problems with residuals as is shown by the low Standardized Root Mean
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14 Square Residual value (SRMR=0.0493). The Goodness of Fit Index (GFI=0.896) and the
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16 other incremental fit measurements (NFI=0.946; CFI=0.986) support the goodness of the
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18 measurement model.
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22 **Results**

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25 To empirically test the theoretical model assessing the validity of the causal relationship
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27 between constructs and verify the extent to which the observed variables were representative
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29 of the proposed model's latent constructs, a rigorous methodology was used. Specifically, the
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31 empirical model was measured using covariance-based structural equation modelling (CB-
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33 SEM) with a Maximum Likelihood method (SEM). The proposed model is capable of
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35 explaining more than 50% of the retail enterprise resilience required to bounce back from a
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37 natural disaster [$R^2_{(OR)} = 0.533$].
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42 The results show that, in a natural disaster, the main resilience capacity determinant is market
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44 orientation, supporting our second hypothesis ($\beta = 0.492$, t-value=4.957, p-value=0.000). Thus,
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46 the higher the capability of a small retail enterprise to understand and interpret the market and
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48 demand changes, the higher the resilience capacity level it exhibits – the ability to preserve its
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50 market position. Sales capability was also shown to be very important too; this determinant is
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52 capable of exerting a positive effect on resilience capacity, confirming the first postulated
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54 hypothesis ($\beta = 0.218$, t-value=3.163, p-value=0.000). Therefore, higher sales and a greater
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56 ability to increase them from one year to the next are positive drivers for bouncing back from
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3 a sudden-onset event. Despite this, with lower significance, networking capability can also
4 exert a positive influence on resilience capacity, supporting our third hypothesis ($\beta=0.143$, t-
5 value=1.391, p-value=0.083). Therefore, for small retail enterprises to quickly and nimbly
6 react to sudden-onset natural disasters not only does proximity to their customer base allow
7 them to leverage market orientation and sales capability but relationships built up over the
8 years with suppliers and customers play a fundamental role too.

9
10 A number of control variables likely to influence resilience capacity controlled the model:
11 retailer age and gender, changes in suppliers' payment timeframes and the use of debt capital.
12 The results show no significant differences between male and female retailers or different age
13 groups. Retailers' socio-demographic characteristics do not appear to influence resilience
14 capacity, perhaps indicating a lower / null individual and personal level incidence as
15 compared to an organizational level of analysis - as adopted in the present study. Indeed, as
16 one of the most relevant results, small retailer financial situation generates specific effects
17 regarding natural disaster context. On one hand, it emerged that, after the 2012 earthquake,
18 small retail enterprises that managed to increase suppliers' payment timeframes showed
19 greater resilience capacity ($\beta=0.100$, t-value=1.316, p-value=0.095). On the other hand, small
20 retail enterprises which had to borrow money to cope with greater demand for liquidity due to
21 damages deriving from the earthquake emerge as less resilient ($\beta=-0.080$, t-value=1.311, p-
22 value=0.096).

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47 [Figure 2 about here]

48 49 50 **Discussion and implications**

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53 This study contributes to the current literature on resilience and retailing during sudden-onset
54 extreme events, tackling some gaps and limitations in the extant research. In a context where
55 unexpected events - like natural disasters - are increasing in frequency, understanding how to
56 deal with their negative indirect effects is of primary importance for business continuity,
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3 ensuring resilient behaviours can be identified and displayed. Indeed, our study shows that
4 distinctive management skills and the ability to reconfigure resources integrated from
5 suppliers and customers are required if disruptive negative consequences are to be overcome,
6 proposing a more in-depth look at the dimensions contributing to enhancing resilience
7 capacity. In addition, the study is set in a business context – small retail businesses - which
8 have, to date, been little analysed. In the aftermath of the earthquake, small retail enterprises
9 played an important role in the local community, assuring a sense of normality by satisfying
10 needs and consumption demands. However, they also had to cope with devastating
11 consequences and deal with new challenges involving repositioning their businesses in the
12 light of fundamental changes in the local economic context and consumer purchasing
13 behaviours. Although it has been shown that the retail sector is one of the first to recover from
14 catastrophic events (Chang 2010; Wasileski et al. 2011), few studies have analysed the
15 determinants of sustainable long term recovery in the sector. In fact, immediate recovery is
16 not a symptom of business longevity on the market. Quite the contrary, marked changes in
17 demand in terms of quantity, quality and type of goods tend to undermine the permanence of
18 small retail enterprises in areas affected by a disaster in the long run.

