



The Influence of Entrepreneurial Orientation on Supply Chain Resilience: Evidence from the Small and Medium Sized Enterprises

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ABSTRACT

The increasing supply chains disruptions globally often leave many businesses and SMEs vulnerable. The question is whether entrepreneurial orientation of SMEs will make them more resilient to supply chain disruptions. With limited research on the relationship between entrepreneurial orientation and SMEs' supply chain resilience (SCR) this study seeks to extend our knowledge in that respect. Grounded on the resource-based view and dynamic capabilities theory, this study examined the influence of entrepreneurial orientation on the supply chain resilience of SMEs. Five constructs of entrepreneurial orientation were adapted from literature. A cross-sectional study was employed wherein an online questionnaire was used to collect data from a sample of 173 SMEs owners/or managers. Structural equation modelling (SEM) with partial least square (PLS) technique was used to test the hypothesised model. The overall findings point towards the significant influence of EO on the SCR of SMEs as evidenced by the significant positive effect of innovativeness, risk-taking, pro-activeness and competitive aggressiveness, and autonomy dimensions of entrepreneurial orientation. These results imply that it is critical that SMEs adopt an intentional entrepreneurial oriented management philosophy which can be fostered in several ways including the promotion of a flexible organizational culture that promotes and rewards innovativeness among SME employees, and collaborative efforts between SME owners/managers and policy makers on risk management awareness and competitive aggressiveness literacy and training campaigns.

Keywords: Small and Medium Sized Enterprises, Entrepreneurial Orientation, Supply Chain Resilience, Innovativeness, Risk-Taking, Pro-Activeness

JEL Classifications: M13, O43, L22

1. INTRODUCTION

Through its ability to recognise, leverage and profitably transform opportunities into reality, entrepreneurship continues to be catalyst for personal, organisational and national economic growth (Rahaman et al., 2021). The World Bank (2023) estimates, small and medium sized enterprises (SMEs) represent about 90% of businesses and more than 50% of employment worldwide with formal SMEs contributing some 40% of national income (GDP) in emerging economies. With the increasing disruption of the global business operating environment and the uncertainty surrounding it, SMEs have become especially vulnerable to supply

chain disruptions (Al-Hakimi and Borade, 2020; Gligor et al., 2019). Some of the current and recent supply chain disruptions include the Covid-19 pandemic, trade wars, terrorism, the Russia-Ukraine war – all of which affect operations and often result in operating and financial damage. How SMEs fared in the face of such supply chain disruptions has been a matter of interest for academics and practitioners. As a result, a few studies in supply chain resilience and how SMEs in general manage withstand disruptions were conducted (Munongo and Poee, 2022; Parast and Shekarian, 2019). Supply chain resilience (SCR) is essential for entrepreneurial crisis management as it aids SMEs to adapt to change overtime while incorporating a sense of creativity and

innovativeness (Ratten, 2020). In this regard, Sturm et al. (2023) concur that entrepreneurial activities not only foster competitive advantage but also complement supply chain resilience in the face of sudden disruptions. Earlier on, Antoncic (2007) observed that entrepreneurially orientated SMEs tend to have increased profits, growth, more open communication, are able to swiftly adapt in dynamic operating environments by being innovative and proactive.

Entrepreneurial orientation (EO) offers many benefits to SMEs especially when it comes to innovation (Cortes et al., 2021; Al-Hakimi and Borade, 2020; Al-Ramahi et al., 2024). Franco and Haase (2013) found that EO is critical for the adoption of entrepreneurial activities for responding to market changes. Also, the proactiveness in developing new business opportunities and taking on risk places SMEs in a better position entrepreneurially than their competitors who display little or no proactiveness (Purnomo et al., 2019; Stambaugh et al., 2017). Other studies revealed that EO enables firms to aptly respond and adapt to supply chain disruptions and uncertainty in the business environment through creating opportunities and allocating resources to invest them in order to survive (Boohene, 2018), drive new product development (Aloulou, 2019), innovate and thrive profitability (Allameh and Khalilakbar, 2018). Recently, there has been a rise in the literature highlighting the importance of SCR within the context of SMEs especially in developing countries (Omuruyi and Makaleng, 2022; Didonet and Diaz-Villavicencio, 2020). Some studies point to a positive relationship between SCR and SME performance, competitive advantage and entrepreneurial competencies (Singh et al., 2020; Ivanov and Dolgui, 2020). In addition, Golan et al. (2020) established that SCR facilitates SME recovery from the adverse effects of unanticipated interruptions and helps to acclimatise to uncertain future events.

