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DETECTING INDUSTRY-LEVEL PATTERNS OF RESILIENCE: A FINANCIAL ANALYSIS OF ITALIAN SMES IN THE FASHION INDUSTRY

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Abstract

Purpose. *This paper offers an exploratory analysis of the existence of industry-specific patterns of resilience in the context of the Italian fashion industry, captured through a financial analysis.*

Design/methodology/approach. *Building on a dataset of 37.052 firms operating in the Italian fashion industry, we adopt an outcome-based approach using financial indicators capturing the profitability, liquidity, and solidity, to assess the existence of recovery patterns. We separately analyze and compare the period after the 2008 global financial crisis (2009-2019) and the effects of the Covid-19 pandemic (2019-2021).*

Findings. *Our findings suggest the existence of industry-specific recovery patterns. Specifically, Italian fashion firms have been able to capitalize on their pre-crisis financial health to increase their investments especially towards new business models and nurture a recovery in profitability. Furthermore, the greater contribution to resilience of SME's relative to large competitors supports previous findings on the mutual reinforcement mechanism of an industry firms' networking and financial health.*

Practical and Social implications. *From a managerial viewpoint, companies should be aware of the signalling role of financial ratios as drivers of resilience and of the importance of network relationships, in order to exploit their positive effect as intensifiers of financial health and industry resilience. In a policy-making perspective, we suggest the importance of assessing the industry-specific ability to profitably allocate financial resources in order to identify more effective supporting mechanisms.*

Originality of the study. *This study contributes to the literature on resilience by extending the outcome-based approach focused on financial ratios to the analysis of industry-level resilience. In doing so, we underscore the importance of using a systemic approach in the assessment of financial health and offer a fine-grained analysis that captures both general industry patterns and sub-industry specificities in a comparative lens.*

1. Introduction

Resilience, i.e. the ability to recover from adverse situations and disruptive events, has been at the core of multiple studies in social sciences (e.g., Bullough & Renko, 2013; Corner et al., 2017). Such studies have taken various perspectives to the examination of resilience, assessing its antecedents and outcomes at different levels, namely the employee (Britt et al., 2016), the organizational (Kantur & İşeri-Say, 2012), the industry (Fromhold-Eisebith, 2015), and the territorial level (Ribeiro & Gonçalves, 2019).

In this literature, the industry perspective is a particularly promising research area for at least two main reasons. First, scholars are increasingly acknowledging that resilience dynamics are highly context-dependent and hence differ across industries (Linnenluecke, 2017). Second, if compared to other levels of analysis, industry-level resilience has remained relatively less explored, thus raising the need for further examination (Sydnor-Bousso et al., 2011; Fromhold-Eisebith, 2015).

At an industry level, resilience has been defined as "*the ability of the firms and other organizations that contribute to the same industry's value chains to interactively adapt to major global shocks in market, production, technological and related conditions in sector-specific ways that distinctively shape the longer term evolutionary trajectory of that industry*" (Fromhold-Eisebith, 2015,p.1679). Thus, industries are able to respond to external shocks and display resilience qualities that are a reflection of the aggregate recovery capabilities of their constituent elements (Miranda and Roldan, 2022).

While we acknowledge that each crisis represents a unique event having its own distinctive characteristics, we argue that the way in which firms shape their response strategy at the industry level may show convergence across various crisis events and potentially establish a pattern. Indeed, firms operating in the same industry are confronted with industry-specific competitive dynamics (Bhawsar & Chattopadhyay, 2015), that may both affect firms' growth and longevity (Mengistae, 2006) and shape their responsiveness to external shocks. Based on this, we explore whether there are patterns of responses at the industry level following black swan events.

In terms of research contexts, the literature on industry-level resilience has explored a variety industrial settings, including the airline industry after 9/11 (Gittel et al., 2006), the tourism industry especially in the aftermath of the Covid-19 pandemic (e.g., Bui et al., 2021; Ntounis et al., 2022), the 4.0 industry (Ivanov & Dolgui, 2020), the music industry in the digital era (Guichardaz et al., 2019), and the construction sector after natural disasters (Sapeciay et al., 2017).

Among these studies, a prominent research focus has been represented by the fashion industry by virtue of some peculiar characteristics: fashion is particularly crisis-sensitive, especially in view of its highly globalized

nature (Newbury & Ter Meulen, 2010; Brydges et al., 2020). At the same time, recent literature has also acknowledged its incredible recovery potential (Antomarioni et al., 2017; Hsu et al., 2021; Verdone et al., 2021; Intesa Sanpaolo - Direzione Studi e Ricerche, 2021). Studies exploring the resilience in this industry have focused on heterogeneous combinations of industrial and national settings, including the Sri Lankan apparel industry (Abeysekara et al., 2019), the Pakistan's textile (Piprani et al., 2020), the footwear industry in south Brazil (Machado et al., 2019) and in Southern Europe (Miranda & Roldan, 2022). In this scenario, the Italian fashion has remained comparatively unexplored, which is quite surprising as fashion represents a key industrial pillar in the Italian economy, contributing significantly to the overall Italian exports (Fortis, 2005) and, in turn, Italy has been historically playing a fundamental role in the global value chain of fashion and on the international competitive arena (Tavoletti, 2011). The Italian fashion is indeed one of the most important in the world, in terms of added value, income generated, employment, and number of companies. Furthermore, several post-pandemic analyses suggest that Italian fashion was the second industry most affected by Covid-19 lockdowns (EY, 2020). The above arguments suggest that the Italian fashion industry could be an ideal setting to explore the resilience at the industry level.

To investigate whether Italian fashion companies follow a pattern of resilient responses when faced with exogenous shocks, we adopt an outcome-based orientation to the assessment of resilience (e.g., Ortiz-de-Mandojana & Bansal, 2016; DesJardine et al., 2019; Ruiz-Martin et al., 2018; McEwan et al., 2021; Miranda & Roldan, 2022). Conceptually, we argue that the aggregate financial health of companies in an industry may be a driver of the overall resilient capabilities of the industry as a whole (de Waal, 2008; Torstensson & Pal, 2013) and, hence, we use financial figures and ratios not only as indicators of performance but also as predictors of a system's potential vulnerability and recovery (Gittel et al., 2006; Belhadi et al., 2021; Sundarakani & Onyia, 2021). Thus, we provide an exploratory study that investigates whether different indicators of financial performance and financial position – namely profitability, liquidity, and solvency ratios – may capture an industry-specific pattern of response to black swan events.