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40 The contribution of the current study is thus to highlight resilience capacity determinants,
41 analysing sales capability, market orientation and networking capability, in particular, as
42 drivers of solid retail enterprise bounce-back. The first determinant impacting on small retail
43 enterprise resilience is market orientation, followed by sales capability. Hence, within the
44 sample analysed, retail businesses showing the greatest resilience capacity were those capable
45 of detecting and responding to changed consumer needs, and consequently adapting
46 commercial offer to the demands of a community affected by a devastating natural
47 catastrophe. As intuitive as this may seem, this emphasises small businesses' closeness to their
48 customer base – and hence greater commitment to changing demand needs and desires.
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3 Whilst small retail enterprises experience a less widespread bundle of resources and skills as
4 compared to larger retail chains - market orientation and sales skills that can be flexibly
5 adapted to an unexpected and unpredictable context take a role of primary importance.
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10 As far as the other determinant analysed is concerned, the networking capability role also had
11 a positive impact on resilience capacity. Indeed, it is not only in more structured supply
12 chains (Forbes and Wilson 2018) but also for small retail enterprises with limited money, time
13 and human capital resources (Van Gils 2005), that the support of a formal and informal
14 relationship network of suppliers and customers can be an important source of information
15 and sustenance, as well as a concrete operational aid, including in economic terms, during a
16 crisis. The importance of networking and mutual support is also evident in the analysis of
17 financial control variables. In fact, as emerged in our findings, positive and lasting
18 relationships with suppliers allow payments to be deferred – and in so doing enable us to
19 provide empirical evidence to support the arguments of earlier studies (Chamlee-Wright and
20 Storr 2014; Martinelli et al 2018), reducing the use of debt capital - elements that have a
21 positive influence on overall resilience capacity. The figurative role played by small retail
22 enterprises in a community is in no way secondary. Smith and Sparks (2000, 208) have argued
23 that the consideration that small retail businesses “may also provide a sense of community or
24 identity both for a place and for its inhabitants. Beyond the provision of goods and services,
25 the shop may well have obvious community centre roles as well as being an economic ‘glue’
26 for the village or location” is implicit in the above. In this sense, the bonds created within the
27 community - made up of consumers - and with suppliers more or less involved in the site of
28 the disaster are not only an expression of the capacity to build and generate relationships over
29 time, but also of social and economic value.
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56 Based on the above-mentioned results, this study contributes to furthering academic
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59 knowledge on resilience in a threefold way. Firstly, the study helps to extend the academic
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3 debate around the small retail business recovery process by disentangling the effects of
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5 specific dimensions of resilience capacity that can assume a prominent role in the aftermath of
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7 a natural disaster – namely market orientation, sales capabilities and networking capabilities.
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9 Secondly, the context of this empirical study is under-analysed, namely small retail
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11 enterprises experiencing sudden-onset extreme events, such as earthquakes. In fact, the
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13 disruptive and unpredictable force of such an event - which determines direct effects of
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15 immediate impact and indirect medium and longer term effects - and the resource and skill
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17 peculiarities of small retail enterprises, creates an extremely interesting context of study. We
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19 must also not forget that - especially in the area analysed - small businesses are a substantial
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21 part of the retail sector on which local communities strongly rely. Thirdly, the analysis also
22
23 touches on the way in which natural disasters may have differential effects on small
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25 businesses by sundering the immediate direct consequences of the earthquake and analysing
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27 how the indirect longer-term effects can be mitigated, a study context that requires further
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29 investigation (Liu et al. 2012; Battisti and Deakins 2017).
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35 The implications deriving from this study can be summarised in two points. Firstly, the
36
37 research has a number of managerial implications, suggesting the determinants of resilience
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39 capacity that should be strengthened if unforeseen and sudden-onset events are to be coped
40
41 with. Secondly, the study also offers new public policy implications, showing that community
42
43 recovery processes are intricately interwoven with the resilience of the businesses making up
44
45 the community (McManus et al. 2008). Specifically, the role of the retail sector in the
46
47 aftermath of a natural disaster is pivotal, and addressing reconstruction policies considering
48
49 the central role that small retail enterprises play in gaining a new sense of normality would
50
51 guide the community's response toward quicker and better recovery. As a side implication,
52
53 the experiences of those affected by the 2012 Emilia earthquake could be used as guidelines
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55 in other sudden-onset extreme events. Supporting training activities aimed at strengthening
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3 resilience capacity, pivoting on sales development and market oriented capability, public
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5 institutions and trade unions can make retailing more resilient to shocks.
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8 **Limitations and future research**