Empirical research investigating the relationship between EO and SCR is still at the embryonic stage (Cortes et al., 2021; Al-Hakimi and Borade, 2020; Didonet and Diaz-Villavicencio, 2020). More recent studies on EO have predominantly focused on its impact on organisational performance (Achmadi, 2022; Susanto et al., 2023). Furthermore, prior studies which investigated the EO-SCR relationship focused on the specific dimensions of the EO construct such as innovation (Gölgeci and Ponomarov, 2013), competitive aggressiveness (Tamunosiki-Amadi et al., 2019), or pro-activeness (Coleman and Adim, 2019). A study by Al-Hakimi and Borade (2020) investigated the impact of EO on SCR for SMEs in Yemen – considered as the poorest country in the Middle East and North Africa (MENA) region, endured years of conflict and civil war which collapse the economy, accelerated inflation and stopped exports (OECD, 2023). However, in the face of recent and current supply chain disruptions such as the Covid-19 pandemic, global trade wars and the Russia-Ukraine war there is a need to explore how EO can influence SCR among SMEs. The present study focused on Zimbabwe, which although having an excellent human capital, comparable to that of upper-middle-income economies in Sub-Saharan Africa, continues to experience persistent inflation and high dependence on low-productivity agriculture and high food prices (World Bank, 2023). Thus, while there are similarities between Yemen and Zimbabwe, there are also notable differences

socio-economically - which makes for an interesting study in extending the knowledge of the relationship between EO and SCR for SMEs in depressed economies. Also while the study in Yemen focused on the manufacturing SMEs only, the present study also included SMEs operating in the services industry.

Hence, this study investigated the influence of EO and SCR for SMEs in Zimbabwe, using a multi-dimensional approach of Lumpkin and Dess (1996) expressed in all the five EO dimensions of innovativeness, risk-taking, pro-activeness, autonomy, and competitive aggressiveness. To that end, this paper is structured as follows. First, we present the literature review. Thereafter, we develop the hypotheses and proposed research conceptual model, which is followed by a description of the methodology and an analysis of the data. Next we present a discussion of the results and their implications. The paper concludes with the limitations and areas for further research.

2. LITERATURE REVIEW

2.1. Entrepreneurial Orientation

While research on the topic of (EO) continually evolves, there is no uniformity in the conceptualisation of the term (Davis, 2007). Covin and Slevin (1989) view describe (EO) as strategic postures of firms that are entrepreneurial. One of the first researchers, Miller (1983, p. 771) explains that “an entrepreneurial firm is one that engages in product market innovation, undertakes somewhat risky ventures and is first to come up with “proactive” innovations, beating competitors to the punch.” Morris and Paul (1987) define an entrepreneurial firm as one whose decision-making norms underscore proactive, innovative strategies and some element of risk. Lumpkin and Dess (1996) extended the above three variables of innovativeness, pro-activeness and risk-taking to provide a more detailed scope of EO. They submitted that EO refers to “the processes, practices, and decision-making activities that lead to new entry” as characterised by one, or more of the following dimensions: “a propensity to act autonomously, a willingness to innovate and take-risks, and a tendency to be aggressive toward competitors and proactive relative to marketplace opportunities.” Other subsequent studies describe EO as the conservative concept that can determine the entrepreneurship of SMEs (Aloulou, 2019), micro-enterprises (Schachtebeck et al., 2018), and family-owned firms (Sung and Park, 2018). Hence, it is clear that no matter how one looks at it, EO is essential for an SME to exploit the various dynamics that permeate its operating environment.

2.2. Supply Chain Resilience

Supply chain resilience is the supply chain’s ability to deal with the results of unavoidable risks and disruptions in order to return to its original situation, or move to a better state (Christopher and Peck, 2004). From another perspective, Briano et al. (2009) are of the view that resilience involves “regeneration,” premised on the belief that resilience not only includes recovery and return to a previous state, but may also yet be a transition to a better state. On the other hand, Ponomarov and Holcomb (2009, p. 131), define SCR as “the adaptive capability of the supply chain to prepare for unexpected events, responds to disruptions, and recover from them by maintaining continuity of operations at the desired level

of connectedness and control over structure and function.” While the above definitions point to an organization’s resistance to supply chain disruptions and ability to regenerate, Melnyk et al. (2014, p. 2) emphasize that supply chain “resilience happens by design and not by accident.” They posit that SCR involves two critical aspects: The capacity for resistance and the capacity for recovery, wherein resistance entails the supply chain’s ability to delay a disruption and reduce the impact once the disruption happens. On the other hand, recovery, refers to the supply chain’s ability to pull through a disruption.