The following research question is therefore developed: *are there industry-specific resilience patterns in the fashion industry?* And related to this, we also explore the following: *do financial ratios allow to detect such patterns?*

To address these research questions, an original analysis of 37.052 Italian manufacturing fashion companies is offered, grouped into three main product markets based on industry classification codes, namely textile (ATECO 13), apparel (ATECO 14), and leather (ATECO 15). In our analysis, we follow an emergent practice in the literature that takes a comparative approach to obtain benchmarks and establish the existence of patterns. For

instance, in their examination of resilience in the automotive cluster in Mexico, Menoza-Velazquez & Rendon-Rojas (2021) employ the Sub-Prime crisis as a benchmark to identify recovery in terms of both employment and production after SARS-CoV-2, this representing an adverse shock of similar magnitude. Consistently, two time periods are separately analyzed, namely the 2009-2019 as a time window for the observation of resilience in response to the global financial crisis, and the 2019-2021 period to capture the short-term implications and resilient responses to the Covid-19 outbreak.

Our exploratory study contributes to the ongoing conversations on industry-level resilience in several ways. First, from a theoretical point of view, we respond to the multiple calls that industry-level resilience needs further investigation in order to deepen our understanding of context specificities that might shape resilient responses in a contingent way (Sydnor-Bousso et al., 2011; Fromhold-Eisebith, 2015; Linnenluecke, 2017). In particular, our framework contributes to enriching our knowledge of industry-level resilience by highlighting patterns of resilience among Italian fashion companies.

Second, we address a gap in the literature in terms of examination of whether financial ratios and indicators may signal the overall resilient capabilities of an industry, thus originally taking a financial analysis approach to the overall industry-level financial health. Besides, to the best of the authors' knowledge, this represents the first study to specifically examine resilience in the Italian fashion industry, which is of particular relevance to the global competitiveness of Made in Italy. Overall, our results offer a fine-grained perspective of the specific fashion industry responses to systemic shocks and of how the different performance areas have been affected by disruptions.

The remainder of the paper is structured into five sections. In the next section, we offer a systematic review of the literature on industry-level resilience and identify our research questions; Section 3 is devoted to the research setting and sample; the fourth section describes the results of our exploratory study. Finally, in the last two sections, a discussion and implications from our study are outlined and conclusions are provided.

2. Literature review on industry-level resilience: A systematic approach

The increasing research interest in industry-level resilience has resulted in fragmented theoretical perspectives and mixed empirical findings, which not only offer fertile ground for additional investigation but also require a systematization effort (Hillman and Guenter, 2021; Piprani et al. 2020). Thus, we performed a systematic literature review (Tranfield et al. 2003).

In terms of search protocol, we relied on ABI/Inform Complete as the source for article selection, as it represents one of the most extensive data-

bases and is largely used in management research in general and particularly in studies on resilience (Zhang et al., 2021; Korber & McNaughton, 2017; Piotrowski and Guyette, 2007). We searched academic articles published in 2002-2022, this being a time period long enough to offer a comprehensive picture of the scholarly research on resilience and showing full consistence with previous studies identifying an increasing trend in publications focused on resilience starting from 2002 (Saad et al., 2021). The selection was focused on academic articles that included the keywords *resilien** and *industry* in the title and written in English. Following the best practices on systematic reviews (Tranfield et al., 2003), we included all published or in-press and accessible articles, regardless to the journals' quality rating; this enabled us to be more comprehensive in the selection process and to grant the equality criterion among journals.

This search protocol led to 62 articles. Each journal article was then scrutinized in order to ensure the alignment with the purposes of this systematic review, i.e. that resilience was examined at the industry level. We hence appraised each paper's internal validity based on Tranfield et al. (2003) by examining the true existence of a research question related to industry resilience. To increase the validity of our selection and minimize the risk of errors, each paper was independently examined by two researchers. This screening phase led to the exclusion of 25 articles where the industry just represented the research setting and resilience was observed at a different level. Based on this, our final sample consists of 37 journal articles published in the last two decades.

Observing the temporal distribution of articles, the interest towards industry-level resilience has increased in the last decades, with a peak in the last three years: 37 articles (75%) have been published since 2019, the 62% of which being in the 2020-2022 period. This signals the fundamental role of the recent Covid-19 pandemic as a driver of the research appetite in the topic. Indeed, the recent health emergency has played a transversal role in terms of boosting heterogenous contributions on industry responses to the pandemic. For instance, with the exception of Ghaderi et al. (2015), all contributions on the tourism industry are found in the post-pandemic era (Altshuler & Schimdt, 2021; Bui et al., 2021; Khan et al., 2021; Ntounis et al., 2022). In contrast, before 2020, studies were to some extent fragmented and focused on how various industries responded to specific environmental shocks (e.g. Gittel et al., 2006; Ghaderi et al., 2015; Guichardaz et al., 2019). Gittel et al. (2006) look at the airline industry after 9/11, while Guichardaz et al. (2019) explore how the digital revolution affected the major incumbents in the entertainment industry.

In terms of industries, multiple industries have been analyzed, with the automotive and airline, the fashion and fashion-related, and the tourism and hospitality being the most prolific research settings (Table 1).

Tab. 1: Number of publications per industry

Industry focus	Research context	N. Publications	Studies
Industry 4.0	Global	3	Ralston & Blackhurst, 2020; Dev et al., 2021; Dilyard et al., 2021
Agriculture (including wine) & livestock	Australia, Canada, Italy, New Zealand, USA	4	Golicic et al., 2017; Canello & Vidoli, 2020; Peterson & Crase, 2021; McEwan et al., 2021
Automotive & airline	Germany, Iran, Mexico, USA	6	Kädtler & Sperling, 2002; Gittel et al., 2006; Kaviani et al. 2020; da Silva et al. 2020; Belhadi et al., 2021; Mendoza Velázquez & Rendón Rojas, 2021
Fashion & fashion-related	Brazil, Italy, Pakistan, Spain, Sri Lanka, Portugal	5	Abeysekara et al., 2019; Machado et al., 2019; Bevilacqua et al., 2020; Piprani et al., 2020; Miranda & Roldan , 2022
Medical equipments / health care	Iran, Singapore	2	Low et al., 2017; Jafarnejad et al., 2019
Oil & gas	Iran	2	Bento & Garotti, 2019; Jahangiri et al., 2021
Tourism & hospitality	Thailand, UK, USA	5	Ghaderi et al., 2015; Altshuler & Schimdt, 2021; Bui et al., 2021; Khan et al., 2021; Ntounis et al., 2022
Transportation	India, Indonesia	3	Sharma & George, 2018; Djunaidi et al., 2021; Praharsi et al., 2021
Others (construction, entertainment, ICT, machine tools, general supply chain studies)	New Zealand, Spain, Taiwan, United Arab Emirates	7	Sapeciay et al., 2017; Kumar & Anbanandam, 2019; Guichardaz et al., 2019; Chen et al., 2019; Remko, 2020; Valdaliso, 2020; Sundarakani & Onyia, 2021
Total		**37**	