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11 The study is not free of limitations. Its explorative nature does not allow for a generalization
12
13 of the results obtained - an extension of the analysis to the whole area affected by the
14
15 earthquake might generate wider ranging conclusions. In addition, the survey was limited to a
16
17 restricted number of possible determinants of resilience. Avenues for future research may thus
18
19 extend the analysis to other antecedents, such as tangible company resources and/or additional
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21 skills, so as to assess which kind of resource endowment might possibly lead to resilience and
22
23 expand the range of capabilities that could positively impact on retail enterprise resilience
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25 capacity, too.
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29 The study was also limited to a sole disaster in a sole country. Comparing different natural
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31 disasters (for instance: earthquakes vs. floods), in different national contexts (evolved vs.
32
33 evolving countries) might generate a more comprehensive understanding of the underpinnings
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35 of retail entrepreneur resilience in the aftermath of natural disasters. Moreover, the proposed
36
37 model did not test for moderators. This is a potential subject for future work. In addition,
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39 repeating the survey on a different sector (e.g. manufacturing), may enable the model to be
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41 assessed through multi-group analysis, leading to a more comprehensive understanding of
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43 resilience antecedents.
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Table 1. Items and Factor Loading

Constructs	Items	Factor Loadings	T-values	
Resilience Capacity	R1	My enterprise stands upright and preserves its position	0.641	n.a.
	R2	My enterprise is successful in generating diverse solutions	0.663	7.635
	R3	My enterprise shows resistance right to the end	0.691	8.798
	R4	My enterprise does not give up and continues on its trajectory	0.749	8.674
	R5	My enterprise rapidly takes action	0.738	8.602
	R6	My enterprise develops alternatives in order to benefit from negative circumstances	0.628	6.950
	R7	My enterprise is flexible in taking required action when needed	0.762	7.411
	R8	My enterprise is a place where all employees do what is required of them	0.500	5.604
	R9*	My enterprise is successful in acting as a whole with all of its employees	n.a.	n.a.
Sales Capabilities	SC1	Revenue (sales)	0.746	n.a.
	SC2	Capability to increase sales year by year	0.969	8.952
Market Orientation	MKT1	My enterprise usually takes advantage of new opportunities available in new markets	0.735	n.a.
	MKT2	My enterprise tries to frequently offer new products or services on the market	0.789	10.458
	MKT3	My enterprise can quickly understand and respond to changes in demand	0.699	9.435

	MKT4	My enterprise often experiments with new ways of offering commercial services	0.656	8.673
Networking Capability	NTW1	Relationships with my enterprise's network (suppliers, customers, etc.) are important sources of knowledge	0.738	n.a.
	NTW2	The competitiveness of my enterprise is enhanced by networking with suppliers, customers, etc.	0.887	8.642

Note: * item removed during the CFA; n.a.=not available

Table 2. Reliability, Convergent and Discriminant Validity Coefficients

Constructs		AVE	CR	R	SC	MKT	NTW
<i>Resilience Capacity</i>	R	0.423	0.869	0.650			
<i>Sales Capabilities</i>	SC	0.748	0.854	0.484	0.865		
<i>Marketing Orientation</i>	MKT	0.520	0.812	0.653	0.365	0.721	
<i>Networking Capability</i>	NTW	0.666	0.798	0.521	0.369	0.559	0.816

Note: Diagonal elements (bold) represent the square root of average variance extracted (AVE) between the constructs and their measures. Off-diagonal elements are the correlations among constructs.