2.3. Theoretical Grounding

Grounded on the resource based view (RBV) and dynamic capabilities theory (DCT), EO can be viewed as a potent means for SME to build supply chain resilience. The RBV coined by Barney (1991) recognises the resources that facilitate competitive advantage, which in turn facilitates SCR. Such organizational resources are simultaneously valuable, rare, imperfectly imitable and non-substitutable, (Bowman and Ambrosini, 2003; Barney and Clark, 2007). Furthermore, the theory submits that an organization will realise a competitive advantage only when it is able to take advantage of its distinct resources and capabilities in adapting to changes in the business environment (Feng et al., 2017). Grant (1991) distinguished firm resources from capabilities: resources are the basis for developing a firm’s capabilities, whereas capabilities represent the key sources of competitive advantage, and reflect the firm’s competence to deploy resources in ways that correspond to the turbulent market environment (Barreto, 2010; Teece et al., 1997). According to the RBV, EO is hence considered as a strategic resource that offers firms the core competencies (Barney, 1991). In other words, EO is hence viewed as a valuable strategic organizational resource capable of advancing SCR if it effectively enables an SME to take on worthwhile risky ventures through pro-activeness and is continuous innovativeness. Premised on this view, studies (Al-Hakimi and Borade, 2020; Mandal and Saravanan, 2019) established that such risk-taking tendencies lead to the development effective risk management strategies, which in turn allows an SME to swiftly respond to supply chain disruptions.

A major shortcoming of the RBV though, its inability to appropriately identify organisational capabilities when dynamic changes happen in uncertain environments, is addressed by the DCT. As an extension of the RBV, the DCT explains how the planned use of organizational resources and capabilities leads to changes in different scenarios (Chowdhury and Quaddus, 2017). In this context, a firm’s ability to merge, build, and redistribute resources using its activities in order to respond to environmental changes and to design effective value-creating strategies is the premise of the DCT (Teece et al., 1997). The expansion of the RBV has led to the concept of “dynamic capabilities,” which reflects a firm’s ability to develop and invest resources and competencies in order to adapt to changing and disruptive business environments (Eisenhardt and Martin, 2000). The DCT contends that in the global market place, successful firms are characterised by timely and flexible responsiveness to market dynamics and rapid product innovation, effective coordination and redeploying internal and external competence (Teece et al., 1997, p. 515). Therefore, the DCT pays attention to an organization’s ability to explore and

invest opportunities, and accordingly, the dynamic capabilities of the firm reflect the EO of management (Adam et al., 2017).

2.4. Hypotheses Development

The present study argues that in an operating environment characterised by uncertainty and supply chain disruptions, an SME’s effective resource planning and utilisation through the RBV helps build its dynamic capabilities such as flexibility, which in turn foster successful long term SCR. Hence, relying on the RBV and DCT, it can be assumed that EO leads to improved SCR of an SME through its five constructs as submitted by Lumpkin and Dess (1996), which are discussed below.

2.5. Pro-Activeness and Supply Chain Resilience

Pro-activeness is a forward-looking and opportunity-seeking perspective which typically involves the introduction of novel products and or services ahead of the competitors and anticipating future demand (Mason et al., 2015) rather than reacting to the market changes afterwards (Frank et al., 2010, p. 180). Teece et al. (1997) view pro-activeness as a dynamic capability that endows an organization to reconstruct its internal and external competencies in line with market dynamics, which could enhance the capability resilience of the firms in facing environment disruptions. Although Tahmasebifard et al. (2017) found that pro-activeness had no effect on resilience, more recent empirical research suggests that a proactive organisation is aptly prepared for changes in its operating market environment (Sturm et al., 2023; Al-Hakimi and Borade, 2020; Eshegheri and Korgba, 2017). Therefore, premised on the above, the following hypothesis is posited:

H₁: Pro-activeness has a significant positive influence on SCR.