Source: Authors' elaboration based on ABI/Inform

As far as the institutional contexts are concerned, the majority of contributions have investigated resilience in developing countries (e.g., Ghaderi et al., 2015; Sharma & George, 2018; Abeysekara et al., 2019; Chen et al., 2019; Machado et al., 2019; Piprani et al., 2020). This focus on developing markets suggests that resilience capabilities may vary depending on the context. Indeed, developing markets are typically exposed to greater risks of disruption in view of their political instability, poor infrastructures and underdeveloped capital markets.

From a conceptual point of view, scholars highlight the multidimensional nature of resilience, which has been examined in terms of readiness capabilities, responsive capabilities, and recovery capabilities (Piprani et

al., 2020), dynamic transactional capability (Guichardaz et al., 2019), resistive versus restorative capacity (Sharma & George, 2018), and in terms of proactive versus reactive responses (Belhadi et al., 2021).

In this scenario, various interpretations of resilience are provided, namely the engineering, the ecological, and the evolutionary conceptions. From an engineering point of view, resilience has been regarded as the ability of a system to return to a prior point of stability and bounce back to its performance levels in the face of disruptive events (Kumar & Anbanandam, 2019). For instance, Jahangiri et al. (2021) take an engineering perspective and examine a sample of both state-owned and private companies in the Iran oil and gas industry. Their findings suggest that resilience is positively affected by the level of a firm's safety culture maturity.

In an ecological perspective, the focus is on an entity's tolerable level of disturbance (Ruiz-Martin et al., 2018) and its elasticity in achieving a new state of stability (Burnard and Bhamra, 2011). In their conceptual framework on the oil and gas industry, Bento and Garotti (2021) take an ecological perspective and provide a network-based conceptualization of the resilience displayed in this industry. Specifically, they suggest that networks of interactions represent fundamental tools enabling the recovery of complex systems. Finally, the evolutionary approach regards resilience in terms of ability of a system to reconfigure and reorganize in order to dynamically adapt to external shocks (Linnenluecke, 2017; Low et al., 2017).

In terms of the mechanisms driving industry-level resilience, academics underscore the crucial role played by interdependence (Low et al., 2017): players in an industry contribute to shaping the overall industry's potential for a dynamic adjustment to exogenous shocks. This confirms the co-evolutionary dynamism between organizations and industries (Miranda & Roldan, 2022). In broad terms, when there is a persistence of a crisis, the collective efforts undertaken by the different industrial players, create the conditions for resilience at the industry level (Sharma & George, 2018; Bento & Garotti, 2019; da Silva et al., 2020). Indeed, the strategic moves and interactions among multiple individual organizations translate into constructive reactions against disruptive events at the industry level (Abeysekara et al., 2019; Jafarnejad et al., 2019), thus showing industry-specific patterns (Canello & Vidoli, 2020). Furthermore, evidence is provided that, especially for SMEs, close vertical relationships in the industry supply chain positively affect firms' financial ratios, such as capital turnover. This occurs because networking provides firms with better negotiation opportunities and a potentially more efficient use of slack resources.

Overall, the conceptual frameworks of these studies share two common elements: first, they acknowledge the fundamental role played by the level of vulnerability of a system (Machado et al., 2019; Kaviani et al., 2020; Khan et al., 2021) and, second, they more or less explicitly take a knowledge-

based approach and consider resilience as a dynamic capability that drives a system's renewal and agility (Abeysekara et al., 2019; Jafarnejad et al., 2019). This is also mirrored in the resilience definitions provided by the reviewed papers, as flexibility and adaptation capabilities appear to play a central role in determining industry-level resilience. In particular, while some definitions focus on the industry ability to recover from disruptive events and bounce back to its original state, others include the potentiality to exploit external shocks to move to a better state or even the ability to anticipate disturbancies. Finally, a few studies also include robustness in their conceptualization of resilience (see Table 2).

Tab. 2: Definitions of industry-level resilience

Definition	Studies
Ability bounce back from disruptions and return to their original state after being disturbed, within an acceptable period of time	Belhadiet al., 2021; Mendoza-Velázquez & Rendón-Rojas, 2021; Sundarakani & Onyia, 2021; da Silva et al., 2020; Piprani et al., 2020; Ralston & Blackhurst, 2020; Abeysekara et al., 2019; Chen et al., 2019; Jafarnejad et al., 2019; Machado et al., 2019; Sharme, & George, 2018; Sapeciay et al., 2017,
Capability to withstand, react, adapt, recover and innovate from a disruption back to its original state or to move to a better, new and more enviable state, exploiting the opportunities that disturbance opens up	Miranda & Roldán, 2022; Altshuler & Schmidt, 2021; Dev et al., 2021; Khan et al., 2021; Ntounis et al., 2022; Bevilacqua et al., 2020; Kaviani et al., 2020; Bento & Garotti, 2019; Kumar & Anbanandam, 2019; Golicic et al., 2017; Ghaderi et al., 2015; Gittell et al., 2006.
The ability to to anticipate, prepare for, respond to, change after, and recover from a disturbance	Djunaidi et al., 2021; Canello & Vidoli, 2020; Valdaliso, 2020; Low et al., 2017.
Resilience traslates in robustness and flexibility of the economic system, occurring when facing unexpected external shocks such as an international trade dispute, natural disaster, or a pandemic	McEwan et al., 2021; Praharsi et al., 2021.

Source: Authors' elaboration

Moving to methodological aspects, except from two conceptual papers (Bevilacqua et al., 2020; Altshuler & Schmidt, 2021), the majority of contributions are of empirical nature and rely on heterogeneous methods. In particular, both qualitative (e.g., Kädtler & Sperling, 2002; Chen et al., 2019; Ralston & Blackhurst, 2020; da Silva et al., 2020) and quantitative methodologies have been used. Quantitative studies are particularly variegated in terms of analytical methods employed, including the Delphi method

(Jafarnejad et al., 2019; Kumar & Anbananda, 2019), and the resilience assessment grid (Jahangiri et al., 2021; Djunaidi et al., 2021).