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3 List of Figures
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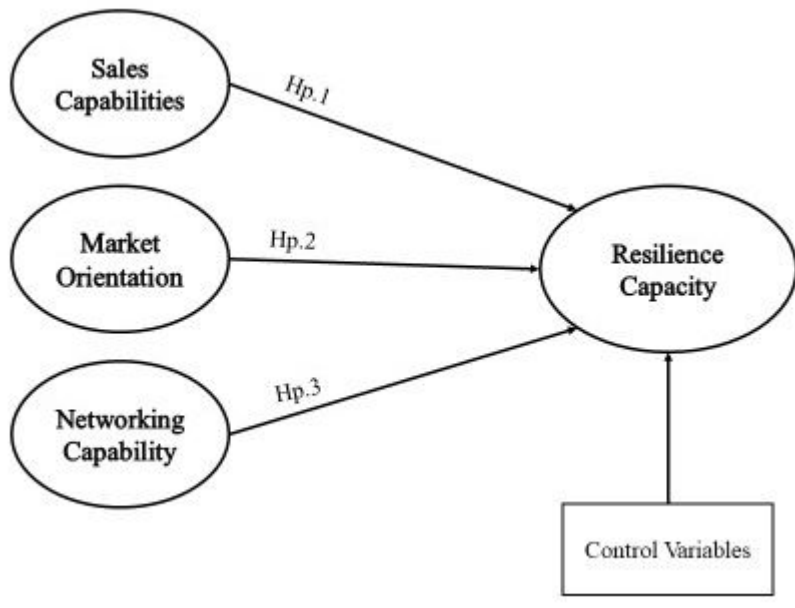
5 Figure 1. Theoretical model and hypotheses
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7 Figure 2. Structural model results and adjusted R²
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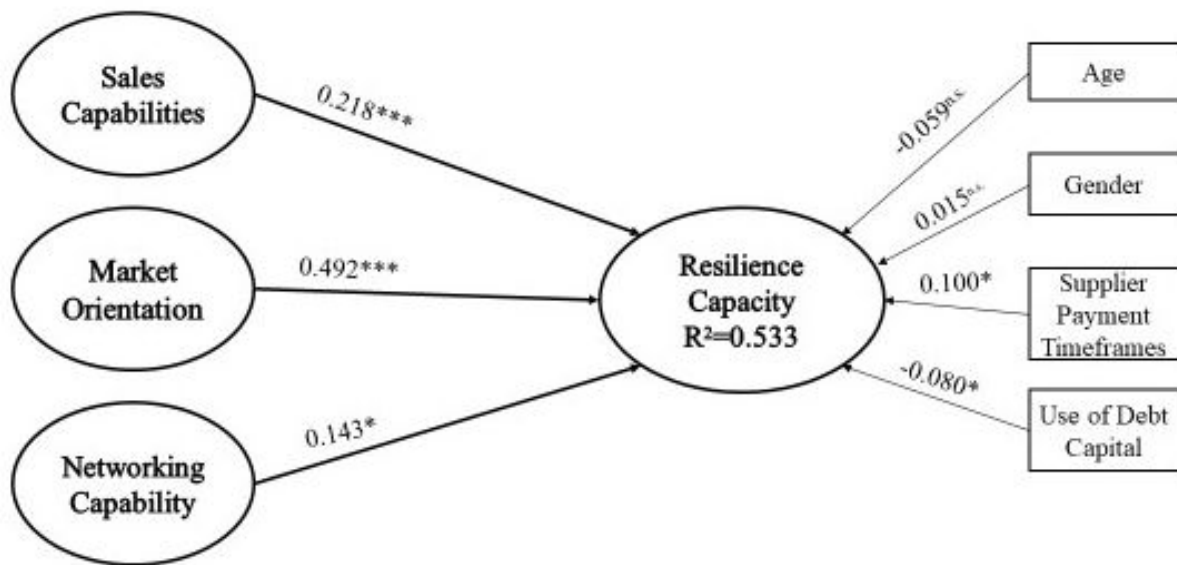
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Figure 1. Theoretical model and hypotheses



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Figure 2. Structural model results and adjusted R²

Note: ***All factor loadings are significant at the $p < 0.01$ level.
 * All factor loadings are significant at the $p < 0.10$ level.