2.6. Innovativeness and Supply Chain Resilience

Innovativeness is an inclination to experiment and be creative that leads to new products, services or technological processes (Lumpkin and Dess, 1996). Furthermore, Lumpkin and Dess (1996) in Solikhan and Mohammad (2019, p. 4) underscored that “innovativeness may take place along a continuum from a simple willingness to either try a new product line, or experiment with a new advertising venue, to a passionate commitment to master the latest in new products or technological advances.” Consistent with the RBV theory, it is argued that innovativeness can be viewed as an organization’s valuable and inimitable resource that is translatable into capabilities which in turn can achieve a competitive edge, and ultimately SCR. Studies established that the propensity to innovative has a significant positive relationship with flexibility capabilities, creation and implementation of innovative solutions for responding and adapting to disruptions in its supply chain (Sturm et al., 2023; Eshegheri and Korgba, 2017; Tahmasebifard et al., 2017; Al-Hakimi and Borade, 2020; Gölgeci and Ponomarov, 2013). Accordingly, the following hypothesis is proposed:

H₂: Innovativeness has a significant positive influence on SCR.

2.7. Risk-Taking and Supply Chain Resilience

Risk taking suggests taking bold actions such as by venturing into unknown new markets, committing a large proportion of resources and borrowing heavily in uncertain conditions (Lumpkin and Dess, 2001; Mason et al., 2015). While risk-taking may lead to unknown

results of failure or success, it may signify an opportunity towards success (Al-Dhaafri and Al-Swidi, 2016). On the other hand, Naldi et al. (2007) however caution that the EO dimension does not mean making impulsive decisions, instead, an organisation should possess a reasonable awareness of the risks and most importantly, the ability to manage such. Mason et al. (2015), Al-Hakimi and Borade, (2020) reported that risk-taking and engaging in risky ventures enhances an organisation's supply chain resilience. However, on the other hand, Tahmasebifard et al. (2017) found no connection between risk-taking and the firm's flexibility. Hence, the study proposes the following hypothesis:

H₃: Risk-taking has a significant positive influence on SCR.

2.8. Competitive Aggressiveness and Supply Chain Resilience

Competitive aggressiveness is a firm's proclivity to take competitors head-on at every opportunity to outpace them in the marketplace (Lumpkin and Dess, 1996; Mason et al., 2015). Rahman et al. (2016) observed that since SMEs are more susceptible to competition, they have to be more aggressive towards their competitors in order to survive and adapt to market changes. In an earlier study, Venkatraman (1989) submitted that competitive aggressiveness is accomplished by setting ambitious market share goals and taking bold steps to achieve them, such as price cutting and foregoing profitability. Tamunosiki-Amadi et al. (2019) concluded that firms which pursue competitive aggressiveness tend to be more resilient towards unanticipated market changes, and this in turn improves the resilience of their product mix and ultimately boosts their market position. However, a study in Yemen by Al-Hakimi and Borade (2020) indicated that competitive aggressiveness has no significant effect on SCR. Thus, it is postulated that:

H₄: Competitive aggressiveness has a significant positive influence on SCR.

2.9. Autonomy and Supply Chain Resilience

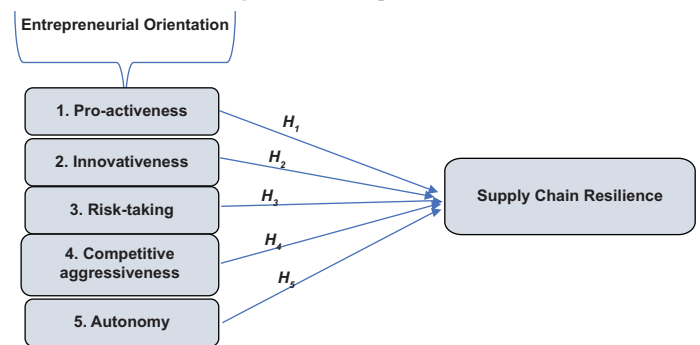
Autonomy is "the ability and will to be self-directed in the pursuit of opportunities." Lumpkin and Dess (1996, p. 140). Felício et al. (2012) view it as an independent action of an individual or group in order to put greater emphasis on a concept or a vision of business and defend it until its completion. An earlier study by Muthusamy et al. (2005) concluded that a high level of autonomy facilitated by self-managed work teams encourages free exchange of information, boosts the learning of novel new ways of problem solving while increasing organisational resilience towards market demand shifts. In affirmation, subsequent research noted that autonomy must exist in decision-making and operational activities for an organization to flexibly respond to market challenges and opportunities (Tahmasebifard et al., 2017). Interestingly, Al-Hakimi and Borade (2020) however established that autonomy had a negative effect on supply chain resilience. Hence, we propose that:

H₅: Autonomy has a significant positive influence on SCR.

2.10. Conceptual Model

Figure 1 illustrates the conceptual model of the study.