As long as the assessment of resilience as a construct is concerned, literature highlights that its multidimensional and dynamic nature requires the examination of various outcomes at multiple levels (DesJardine et al., 2019; Hillman and Guenter, 2021). Such outcomes have been mainly investigated in qualitative terms (Torstensson & Pal, 2013), for instance by capturing the perceptive dimension of resilience, observed in terms of situation awareness and vulnerabilities management (Seville, 2009), corporate committees, strategic planning, and partnerships (Lee et al., 2013). In contrast, an emergent stream of research takes an objective approach to the measurement of resilience that privileges an outcome-based orientation (Ruiz-Martin et al., 2018). For instance, scholars have examined the recovery of stock prices (Gittell et al., 2006), sales growth (Ortiz-de-Mandojana & Bansal, 2016), internationalization and exports (Sabatino, 2016; Valdaliso, 2020; McEwan et al., 2021; Miranda & Roldan, 2022), along with financial indicators as predictors of a system's vulnerability and recovery ability (Gittel et al., 2006; Belhadi et al., 2021; Sundarakani & Onyia, 2021). In this latter approach, an important role is played by financial ratios, including profitability ratios (Watanabe et al., 2004; de Carvalho et al., 2016), and financial position ratios, such as debt/equity and liquidity ratios (Bistrova et al., 2021). For instance, in examining the supply chain resilience in the automobile and airline industries, Kaviani et al. (2020) build on financial impact analysis, which they further integrate with a time-to-recovery analysis. In this perspective, although comparatively still scarcely investigated, business health is reported to be strongly and positively related to resilience (de Waal, 2008). On this matter, scholars (e.g. Slatter, 1984) maintain that positive financial ratios related to liquidity, solvency and profitability provide an overall signal of resilience. Conversely, firms lacking adequate economic resources show distress conditions during crises and are less able to recover as financial reserves constraints limit their investment capacity (Torstensson & Pal, 2013).

Furthermore, evidence is provided that, especially for SMEs, close relationships with suppliers and customers positively affect firms' financial ratios, such as capital turnover (Torstensson & Pal, 2013). Indeed, networking appears to support companies' financial position and performance – and hence resilience – as it allows them to exploit favourable price negotiations with suppliers and B2B's orders, allowing them to efficiently use slack resources thanks to relational assets that grant higher flexibility (e.g., because of the possibility to refer to different small high-quality suppliers or larger customer bases). Such findings have opened up several research paths for scholars and still offer huge opportunities for deepening our understanding of resilience.

Based on the extant literature showing industry-level resilience patterns (Canello & Vidoli, 2021; Abeysekara et al., 2019) along with the signalling role of resilience played by financial ratios and measurements (Watanabe et al., 2004; de Carvalho et al., 2016; Slatter, 1984), we develop the following research questions:

RQ1: Are there industry-specific resilience patterns in the fashion industry?

RQ2: Do financial ratios allow to detect such patterns?

3. Research setting and sample

The Italian fashion system represents a particularly interesting research setting, as it displays a number of unique characteristics that contribute to its reputation and competitive advantage worldwide. Such unique features include: a) a mutual reinforcing dynamism between the wide array of intangible factors and the "country image" effect associated with Made in Italy (Liefeld, 2004; Cappelli et al., 2017); b) a heterogeneous population of both multinational enterprises (MNEs) and small- and medium-sized enterprises (SMEs) that creates fruitful interdependencies, with the former often outsourcing a significant portion of their production activities (Arcuri, 2021); and c) an industrial organization characterized by densely populated industrial clusters (De Dominicis et al., 2013), which creates a virtuous cycle of local branding (Passeri et al., 2014; Reinach, 2015). Collectively, these characteristics drive the distinctiveness of the Italian fashion industry relative to other national contexts, as testified by prior studies taking a comparative approach between Italy and other countries (e.g., Golicic et al., 2017; Miranda & Roldan, 2022).

The empirical analysis focuses on a panel dataset of 37.052 Italian manufacturing fashion companies. The source used for data collection is AIDA (Analisi Informatizzata delle Aziende Italiane), a comprehensive database of Italian companies developed by *Bureau Van Dijk*.

In terms of data collection, we selected Italian firms recorded as active from 2009 to 2020 and for which financial statements were available, which led to an initial number of 37.055 companies. Three were excluded from the final analyses due to missing data on multiple dimensions. This led to a final dataset of 37.052 firms, grouped into three industry subsectors based on industry codes: ATECO 2007 code 13 identified the textile sector, ATECO 2007 code 14 identified the apparel sector, while ATECO 2007 code 15 identified leather goods (Table 3).

Tab. 3: Sample composition

TEXTILE	
Fabric mills	2.586
Fiber, yarn and thread mills	1.576
Other textile product mills	1.458
Textile and fabric finishing and fabric coating mills	1.647
Textile furnishings mills	1.782
Textile mills	190
Total	9.239
APPAREL	
Apparel knitting mills	3.251
Cut and sew apparel manufacturing	14.119
Total	17.370
LEATHER	
Footwear manufacturing	5.803
Leather and hide tanning and finishing	2.311
Other leather and allied product manufacturing	2.332
Total	**10.446**

Source: Authors' elaboration

As regards the geographic distribution, Lombardy, Tuscany, and Veneto represent a triad that hosts the majority of Italian fashion clusters (Arcuri, 2021). Additionally, firms are concentrated in the most densely populated areas of the country, with Milan keeping a top position in both the textile and the apparel segments thanks to its strong specialization in industrial design and service-oriented creative industries (Bertacchini & Borrione, 2013). This spatial organization of industrial activities is fully consistent with studies suggesting that while concentration in large urban areas has increased flexible specialization and vertical disintegration, the traditional agglomeration in small municipalities represents a distinctive feature of the Italian creative industries including fashion (Scott, 2006; Bertacchini & Borrione, 2013).

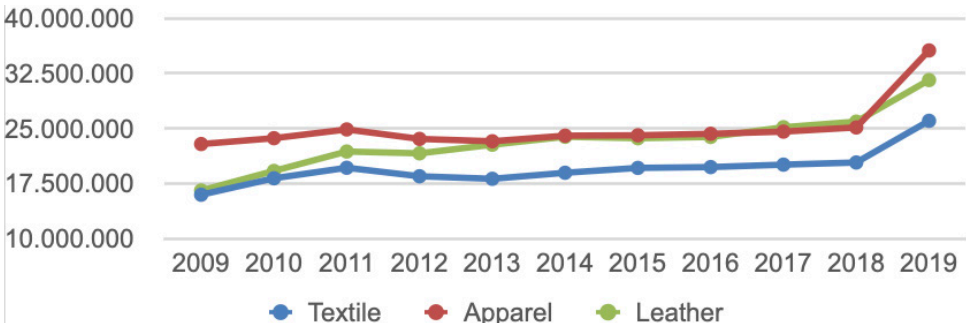
To answer our research questions, we followed prior studies (Hillman and Guenter, 2021; Ruiz-Martin et al., 2018) and calculated various financial data and financial ratios including revenues, Ebitda, and profitability (ROE ROA, ROS), liquidity and solvency (quick ratio, debt-to-equity, cost of debt).

4 Findings

4.1. Resilience in response to the global financial crisis

In the aftermath of the 2008 global financial crisis, revenues have shown a continuous upward trend, reaching an average value of 6 million euros in 2019 and a 68% ten-year combined average growth rate. As shown in Figure 1, the branch that has grown the most is leather, followed by textile, and apparel.

Fig.1: Comparative overview of the 2009-2019 revenues (N=37.052)



Source: Authors' elaboration

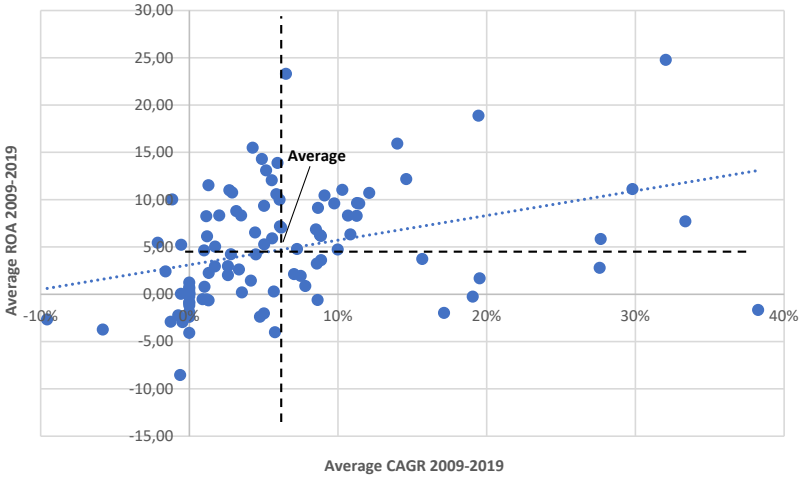
At the overall industry level, such a positive trend has more than compensated the increase in operating expenses (up to 39% from 2009 to 2019), with a net growth in profitability. Accordingly, the aggregate average values of ROA and ROS have increased over the decade (+14 and +33 percentage points, respectively). However, consistently with the Italian macroeconomic scenario, this pattern was reversed in 2019 following the rise in operating expenses (average value of 5.5 million euros in 2019), especially those related to employees' salaries (CNDCEC, 2020). Nevertheless, it has to be noted that ROA and ROS still show positive, albeit lower, aggregate average values for 2019 (4.42% and 4.63% respectively). Concerning the financial position, the aggregate average debt/equity ratio has improved but remained below 1 over the decade, which signals firms' low indebtedness and ability to meet both short- and long-term obligations. This is further testified by the steady increase in the quick ratio, equal to 1.41 in 2019 and by the decline in the cost of debt (2019 average value of 1.31%), mainly driven by the reduction in interest expenses (-28% relative to 2009).

In terms of sub-industry breakdown, a continuous growth in both revenues and profitability during the decade has been shown in particular by the leather segment, with a peak at the end of the period (with ROE grown

by +10 percentage points in 2018-2019). Examining the liquidity and the financial position across the three sub-industries, the picture is heterogeneous, with the textile providing the strongest contribution to the overall quick ratio (+103% over the decade) and the lowest on the debt/equity ratio enhancement (-13%).

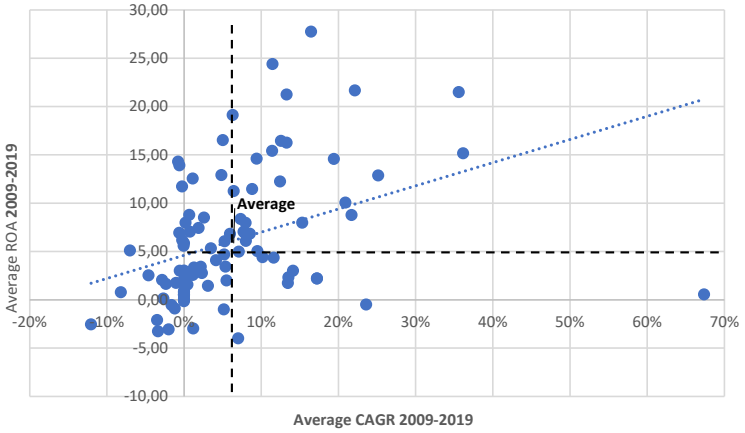
In terms of growth, we separately examined the three sub-industries looking at the relationship between the cumulative average growth rates (CAGR) and the ROA of the 100 largest players in each sub-industry (Figures 2-4 on the textile, apparel, and leather sub-industry respectively).

Fig. 2: Relationship CAGR-ROA of the largest players in the textile sub-industry (N=100)



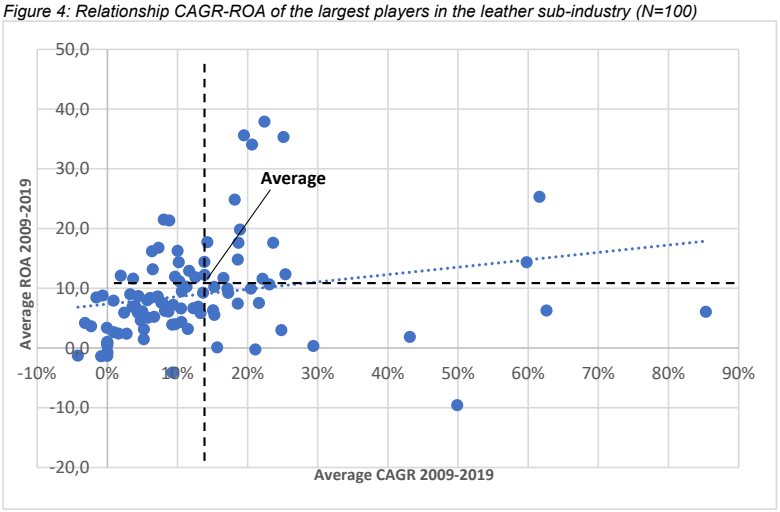
Source: Authors' elaboration

Fig. 3: Relationship CAGR-ROA of the largest players in the apparel sub-industry (N=100)