Figure 1: Conceptual model



3. METHODOLOGY, RESULTS AND DISCUSSION

3.1. The Data

The exploratory study applied a quantitative research design. To analyse the proposed conceptual model, primary data were collected through a cross-sectional survey using an online questionnaire using Google Forms. The data were collected between 15 November 2022 and 15 January 2023. Consistent with Evans and Mathur (2005), the study utilised the online questionnaire owing to cost effectiveness, flexibility, speed, accuracy, the ability to incorporate a large sample size. While the research population should ideally include all SMEs in Zimbabwe, due to resource constraints, survey respondents were selected through purposive sampling. This is a non-probability type of sampling method wherein strategic choices about whom to understudy are consistent with the research objectives (Palys, 2008). The targeted 200 respondents were SME owners or managers from the two largest cities in Zimbabwe; Harare and Bulawayo, wherein the study's niche sectors are concentrated, and whose business were consistent with the Small and Medium Enterprise Development Corporation (SMEDCO, 2015:3) definition of SMEs in Zimbabwe; that is "a business employing no more than 100 employees and generating a maximum annual revenue of USD830 000." The respondent SMEs were drawn specifically from the manufacturing (furniture, chemicals, food, battery, construction equipment) and service (tourism and transport) sectors.

3.2. Study Variables

The present study examined the effect of entrepreneurial orientation on and SMEs' supply chain resilience. The five EO dimensions investigated in the present study are pro-activeness, innovativeness, risk-taking, autonomy, and competitive aggressiveness. To ensure both validity and reliability, the items used to operationalise the EO (independent) and SCR (dependent) constructs were adapted from closely related literature (Lumpkin and Dess, 1996; Al-Hakimi and Borade, 2020; Saha et al., 2017; Gölgeci and Ponomarov, 2014).

The online questionnaire comprised two sections. Part A focused on the individual respondent's profile and SME characteristics. Thereafter, Part B provided the main information on the EO

constructs their effects on SCR. The questionnaire was validated for content by seeking expert opinions on areas of ambiguity through a pre-test and immediately effecting recommended changes. Thereafter, the corrected questionnaire was piloted on 20 randomly selected respondents who complied with the study's inclusion criteria before final use in the online survey. All the ethical requirements were observed. Informed consent was sought from all the potential respondents. To encourage candidness, we provided assurance and reassurance of confidentiality of responses. The responses are collected using a five-point Likert scale was used for the majority of the questions in Part B, with responses ranging from 1 = "Strongly Disagree" to "Agree" to 5 = "Strongly Agree." A total of 173 responses were obtained from the survey, and after exclusion of incomplete responses, 158 (91%) were usable for analysis in the study.

3.3. Descriptive Statistics

The descriptive statistics of the study are shown in Table 1.

Table 1 indicates that 73.8% (115) of the respondents were SME managers, majority were male (69%), stemmed from the 41 to 45 years' category (29.1%), were from the 41 to 45 years' category while 50.6% (80) had an undergraduate degree. A total of 47 (29.7%) of the SMEs had been operational for 11-15 years, with a total of 104 (65.8%) having between 1 and 10 employees, 41.1% (65) had earned an income of between USD 50 000 and USD 99 999.99 over the past 12 months, with 130 of the SMEs (82.3%) involved in manufacturing (industrial, pharmaceutical, agricultural and mining chemicals) while 28 were from the service provision sector (transport, tourism and hospitality).

4. RESULTS

For data analysis, the study employed the structural equation model (SEM) technique with partial least square (PLS) consistent with Chin et al. (2014) and Sarstedt et al. (2014). The SEM-PLS was also utilised as it is suitable for use in small samples, 173 SMEs in our case, and demonstrates greater statistical supremacy compared to the covariance-based SEM (Reinartz et al., 2009).

4.1. Reliability and Validity

Consistent with (Valerie, 2012), the present study tested the proposed PLS model in two steps. Firstly, a reliability test was undertaken through confirmatory factor analysis (CFA) to measure the internal consistency among the scale items, in addition to testing the construct validity; that is convergent and discriminant validity. Hair et al. (2011) suggest that consistency reliability (CR) and Cronbach's alpha (α) values be >0.70 while the average variance extracted (AVE) must be more than 0.50; all these conditions were duly satisfied as depicted in Table 2 below. After excluding an item whose loading was below 0.70 (AT4 = 0.57), all other items were loaded for a specific construct and indicated thus confirming the validity of the construct. Furthermore, Table 2 indicates good convergent validity for all scale items, as all the CRs values ranged between 0.72 and 0.87 while the Cronbach's alpha values ranged from 0.74 to 0.89. The

Table 1: Descriptive statistics

Category	Frequency	Percentage
Job status		
SME owner	115	73.8
SME manager	43	27.2
Gender		
Male	109	69.0
Female	49	31.0
Age		
18-25 years	7	4.4
26-30 years	9	5.7
31-35 years	23	14.6
36-40 years	41	25.9
41-45 years	46	29.1
46-50 years	25	15.8
51 years+	7	4.4
Education		
Secondary and below	41	26.0
Diploma	26	16.4
Bachelor	80	50.6
Master and above	11	7.0
SME age		
0-5 years	33	21.0
6-10 years	40	25.3
11-15 years	47	29.7
16 years+	38	24.0
Number of employees		
1 to<10	104	65.8
10 to<25	21	13.3
25 to<100	33	20.9
Past annual income (USD)		
0 to<10 000	13	8.2
10 000 to<20 000	22	13.9
20 000 to<50 000	42	26.6
50 000 to<100 000	65	41.1
100 000 to 830 000	11	7.0
Type of business		
Manufacturing: Furniture	84	53.2
Chemicals	27	17.1
Food	10	6.3
Construction and agriculture inputs	9	5.7
Service: Tourism	17	10.7
Transport	11	7.0

AVE values were all within the recommended limits ranging between 0.59 and 0.67.

Secondly we evaluated the R^2 , effect size, and predictive relevance of the model through analysis of the structural model, with bootstrapping used to validate the research hypothesis.

4.2. Discriminant Validity

The widely accepted Fornell and Larcker (1981), discriminant validity was employed to measure the extent to which the latent factors were distinguished. A high correlation between two latent factors suggests that a latent factor is explained better through another factor. Fornell and Larcker (1981) suggest that discriminant validity is achieved if the square root of AVE of all latent factors is greater than the correlation between latent factors. As shown in Table 3, the discriminant validity of the measurement model is high since the values of the square root of AVE for all constructs are larger than the corresponding squared inter-construct correlation value, and the study proceeded to further analysis.

Table 2: Reliability and validity analysis

Scale items	Standard Loading	CR	Cronbach's Alpha	*AVE
Entrepreneurial orientation innovativeness (INV)	-	0.72	0.89	0.67
INV1	0.75	-	-	-
INV2	0.84	-	-	-
INV3	0.73	-	-	-
Risk taking (RT)	-	0.79	0.74	0.59
RT1	0.83	-	-	-
RT2	0.79	-	-	-
RT3	0.65	-	-	-
Pro-activeness (PA)	-	0.81	0.83	0.62
PA1	0.70	-	-	-
PA2	0.81	-	-	-
PA3	0.77	-	-	-
Autonomy (AT)	-	0.74	0.75	0.56
AT1	0.61	-	-	-
AT2	0.68	-	-	-
AT3	0.89	-	-	-
Competitive aggressiveness (CA)	-	0.75	0.83	0.61
CA1	0.83	-	-	-
CA2	0.64	-	-	-
CA3	0.76	-	-	-
Supply Chain resilience (SCR)	-	0.87	0.79	0.64
SCR1	0.63	-	-	-
SCR2	0.79	-	-	-
SCR3	0.88	-	-	-
SCR4	0.65	-	-	-
SCR5	0.79	-	-	-

CR: Composite reliability, *AVE: Average variance extracted

Table 3: Inter-construct correlations and discriminant validity

Variables	INV	RT	PA	AT	CA	SCR
INV	0.86	-	-	-	-	-
RT	0.61	0.81	-	-	-	-
PA	0.58	0.68	0.79	-	-	-
AT	0.47	0.52	0.53	0.73	-	-
CA	0.63	0.41	0.67	0.59	0.82	-
SCR	0.47	0.59	0.42	0.68	0.60	0.89

Matrix diagonals in bold show the square root of average variance extracted (AVE) whilst the others indicate inter-construct correlations

4.3. Goodness of Fit

The goodness of fit illustrates how well the model fits the data. The following are the indications of the goodness-of-fit indices for the study. The Chi-square/degree of freedom (CMIN/df) = 2.483 indicates an acceptable fit since it is <5 (Tabachnick and Fidell, 2012); Goodness-of-fit index (GFI) = 0.941, it must be ≥ 0.90 (Marsh et al., 2020); Comparative fit index (CFI) = 0.927, it must be ≥ 0.90 (Hair et al., 2011); Tucker—Lewis index (TLI) = 0.913 and must should be ≥ 0.90 (Hox et al., 2017); while the root mean residual (RMR) = 0.058; Root mean square error of approximation (RMSEA) = 0.052, both below the 0.08 benchmark as suggested by Hair et al. (2011). Therefore, the above findings suggest good model fit and the study proceeded to hypothesis testing.