Source: Authors' elaboration

Fig. 4: Relationship CAGR-ROA of the largest players in the leather sub-industry (N=100)



Source: Authors' elaboration

The three scatter plots provide very similar trends in the CAGR-ROA relationship, mostly displaying a weak uphill (positive) linear association. Respectively, total average values are: 6% CAGR and 4.76% average ROA in the textile; 6% CAGR and 6.09% average ROA in the apparel; and 13% CAGR and 8.95% average ROA in the leather sub-industry. Although the sets of points mostly cluster together, it is worth noticing that there are several virtuous cases displaying both high growth rates and high profitability. Also, the three scatter plots display the presence of outliers, in particular corresponding to companies with high CAGR but a negative/low ROA, which is more common in the leather segment, thus suggesting that these companies might have over-invested in assets.

In this scenario, the analysis of the top-five competitors in each sub-industry suggests that they provide only a moderate contribution to the overall profitability levels, thus demonstrating the fragmented nature of the industry as a whole (13.1% of sales volume in the apparel sub-industry, 12.5% in the leather, and only 4.2% in the textile).The profitability ratios of the top five players in each sub-industry are actually in line with the overall fashion industry trends, although the decline in profitability margins and ratios has emerged earlier in both the leather and the apparel firms (a drop in Ebitda respectively of 34.1% 2016 and of 21.1% in 2015). In terms of financial position, the top competitors have deviated from the overall industry trend, as they have experienced a greater increase in the

debt/equity ratio, which was partly compensated by their ability to cover interest expenses. These data indicate that larger companies have actually provided a comparatively marginal contribution to the overall profitability and solvency at the industry level and that a prevailing role in shaping the industry patterns of resilience has been played by SMEs.

Overall, these data provide evidence of the resilience of Italian fashion companies (Table 4).

Tab. 4: Percentage variation of financial data and financial ratios – 2009/2019

	Total Revenues	Tangible Fixed Assets	Intangible Fixed Assets	Quick Ratio	Debt/ Equity Ratio	Cost of Debt	ROS	ROA	ROE
Industry	68.27%	23.63%	41.88%	55.94%	-54.46%	-19.24%	33.36%	13.53%	163.13%
Textile	62.98%	18.31%	52.43%	102.51%	-12.92%	-34.18%	28.44%	51.63%	151.64%
Apparel	55.68%	25-66%	42.64%	91.90%	-19.86%	-3.23%	39.36%	13.53%	204.68%
Leather	90.78%	63.62%	7.85%	80.66%	-32.59%	-18.94%	28.63%	9.83%	70.91%

Source: Authors' elaboration

Moreover, the aggregate average difference between the ROE and debt/equity ratios (4.53) shows that fashion firms have also had to possibility to benefit form the financial leverage. Indeed, both tangible and intangible fixed assets have significantly grown in the aftermath of the 2008 global financial crisis.

4.2 Resilience in response to the Covid-19 pandemic

The outbreak of the Covid-19 pandemic has dramatically affected the macroeconomic conditions and the environments for doing business on a global scale, requiring companies to be strategically agile and to quickly enact reconfiguration processes. In the specific context of the fashion industry, the health emergency has had an immediate and dramatic impact on the global production networks, with furloughed workers, fashion weeks canceled, stores closed, and increasing unsold inventory.

Table 5 displays percentage changes in the 2019-2020 period. The analysis of profitability ratios and financial indicators clearly demonstrates the disastrous impact of the Covid-19 outbreak, as testified by a general organizational downsizing (19% decrease in employees) and a significant downturn in profitability. For what concerns solvency aspects, both the quick and the debt-to-equity ratio have declined from 2019 to 2020, as demonstrated by their average value (1.31 and 0.75, respectively), which falls within an acceptable range, as confirmed by the drop of the cost of debt ratio (overall, down 36.9 percentage points, with an aggregate average value of 0.83). This circumstance indicates that fashion firms have been capable to access finan-

cial reserves needed to cope with unexpected events, this being a key mechanism to develop resilience and to adapt to new scenarios (Gittel et al., 2006).

Tab. 5: Percentage variation of Financial data and financial ratios – 2019/2020

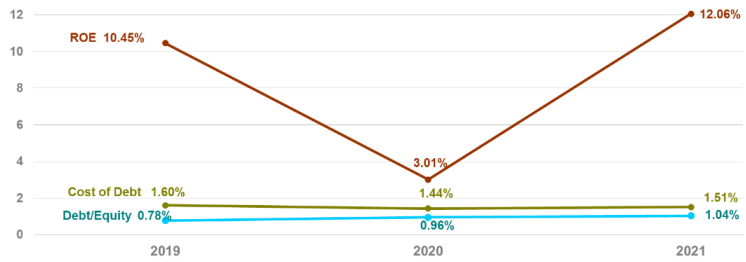
	Total Revenues	Tangible Fixe Assets	Intangible Fixed Assets	Quick Ratio	Debt/ Equity Ratio	Cost of Debt	ROS	ROA	ROE
Industry	-33.02%	19.46%	150.42%	-11.20%	-16.09%	-36.91%	-85.09%	-118,55%	-77.15%
Textile	-26.54%	21.62%	61.61%	-5.26%	-43.32%	-76.21%	-78.53%	-81,97%	-71.83%
Apparel	-28.27%	18.03%	182.10%	-16.88%	-10.18%	-12.68%	-92.06%	-213,26%	-77.37%
Leather	-40.82%	10.56%	50.44%	-9.29%	-5.46%	-11.18%	-82.39%	-102.73%	-79,76%

Source: Authors' elaboration

Looking at sub-industry data, the leather segment has been hit harder if compared to both the textile and the apparel segments (respectively, -27% and -28% in revenues), which has been further exacerbated by an increase in operating expenses (Ebitda reduced by 63% in 2019). This downtrend is also confirmed by profitability ratios: the overall drop in the ROS ratio (2020 aggregate average value 0.5) is mostly driven by apparel companies, thus suggesting that the increase in operating expenses has more than compensated the decrease in revenues. Similar results can be observed for both the leather and textile segments. Besides, 2020 average ROA ratio (-0.58%), may also signal an increase in companies' investment activities. Even in this case, the trend is mainly driven by apparel and leather firms, while the textile segment had the lower impact on the industry profitability.

Similarly to the period after the global financial crisis, fashion industry companies have had the potential to exploit their financial leverage to face the Covid-19 pandemic, given the positive difference between ROE and cost of debt ratios (average value 2.40), as well as enough financial reserves to support the increase in investments during 2020, with intangible fixed assets +150%, and tangible fixed assets +20% relative to 2019 (Figure 5).

Fig. 5: Trends in ROE, Cost of Debt and Debt/Equity Ratio 2019-2021



Source: Authors' elaboration

Preliminary data on 2021 are indicating patterns of short-term recovery that are very similar to those that emerged in the aftermath of the 2008 global financial crisis (Table 6), again supporting our research questions.

Tab. 6: Percentage variation of Financial data and financial ratios – 2020/2021

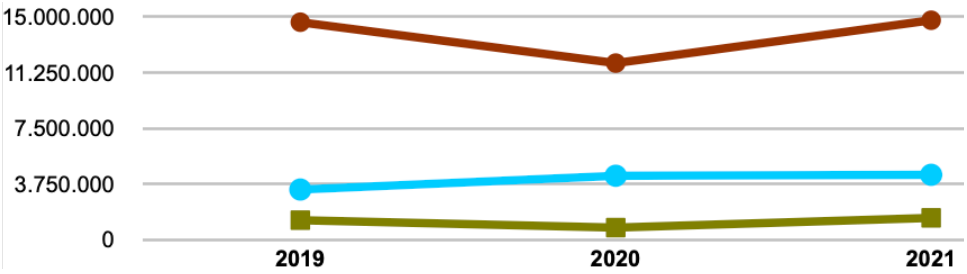
	Total Revenues	Fixed Tangible Assets	Fixed Intangible Assets	Quick Ratio	Debt/ Equity Ratio	Cost Of Debt	ROS	ROA	ROE
Industry	24.29%	0.84%	3.55%	0.32%	8.39%	5.35%	486.11%	272.06%	299.53%
Textile	28.37%	1.44%	1.97%	-1.41%	-6.51%	0.05%	1035.74%	661.57%	841.70%
Apparel	18.72%	1.02%	5.83%	2.58%	7.14%	3.84%	336.33%	109.44%	192.87%
Leather	25.88%	-0.50%	-1.28%	-0.70%	29.36%	13.14%	427.88%	119.43%	284.83%

Source: Authors' elaboration

The majority of financial data has increased in 2021, in most cases restored to or even exceeding 2019 levels. Along with the growth of employees (+3.18% on 2019), total revenues have significantly increased, even though modestly below 2019 (-1.8%). Accordingly, profitability shows a positive trend, as testified by improved profitability ratios vis-à-vis 2019, with the textile showing the most remarkable growth.

Focusing on financial indicators, while the quick ratio shows a positive trend (2021 average value of 1.75), the debt/equity ratio has worsened during the three-year period with a 2021 average value of 1.12 in 2021 (+35% relative to 2019), potentially because of the increase in investments (Figure 6).

Fig. 6: Trends in Revenues, EBITDA and Investments 2019-2021



Source: Authors' elaboration

Interestingly, when looking at the top-five players, 2020 aggregate figures are almost in line with or even below the ones displayed at the sub-industry levels. Furthermore, top-five companies' 2021 data are averagely even worse, thus confirming that SMEs have provided the most significant contribution to the overall restorative capability of the industry. Such a

finding is also fully consistent with the pre-pandemic situation.

Overall, these results not only signal the ability of the Italian fashion industry to promptly recover from disruptive events in the short term, but also suggest an established pattern in terms of recovery time and recovery dynamics, and the ability of financial ratios to signal this ability, consistently with our research questions.

To further confirm our analysis, we also collected data on fashion firms survival and found that the industry had a low bankruptcy rate from 2020 to 2022 (2,39%), which is even below the pre-pandemic period. Additionally, to rule out potential recovery capabilities driven by government subsidies, we checked the 2021 preliminary income statements and found that contributions, although increased by 60% in 2020 and 47% in 2021, have amounted to only 0,48% of total revenues in 2020 and 0,69% in 2021. This suggests that public subsidies may have had only a limited role in sustaining firms' operating and investment activities and thus further testifies the overall resilience capabilities of Italian fashion firms.

5. Discussion and implications

Our findings indicate that the Italian fashion industry is characterized by a resilience pattern, as trends in financial figures and ratios after the major shocks occurred in the last decades, i.e. the 2008 global financial crisis and the 2020 Sars-CoV-2 outbreak, reveal a certain similarity. The fashion industry has displayed a significant and immediate decrease in profitability. Simultaneously, however, firms have had the opportunity to use their financial reserves and leverage to increase their investment activities. This, in turn, has had important implications in terms of subsequent increase in total revenues, which has more than outweighed the concurrent growth of operating expenses, thus leading to an overall increase in the operating margins. In addition, the relatively low number of bankruptcies both after the global financial crisis and the Covid-19 pandemic provides further support to our results. The liquidity and solidity levels in the pre-crisis phases have created a buffer of resources that have helped fashion firms to quickly react to unexpected external events and overcome the crises. At the same time, these firms have been able to allocate those exceeding financial resources to investments that have proved to be both internally consistent and fully respondent to the market evolution – as testified by the quick time-to-recovery of total revenues. Such a combination suggests that fashion firms were well aware of market expectations and had a sort of "crisis strategy".

Our study thus supports evidence of the importance of financial resources to grant flexibility as a key avenue to realize resilience (Gittel et

al., 2006). However, our study also suggests that the effectiveness of various crisis responses may be driven by industry specificities, thus further contributing to underscoring the importance of analyzing the contextual contingencies of resilience.

Our results indicate that the recovery process after both the 2008 financial crisis and the Covid-19 pandemic has occurred through an increase in the investment activity. Indeed, while the global financial crisis elicited fashion companies' internationalization in terms of expansion towards non-European destinations (e.g., Runfola and Guercini, 2013), the outbreak of the Sars-CoV-2 triggered investments in sustainability (e.g., Golicic et al., 2017; Brydges et al., 2020; Pencarelli et al., 2020; D'Adamo and Lupi, 2021) and digitalization (e.g., Dilyard et al., 2021; Miceli et al., 2021). This also provides evidence of the responsiveness ability and readiness of Italian fashion firms in terms of willingness to revise and recraft their business models according to market trends and recovery strategies.