4.4. Hypotheses Testing

Table 4 displays the results of the hypotheses. The R^2 value is 0.538, suggesting that 53.8% of the variance in SMEs' SCR can be explained by the antecedents of EO; that is, innovativeness, risk taking, proactiveness and competitive aggressiveness.

To validate the study hypotheses and interpret if the proposed model is appropriate, the coefficient of determination R^2 , which is shown in three forms of predictability; 0.10 = weak; 0.33 = moderate; 0.67 = substantial was computed as suggested by Chin (1998). The study's R^2 outcome of 0.541 indicates that EO accounts for 54.1% of the variance in the SCR, hence falling within the moderate range. This result therefore suggests that in addition to EO, there are other factors that help advance SCR which were excluded in the present study. As shown in Table 4, the results of hypotheses test indicate that there is a positive and significant effect of four EO constructs on SCR; innovativeness, risk-taking, and pro-activeness and competitive aggressiveness. In other words, holding all other variables constant, at the 5% significance level, a unit increase in innovativeness, risk-taking, pro-activeness and competitive aggressiveness results in 0.619, 0.593, 0.681 and 0.227 increase in SCR respectively. On the other hand, the present study found no association between autonomy and SCR.

5. DISCUSSION

Premised on the RBV and DCT, the present study investigated the influence of entrepreneurial orientation on and SMEs' supply chain resilience. The results thereof generally support the positive influence of EO on SCR, hence corroborating earlier findings that (Sturm et al., 2023; Franco and Haase, 2013). Hence, the various constructs of the EO variable can be viewed as valuable, rare, imperfectly imitable and non-substitutable, (Bowman and Ambrosini, 2003; Barney and Clark, 2007), which through planned use can be effectively directed towards exploring and investing opportunities, create organizational dynamic capabilities and

Table 4: Hypotheses and results

Hypothesis	Relationship	β Estimate	Standard Error	t-value	P-value	Result
H1	Innovativeness→SCR	0.619	0.482	4.139	0.000*	Supported
H2	Risk Taking→SCR	0.593	0.390	2.733	0.002*	Supported
H3	Pro-activeness→SCR	0.681	0.418	4.021	0.000*	Supported
H4	Autonomy→SCR	-0.206	0.211	-2.390	0.164*	Rejected
H5	Competitive Aggressiveness→SCR	0.227	0.315	1.471	0.003*	Supported

*Significance at level $P \leq 0.05$

ultimately build SCR (Adam et al., 2017). In terms of the individual constructs of EO, the results of our study point to the significant positive effects of four dominant variables; pro-activeness, innovativeness, risk-taking and competitive aggressiveness. Hence, when SME owners/managers are proactive in searching for and seizing new and niche market opportunities, are bound to innovate, undertake informed risk-taking, and be aggressive in being industry leaders, which builds their organisational resilience and eventually supply chain resilience. Resilience of their firms, thus the resilience of their supply chains.

First, the study's findings are in line with studies suggesting that a proactive organization is aptly prepared for changes in its operating market environment (Sturm et al., 2023; Eshgheheri and Korgba, 2017). This is evidence by local SMEs' stances to abandon the "business as usual approach," and instead, continuously simulate worst-case scenarios arising from supply chain disruptions such as a relapse of the Covid-19 pandemic, global, regional and national economic melt-down, global warming and the Russia-Ukraine war, actively prepare response actions in advance to build SCR. However, the study's results are at odds with Tahmasebifard et al. (2017) whose study concluded that that pro-activeness had no effect on resilience. Second, this study's results affirm earlier results which indicated that the propensity to be innovative is positively associated with flexible capabilities, creativeness and implementation of effective solutions for responding and adapting to supply chain disruptions (Eshgheheri and Korgba, 2017; Tahmasebifard et al., 2017; Gölgeci and Ponomarov, 2013). Respondents indicated that to foster SCR, the current supply chain disruptions had made them realize that they could not always wait to respond to market changes, and instead, were invoked to be creative, for instance, by considering and swiftly experimenting with substitute inputs, revolutionizing production processes through technology adoption, and experimenting with new products and markets.