Our study thus identifies a pattern of response where investments and the financial leverage are key pillars for the firm's survival and profitability, that in turn increase liquidity and capital turnover and allow for financial reserves creation.

Although it has been reported that opportunities to benefit from the recent pandemic have been especially great for large and multinational companies (Dilyard et al., 2021), our analysis suggests that the Italian fashion top players have actually provided only a marginal contribution to the overall industry resilience. This underscores the substantive role of SMEs not only as a distinctive feature of the Italian fashion system (Runfola and Guercini, 2013) and holders of an internationally recognized competitive advantage (Tavoletti, 2011), but also and especially as a driver of industry recovery.

In sum, the Italian fashion industry has displayed a virtuous cycle as the activation of resilient responses has been catalyzed by the overall financial health rather than the mere financial resources available to firms. Our findings on the role of SMEs as drivers of the industry-level resilience of fashion also confirm prior studies suggesting that fashion SMEs in Italy are able to maintain and foster the overall competitive advantage in this industry (Tavoletti, 2011).

This exploratory analysis provides a number of contributions to extant literature along with practical implications for both managers and policy-makers.

From a theoretical standpoint, we join the ongoing academic debate on industry-level resilience and take an outcome-based approach focused on financial ratios. We therefore offer a contribution to the emerging discourse on the role played by financial measurements as a tool to capture firm resilient responses. In doing so, we also provide evidence of how various performance areas are affected by external shocks. Furthermore, while extant literature has typically used financial analyses to assess resilience at

the firm-level, we extend this approach to the industry level. By doing so, we underscore the systemic nature of firms' different performance areas and the importance of examining multiple financial performance indicators when assessing resilience at the industry-level. Indeed, the analysis of different indicators provides a more comprehensive knowledge of the particular dynamics driving resilience in a given industry. Finally, while a number of studies have focused on specific fashion industry sub-sectors (Abeysekara et al., 2019; Machado et al., 2019; Piprani et al., 2020; Miranda & Roldan, 2022), we offer a more comprehensive and transversal analysis that captures both general industry patterns and sub-industry specificities in a comparative lens. Also, this represents the first study that applies an outcome-based, accounting perspective to the assessment of resilience in the Italian fashion system.

As long as managerial implications are concerned, companies in the fashion industry should be aware of the signalling role of financial ratios and of the consequent importance of keeping them attentively monitored, in light of the fundamental function of investments as a way out from crises. Accordingly, crisis strategies should aim both to asset reallocation to satisfy a new demand in the short-term (Brydges et al., 2020), as testified by the demand for masks and sanitizers in the recent pandemic, and to a more long-term business model innovation, where the traditional fashion paradigms are reshaped (Priyono et al., 2021).

Furthermore, firms should further commit to the establishment and reinforcement of network relationships in order to exploit their positive effect as intensifiers of a firm's financial health and industry resilience (Gittel et al., 2006). In turn, this also provides evidence of a reverse and potentially positive effect at the industry level deriving from firms' responses to systemic shocks. For instance, even before the pandemic, cultural and socio-economic trends had started to challenge traditional mass production paradigms, raising the need to develop innovative business models having sustainability at their core (Todeschini et al., 2017). However, the possibility to mobilize sustainable fashion had been traditionally hindered by various obstacles, including the lack of transparency in the global supply chain (Henninger et al., 2016). In this sense, the pandemic has to some extent accelerated a more intense shift towards sustainability practices, thus creating a positive reverse spillover effect on the industry.

From a policy-making perspective, when public policies and subventions are needed to support the changes required by exogenous shocks at a systemic level, an assessment could be made of the industry-specific ability to profitably allocate financial resources. In light of the ability of fashion companies to profitably allocate financial resources, public policies are needed to support the changes required by exogenous shocks at a systemic level. In this regard, based on the EU Green Deal, the Italian government has issued the so-called PNRR (National Recovery and Resilience Plan)

which, among other things, specifically focuses on various segments of the fashion industry. Thus, given the importat role played by investments as a path towards the general recovery at the industry level, policy makers should be aware of the need to include specific supporting mechanisms to this industry.

6. Concluding remarks

The fashion industry represents a key domain for exploring the resilience of Italian SMEs as it is a mature, highly competitive, and globalized market characterized by short life cycles, high demand volatility, and high impulse purchasing (Taplin, 2006; Bhardwaj & Fairhurst, 2010; Adam e al., 2018).

Broadly, this study contributes to the ongoing academic conversations on industry-level resilience and provides an in-depth and original lens that uses financial analysis to assess the overall resilience patterns of the Italian fashion system. From a methodological point of view, our results show that the use of financial measurements and ratios to appraise organizational resilience can be extended to industry-level resilience. At the same time, our findings confirm previous studies that state the existence of industry-specific resilience patterns (Canello & Vidoli, 2020), thus reinforcing the idea of industry specificities in terms of firms' collective ability to respond to external shocks, which could potentially be driven by network relationships.

Furthermore, Italian fashion firms' reliance on investment activities to face disruption shows consistency with the definitions provided on resilience at the industry level as firms have demonstrated to be able not only to exploit new opportunities, but also to anticipate and promptly respond to new trends arising from the market.

Last, the crucial role of SMEs needs to be stressed, as evidence interestingly indicates their main contribution to the Italian fashion industry resilience and competitiveness.

Our study is not without limitations, which however may offer interesting avenues for future research. First, we follow the tradition of studies on industry-level resilience and focus on a specific industry. While this approach provides an in-depth analysis of the peculiarities associated with the resilient responses in a specific industrial setting, it would be interesting to extend this kind of analysis based on financial indicators to other industries, in order to identify potential industry-specific patterns in terms of recovery time and performance areas involved.

Future research could also examine the role played by sustainability and digitalization on Italian SMEs in terms of ad-hoc strategic planning and inter-organizational relationships. Moreover, as the Italian fashion industry is characterized by strongly interlinked firms mostly localized in industrial

districts, intriguing contributions may derive from examining resilient responses at cluster level. Indeed, although the geographic organization of activities has long attracted academic interest, especially in the Italian creative industries including fashion (Bertacchini & Borrione, 2013), territorial systems are increasingly driving the development of new paradigms in the formation and sustainment of competitive processes (Passeri et al., 2014).

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