Third, the outcomes of this research are consistent with Mason et al., (2015), Sturm et al. (2023) and Al-Hakimi and Borade (2020) who established that that engaging in risky ventures enhances a firm's supply chain resilience. This is supported by respondents reporting that they now undertook well-calculated and timed risk-return initiatives such as purchasing raw materials in large quantities, borrowing working loans from financial institutions and price cutting to quickly sell off excess product stocks in a bid to hedge themselves from adverse in supply chain disruption and to advance resilience. Fourth, the present study corroborates Tamunosiki-Amadi et al.'s (2019) study which reported that firms which pursue competitive aggressiveness tend to be more resilient towards unanticipated market changes, and in turn enhance their

resilience and market position. The presence of cut-throat/intensive competition for the diminishing market share given the current national economic challenges, which have been exacerbated by Covid-19, global trade wars, climate change had leapfrogged respondents to undertake aggressive marketing and at times price-cutting campaigns to be market leaders and foster SCR. However, the SME managers/owners further indicated that owing to resource-poverty, they often times cannot afford to undertake full-scale competitive aggressiveness campaigns as ideally desired. However, this study's findings dispute Al-Hakimi and Borade's (2020) study in Yemen which suggest that competitive aggressiveness had no significant influence on SCR. In addition, similar to Al-Hakimi and Borade (2020) while contrasting Tahmasebifard et al. (2017), the present study established no relationship between autonomy and SCR. This therefore suggests that currently, local SME owners/managers do not subscribe to the idea of self-managed work teams or their business operations, instead, they opt for hierarchical decision-making.

6. CONCLUSION

The present study investigated the influence of entrepreneurial orientation on SME supply chain resilience. It responds to calls by extant studies for more empirical research on the EO-SCR linkage which presently is still at its embryonic stage. In this study, specific attention was paid to the EO and SME-SCR nexus from an African SMEs' outlook, which to date is almost non-existent. Moreover, we sought a comprehensive analysis of the effects of the following five constructs of EO on manufacturing SMEs' SCR; pro-activeness, innovativeness, risk-taking, autonomy, competitive aggressiveness. This study contributes towards theoretical and empirical literature on the EO-SCR relationship. The overall findings point towards the critical impact of EO has an on the SCR of SMEs in developing countries as evidenced by the significant positive effect of innovativeness, risk-taking, pro-activeness and competitive aggressiveness dimensions on the SCR of SMEs. This outcome edifies literature on EO and SCR by showing that based on both the RBV and DCT, EO is a source of critical organizational resources which enable an SME to respond to market disruptions and in turn, foster its SCR.

This study makes several practical implications that are beneficial to SME owners/managers and policy makers. The critical need is for SMEs to quickly adopt an intentional entrepreneurial oriented management philosophy since results and extant literature have shown that an EO is beneficial in improving the SCR of SMEs in the face of disruptions. Organisational EO can be fostered in several ways, one of which is the promotion of a flexible organizational culture that promotes and rewards

innovativeness among SME employees, is pro-active, which in turn enables organizations to identify and seize new opportunities while building SCR. In addition, there is need for coordinated efforts between SMEs and relevant policy makers and or government ministries to undertake risk management awareness and competitive aggressiveness (marketing, pricing, production efficiency through technology) literacy and training campaigns. This would improve current risk-taking propensities especially among the risk-averse, and encourage the SMEs owners/managers to seek out new opportunities with reasonable risks, enabling the organizations to respond and adapt to supply chains disturbances. However, it is important that the risk management campaigns be long-term in nature if a higher-risk taking culture is to be instilled among the SMEs' supply chains.

6.1. Limitations and Areas for Further Study

Like other related prior studies, the current study had some limitations. First, the R^2 outcome of 0.541 indicated that EO explained 54.1% of the variance in the SCR, therefore indicating that in addition to EO, there are additional factors that help advance SCR which were excluded in the present study. It is therefore recommended that future research incorporates moderating factors such as absorptive capacity and the operational age of SME businesses. Second, the study applied the convenience sampling method to select the respondents from the two largest cities in Zimbabwe, thereby making the study's results not generalisable. Forthcoming studies could employ stratified random sampling to ensure equal representativeness of respondents from across the country. Third, due to resource constraints, our study was limited to a short timeframe wherein data was collected from a cross-sectional perspective which overlooks the long-term effects of EO on SCR. Thus, we recommend a longitudinal approach in future research to allow for the measurement of the EO-SCR nexus changes overtime. Lastly, other economic sectors could be considered together with inter-country differences, hence the need to expand the sample size by undertaking a panel study which involves several developing economies to improve generalisability and enable comparison analysis.

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